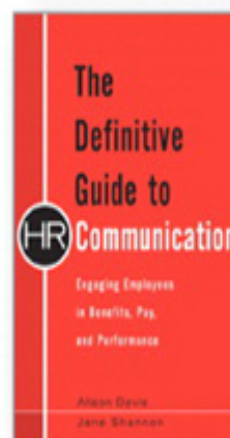
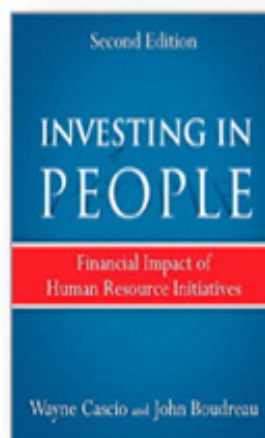
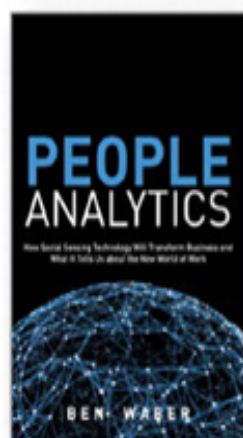
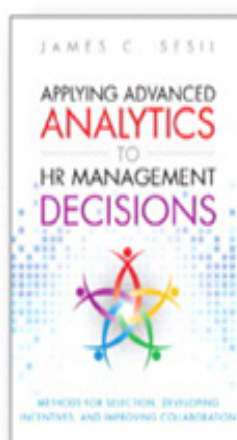
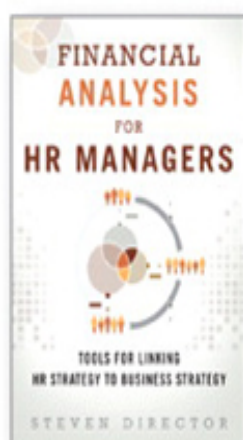


## COLLECTIONS

# THE DEFINITIVE GUIDE TO HR MANAGEMENT TOOLS



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# **The Definitive Guide to HR Management Tools (Collection)**

**Alison Davis**

**Jane Shannon**

**Wayne Cascio**

**John Boudreau**

**James C. Sesil**

**Ben Waber**

**Bashker D. Biswas**

**Steven Director**



**Vice President, Publisher:** Tim Moore

**Associate Publisher and Director of Marketing:**

Amy Neidlinger

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For more information, please contact us at  
[info@ftpress.com](mailto:info@ftpress.com)

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# **The Definitive Guide to HR Communication**

***Engaging Employees in Benefits, Pay, and  
Performance***

**Alison Davis and Jane Shannon**

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Senior Compositor: Gloria Schurick  
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## **Praise for *The Definitive Guide to HR Communication***

“Davis and Shannon make a compelling case for the value of simple, straightforward, and effective HR communication—and provide valuable insight on how to make it happen in even the most complex organizations.”

—**Kevin Kelly**, 30+ years internal communications veteran

“*The Definitive Guide to HR Communication* is a terrific resource for HR professionals. The examples and illustrations reflect actual issues and challenges we face and are a good reminder of how easily we can disconnect with our audience. The tips, tools, and guidelines are clear and effective in demonstrating alternative approaches to generating employee interest and understanding. I enjoyed reading it, found it very helpful, and have already begun using some of the suggested methods.”

—**Diane F. Green**, Director of Staffing and Development, Hollingsworth & Vose Company

“Don’t be misled by the title of this book. It doesn’t matter if you work in HR communications or not, you can learn from this well-written guide. In fact, even if you’re not particularly interested in communications, you’ll benefit from it . . . the book is *that* good.

“Here’s why: The authors use a combination of stories, solid writing, checklists, and examples to lead even the greenest communicator through the steps of communicating to an audience. Even if you’ve been in the communications business as long as I have (more than 30 years!), you can still learn—or relearn—a thing

or two. The book is organized so you can find what you need and use what you find.

“The authors freely borrow from the best, including communications guru Don Ranly. And, one of their great ideas is to ‘Go Hollywood.’ This is a technique to distill your message into a bite-sized chunk for today’s busy workers. I tried it. It works. And, with a name like ‘Go Hollywood,’ the technique also is memorable.

“That’s just one of the easy-to-implement techniques in this book. There are many. I was just a few pages in when I found something solid I could use at work . . . right now. I continued to read, marked up the pages, turned down the corners, and went back to the book again and again.

“Invest in this book. Your boss will wonder how you got so smart overnight!”

—**Becky Healy**, Agency Communications Manager, State Farm Insurance, and 2010-2011 President, Council of Communication Management

“This book truly is a definitive guide to increasing employee engagement by helping people understand and appreciate their pay and benefits. Davis and Shannon’s book should be invaluable to a range of business professionals: 1) From students who are learning the basics of employee engagement and talent management, to 2) HR and communication professionals who design and explain pay and benefits to employees, to 3) Managers and executives who sign off on people management strategies

“The book is built on the premise that great benefits must be understood and appreciated if they are to be of real value. Davis and Shannon’s book is all about helping organizations of every size get the most ‘bang’ for the

expensive bucks they shell out on total rewards. The book starts with an analysis of how employees read and listen (or don't) and progresses through an analysis of what it takes to communicate effectively, including developing strategies, messaging, and media.

“Davis and Shannon follow their own advice. Their prose is straightforward and makes it easy for the reader to pay attention. Their examples are meaningful and come from real companies that have struggled with HR communication; the authors explain how some have failed and others have succeeded brilliantly. Their advice is thoughtful and reflects years of practical experience designing and producing awardwinning HR communications. There are no two communicators who know more about this subject than Davis and Shannon—who better to write the definitive guide?”

—**Kate Nelson**, Faculty, Fox School of Business,  
Temple University

“Alison and Jane have put together a must-have resource for any Human Resources leader or professional who is involved with preparing company-wide communication events, or for those who coach those who put on these kinds of events. Written in a clear, easy-to-read format, you will find practical steps, real life examples, and realistic suggestions that, if followed, will dramatically improve the success of your communication events. Take the time to digest this book, follow the advice, and you will see measurable improvement in an area that has been difficult to get right for many organizations. Well done, Alison and Jane.”

—**William G. Bliss**, President, Bliss & Associates Inc.,  
and author, *Advisory Services to Cultivate Exceptional Leadership*

*To my wonderful family, especially my husband and kids (and their significant others). You make me laugh and make all the hard work worthwhile.*

*—Alison Davis*

*To my son Lindsay, my daughter-in-law Joanne, and my grandsons Nolan and Dempsey Shannon. I love you guys!*

*—Jane Shannon*



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First, thank you to my parents, Evelyn  
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—Jane Shannon

## About the Authors

### Alison Davis

For the past 25 years, Alison Davis has been CEO of Davis & Company ([www.davisandco.com](http://www.davisandco.com)). This firm has helped such companies as BNY Mellon, Georgia-Pacific, IKEA, Johnson & Johnson, MasterCard, and Merck reach, engage, and motivate their employees.

Davis is coauthor of *Your Attention, Please* (Adams Business, 2006) and a weekly web log, “Insights,” at [www.davisandco.com/blog](http://www.davisandco.com/blog). She frequently writes articles for leading business, communication, and HR publications and is a former online columnist for *The New York Times*.

Davis is a sought-after speaker on a variety of communication topics and issues. She speaks at 10 to 15 conferences a year for such organizations as the Society of Human Resources Management, the International Association of Business Communicators, The Conference Board, and The Arthur Page Society.

A former president of the Council of Communication Management, she is a member of that organization as well as the International Association of Business Communicators and the Public Relations Society of America.

Davis has a bachelor’s degree in English from Rutgers University.

### Jane Shannon

For much of her career, Jane Shannon served as vice president of human resources communication at

Citibank, New York, NY. She then worked as a senior communication consultant at Davis & Company and as a principal in the communication practice of William M. Mercer, Inc. She is currently an independent consultant ([www.janeshannon.com](http://www.janeshannon.com)). Her clients have included companies as diverse as Texaco, Barnes & Noble, Bank of America, Toys “R” Us, and United Distillers & Vintners.

Shannon is author of *73 Ways to Improve Your Employee Communication Program* (Davis & Company, 2002), which consistently ranks at the top of Amazon’s search term “employee communication.” She has spoken at many communication conferences hosted by the Council of Communication Management and the International Association of Business Communicators.

Shannon is a member and former board member of CCM and is a former member of the IABC, where she earned local, regional, and international awards. Her work has been recognized with awards from the American Institute for Graphic Arts, the New York Art Directors, and the Philadelphia Art Directors. Her work also has been featured in *Graphis* and *Communication Arts*.

Shannon earned a bachelor of journalism, majoring in advertising, at the University of Missouri-Columbia, where she recently returned to teach as part of the journalism school’s Visiting Professor Program.

## Introduction

### **EFFECTIVE HR COMMUNICATION: HOW TO GET EMPLOYEES TO PAY ATTENTION, UNDERSTAND WHAT'S CHANGING, AND TAKE ACTION**

Your company makes a big investment in designing benefits, pay, and policies to attract and retain the best employees. That's why it's so frustrating when employees don't understand their benefits—or worse, don't appreciate what's available to them.

Employee confusion about key HR issues is all too common. In fact, most employees report that they are dissatisfied with communication about benefits and programs. For example, a 2007 Prudential study<sup>1</sup> found that only 35% of employees rate benefits communication as “highly effective.”

And there's a direct correlation between how well employees understand their benefits, pay, and policies and how much they value and use their benefits. So poor communication leads to low usage, and low usage leads to poor perception. For example, only 44% of employees in a 2009 MetLife study<sup>2</sup> reported being satisfied with their benefits.

This is obviously a problem. First, workers who aren't knowledgeable can't make smart decisions or take appropriate action. Second, the less they know about pay and benefits, the less satisfied they are. The MetLife study discovered that 70% of employees who have a strong understanding are happy with those benefits, but when understanding is low, only 7% are satisfied.

What causes employee confusion? A big factor is **poor communication**. Most HR departments generate a steady flow of communication, but employees don't find it effective. In fact, only 33% of employees in the MetLife study strongly believed that current communications educated them effectively. What's even more surprising is that only 36% of *employers* think communication effectively educates workers.

### **“HELP!” CRY HR MANAGERS**

HR managers know that communication is a big challenge. We've spent the past couple of years traveling around the country, talking with HR managers about communication issues. Here's what they tell us:

- “We have so much information to get out to employees regarding benefits and other HR-related services. We use e-mail, desk drop, posters, an intranet site, and mailings to homes. People don't have time to read it! Then they call with big issues.”
- “My biggest challenge is reaching employees who work out of town; they don't receive their mail for long periods of time and don't use computers.”
- “I struggle to boil things down to a level everyone can understand.”
- “It's so difficult to get the message across to people who won't read it. It's about benefits and they complain that it's too complicated. ‘Just tell me what to do,’ they say.”
- “I want to engage more employees in learning more about their benefits and attending annual open enrollment sessions. How do I increase participation in info sessions?”

- “How can I provide benefit information or instructions to a group of employees who vary widely in their level of understanding?”
- “It’s hard getting people to understand, not just listen—to get and keep their interest.”
- “I find that employees don’t read the materials. The information is too technical.”
- “I find myself answering the same benefit questions over and over. Aargh!”

### **WHY DON’T EMPLOYEES PAY ATTENTION?**

In a way, confusion about HR programs is surprising: Since employees care deeply about these issues, you’d think they’d work hard to understand them. For example, in the MetLife study, employees say the most important factors affecting their loyalty to the company are

- Salary/wages (83% of employees agreed)
- Health benefits (75%)
- Retirement benefits (72%)

In fact, these priorities rank higher than advancement opportunities (57%) and company culture (50%).

In the past, employees would pay attention to any HR communication that came their way. Even if the communication was long, dense, and difficult to understand—for instance, a Summary Plan Description—employees would do the heavy lifting to make sense of it.

But times have changed. Benefits, pay, and retirement programs are more complex than ever before. And employees today simply don’t have the time to hack their

way through a thicket of information—even when the topic matters to them. They’re quick to press the Delete key or file a message for future consideration or simply let it fall to the bottom of the pile. They wait until a deadline is looming—or until an issue is so urgent that it can’t be ignored—before they read the message.

A number of factors can cause a breakdown in communication:

- **Information overload.** Workers are overwhelmed. For instance, the research firm Basex<sup>3</sup> estimates that 28%—more than one-fourth—of an average knowledge worker’s day is taken up by managing unnecessary e-mail and instant messages. Another firm, RescueTime, calculates that a worker who sits at a computer all day turns to his e-mail program more than 50 times and uses instant messaging 77 times.
- **Complexity.** HR information used to be simple. There was one healthcare plan, one company-paid retirement program, and a few job-related policies. But today choices abound. Complexity is the order of the day. It’s no wonder that 55% of U.S. healthcare plan members don’t fully understand critical details about their insurance coverage, according to a 2008 study by J.D. Power and Associates.<sup>4</sup>
- **Employee attitudes.** In a business environment where layoffs occur often, it’s no surprise that employees don’t have the same sense of loyalty and connection to their companies as they used to. So they view any “corporate communication” not with enthusiasm, but with caution at best or skepticism and distrust at worst.
- **HR’s reputation.** In many companies, employees have had negative experiences with HR—and with HR communication. For example, in focus groups we’ve



conducted, we've heard employees give feedback like this:

- “HR doesn’t respect my time.”
- “HR communication includes way too much jargon.”
- “HR isn’t interested in me; it’s all about pleasing senior management and cutting costs.”
- “Here comes another takeaway.”

## **WHAT’S WRONG WITH THIS PICTURE?**

Created (or at least approved) by subject-matter experts, HR communication often offers technical information in a dense and thorny presentation—a veritable maze of information. And when it’s vetted by lawyers, you’ll find caveats and disclaimers that create another barrier to understanding.

Perhaps even worse, most communication seems designed to appeal to management by using language and tone more suited to the corner office than to the cubicles where most employees work. As a result, employees tell us that too often they find communication confusing, inconvenient, irrelevant, and just plain annoying. They also say they’re unclear about what action to take and how to get their questions answered.

## **A FRESH APPROACH**

It doesn’t have to be this way. We’ve discovered that communication can meet all its obligations (to lawyers, the government, and company management) while appealing to employees. From decades of experience, we’ve developed a communication approach that interests employees, persuades them of the value of a program or policy, and helps them decide on the course of action that is best for them (and their company).

Our approach is simple: **treat employees as customers** of HR benefits and services. We use the same strategies, tools, and care your company uses to sell your products or services to your customers. We learn all we can about employees (age, years of service, education, job family, location, salary, and more), and we learn from employees themselves how, when, where, and from whom they like to receive information. We determine the specific information that employees need and when they need it. Then we package the information for them in ways that make it easy for them to understand and make good decisions in a timely way.

Here's an example of what we mean:

BEFORE	AFTER
Here's what the client wrote:	Here's our edit:
In line with our company's increasing decentralization, enhanced processes and tools to support mobility are expected to increase staffing flexibility and improve opportunities for career growth. These enhancements include identifying staff members who are ready for mobility, providing greater transparency on opportunities and options for mobility and offering improved benefits for temporary assignments.	<b>Helping you build your career</b> We're helping you build your career—while we're helping the company meet customer needs—with new ways to work, including temporary assignments, that will <ul style="list-style-type: none"><li>• Identify when you're ready to move into a new job</li><li>• Communicate clearly and quickly your opportunities and options when you relocate</li><li>• Provide improved benefits when you take a temporary assignment</li></ul>

When what you write (see BEFORE) sits there like a block of gray granite, it's hard to read, whether it's on the screen or in print. When the language isn't conversational—doesn't talk directly to the reader—it's harder to figure out “what it means to me” as the reader.

Effective HR communication, on the other hand, makes information accessible, easy to understand, and useful.

As a result, employees know what they can expect from the company, and they know what the company expects of them.

When you create effective HR communication, you

- Help employees take advantage of all the benefits and programs the company offers
- Make it easy for employees to understand and use benefits and programs effectively
- Answer most of the questions employees have about company benefits, programs, and policies

## **HOW THIS BOOK CAN HELP**

This book shows you how to communicate differently and more effectively. Even if you're already doing a great job, we can help you improve.

First, we provide practical tips on how to take communication from boring to compelling. Then we give you advice on how to communicate in these common situations:

- Recruiting
- Orientation
- Policies
- Benefits
- Compensation
- Performance Management

- Saving for Retirement
- Leaving the Company

Along the way, we do the following:

- Supply evidence that will impress senior managers and convince them that you need to change your approach to engage employees successfully.
- Provide an approach that you can use every time you craft a brochure, web page, electronic newsletter, or even a brief e-mail.
- Give specific techniques for how to communicate in a more accessible way, including breaking your points into digestible chunks; signaling what is ahead in your text (with packaging devices such as subheads); and giving your audience all kinds of other tools—such as charts, checklists, and captions—that allow skimming and scanning.
- Show examples of good communication (and explain why it works) and bad (and offer advice on how to make it much better).
- Practice what we preach by demonstrating our strategies and techniques throughout the book.

We also bring in examples from real companies to make the business case that demonstrates how to communicate more effectively. As a result, you'll learn how to

- Communicate faster, more efficiently, and more effectively.
- Help employees take advantage of all the benefits the company offers.

- Make it easy for employees to understand and use benefits effectively.
- Answer most of the questions employees have.

## **DOING IT RIGHT MEANS A BETTER BOTTOM LINE**

What's in it for your company if you read this book and follow the advice presented here?

The bottom line is simply this: **Good HR communication helps contribute to employee productivity, which in turn boosts your company's profitability.** There's a good reason to turn the page.

# Part I. Taking a New Approach

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## 1. Know Your Employees

*In this chapter, you learn*

- *Why it's important to know your "employee audience"*
- *What demographics can reveal about employees*
- *How to learn more through focus groups and other qualitative research*

If you were to enroll in a college course on marketing, the very first rule you'd learn is this: "Know your audience." That's because the most effective way to reach people—and to motivate them to take action—is to understand who they are and what they need.

This may sound basic, but assessing employees is a step that's often skipped in HR communication. We plunge into creating communication without thinking about the people we're creating it for. Even worse, we assume that employees are just like us, taking for granted that the ways *we* like communicating will work equally well for employees in a variety of jobs, geographies, and functions.

Like many assumptions, this one is dangerous. It leads to these kinds of communication mistakes:

- Using terms such as "competencies" and "salary structure" that make perfect sense to HR experts but that mean nothing to employees.

- Telling the entire history of how a program was developed, when employees just want to know what's changed and what they need to do about it.
- Failing to make connections or put topics in context. You know that “compensation” consists of different elements such as base pay, bonuses, and stock options, but employees may not understand that the individual pieces add up to something called “compensation.”

*“People only understand things in terms of their experience, which means that you must get within their experience.”*

—Saul D. Alinsky, *Rules for Radicals: A Pragmatic Primer for Realistic Radicals*

How can you make sure you truly know your employee audience? We recommend that you start by analyzing your **employee demographics** and then conducting **qualitative research**—such as focus groups—to explore communication needs and preferences. This chapter shows you how.

## WHAT DEMOGRAPHICS CAN REVEAL ABOUT EMPLOYEES

Back when we started our careers (a long, long time ago), the subject of demographics rarely came up, mostly because there was very little to talk about. After all, the employees at most U.S. companies were mostly homogenous: mostly male, mostly white, mostly all from the same region, with similar backgrounds, accents, values, and aspirations.

Obviously, the workforce has changed. For example, in the United States, the newest generation entering the employment market, the Millennials (born between 1980 and 2000), represents a much more diverse group than the previous two generations. Some 40% of Millennials are black, Latino, or Asian, compared with a total of 25%



in both of the previous two generations (Generation X and the baby boomers).

This is just one reason why it's become so crucial to conduct an analysis of your workforce demographics periodically.

### **dem-o-graph-ics**

The characteristics of human populations and population segments, especially when used to identify consumer markets: *The demographics of the Southwest indicate a growing population of older consumers.*

—Houghton Mifflin dictionary

## **WHAT YOU CAN LEARN FROM DEMOGRAPHICS**

Demographics offer a way to distinguish and describe characteristics of a population to determine what sets that segment apart. Although not a foolproof predictor, demographics are so valuable that it's surprising that HR professionals don't always have employee information at their fingertips. Everyone typically knows how many employees work at their company, but you also need to know other important facts about your employees:

### **Key employee demographics:**

- **Where** are your employees located?
- What is the average length of **employee service**?
- How are your employees divided in terms of **age**? **Male/female ratio**? **Ethnic mix**? **Educational level**?
- What is the median **salary** for all employees? What are the salary ranges for different job families, businesses, and locations?

- How many employees fall into each **pay/job grade** or **job/functional category**?
- Which primary **languages** do your employees speak?  
For what percentage of your employee audience is English a second language?
- How many employees support **dependents**? On average, how many dependents do they have?
- How many employees have **computers** at work, easy access to the company intranet, and e-mail accounts?
- Can employees take time at work to **attend meetings about HR programs**, services, and products? Do meetings need to be held before or after work or at lunchtime? Do employees need to be paid overtime to attend these meetings?
- What percentage of your employee population belongs to a **union**? How many unions are represented at your workplace?
- How many employees are also **customers** of your company? How many are also shareholders in your company?

Your employee demographics will give you valuable insights into almost every aspect of communication, especially the following:

- **What** to communicate (content) and what examples will resonate with your audience.
- **How** to communicate (for example, print, electronic, or face-to-face).
- **When** and **where** to communicate.

For example, your company's medical plan enrollments will show you what percentage of your population has children. This is important to know when you're communicating about many topics, such as medical benefits, life insurance, savings, time off, and flexible work arrangements. Understanding how many employees have families also helps you know when to communicate. For example, meetings before or after work may be difficult for some employees to attend.

*"Demographics explain about two-thirds of everything."*

—David K. Foot, professor of economics at the University of Toronto and author of *Boom, Bust & Echo: Profiting from the Demographic Shift in the 21st Century*

#### LEARNING FROM KEY FACTS

Here's an example of how a demographic analysis can create insights about how to make communication more effective. (This is based on an actual company, but some of the facts have been changed to protect confidential information.)

At a global healthcare company, the Benefits and Compensation group asked the Payroll department to provide a demographic report (which in this company was called a "headcount report") on employees.

Here is what Payroll provided:

Global employees	25,164
U.S. employees	13,043
Exempt U.S.	9,133
Exempt non-U.S.	7,782
Nonexempt U.S.	3,910
Nonexempt non-U.S.	4,339
Employees in corporate	322
Division 1	1,550
Division 2	1,716
Division 3	21,576
U.S. employees earning less than \$70,000	7,229

This data is hardly exhaustive, but the Benefits and Compensation manager still learned a few things from these demographics:

- Nearly half the employees work outside the United States. That means it's likely that a portion of these employees speak English as a second language (or don't speak English at all); therefore, communication needs to be simple, and some messages may need to be translated.
- A small percentage of employees (1.2%) work in corporate headquarters. There's often an inclination to design communication to appeal to internal clients at corporate (including senior management), but doing so may mean it doesn't meet the needs of the majority of employees.
- Since Division 3 is disproportionately large, it may get the lion's share of attention. But the communication needs of employees in the other two divisions must be considered as well.
- There's a bit of interesting information about income (55% of U.S. employees earn less than \$70,000), which may be useful in thinking about communicating compensation and certain benefits. It may be even more helpful to obtain a more comprehensive breakdown of income levels, if Payroll has the data available.

## FOUR KEY DEMOGRAPHICS TO EXPLORE

Are you ready to take a closer look at your company's employee demographics? Since most of us have limited time and budgets, we can't consider every detail. But you should think about four critical categories: geography, years of service, age, and salary.

### ***Geography***

Even in this age where electronic communication breaks down boundaries, geography still matters. Where a person lives and works rates as an important part of his or her identity.

#### **Gather the following demographic data on geography:**

- Your organization's geographic scope: Pinpoint all the locations on a map of the country or the globe, and see how your organization is distributed.
- The number of employees who work at headquarters and other major locations.
- Remote locations: how many employees work at small facilities.
- Field employees (such as sales representatives), work-from-home employees, and client-located employees.

### ***Years of Service***

How long employees stay with an organization has both practical and cultural implications. A stable employee population has a long memory, which can be a positive (strong company heritage) or a negative (still seething over something that happened years ago). By contrast, if turnover is high, employees need to ramp up quickly on procedures and culture, and this information needs to be refreshed frequently.

#### **Gather the following demographic data on tenure:**

Length of Service	Percentage of Employees
Less than 1 year	
1 to 3 years	
3+ to 10 years	
10+ to 20 years	
20+ years	

#### THE 401(K) CHALLENGE

A potential client once asked us for recommendations on how the company (a warehouse-type retail operation) could get higher participation in its 401(k) savings plan.

After asking a few questions about employee demographics, we learned that most of the company's employees were young, received minimum wage, and didn't stay with the company for the required one year of service needed to be able to participate in the 401(k) plan.

With demographics like that, it would take a lot more than a memorable communications campaign to boost participation numbers. Automatic enrollment at date of hire (plus some kind of company match) could raise the percentage of participating employees—but to what avail if most were leaving before a single year of employment?

This is also a great example of a "communication challenge" that actually is a problem that communications probably can't fix. Before launching into any new programs to increase 401(k) participation, this company needs to find out why employees are leaving before completing a year of service, and what, if anything, the company can do to reverse this trend.

## Age

Here's a demographic term for you: "generational cohort." This is "the aggregation of individuals who experience the same event within the same time interval." Sociologists and marketers use terms such as "baby boomers" and "Gen Xers" to describe groups of people bound together by broad shared experience.

This is important for two reasons:

1. Our attitudes are informed by how old we are and by the generation in which we grew up, including the movies we saw, the music we listened to, and the world events we witnessed.

**2.** How people experience communication continues to be influenced by age.

For example, many baby boomers who remember where they were when President Kennedy was shot vividly recall all those workdays before computers and e-mail (the days of the printed memo). Many still aren't completely comfortable with the latest in technology. Workers younger than 40 grew up using technology, and most master new channels with ease.

**Gather the following demographic data on age:**

Birth Years	Generational Cohort
Before 1945	Seniors (also known as the Greatest Generation and the Silent Generation)
1946 to 1964	Baby boomers
1965 to 1980	Generation X
1980 to 2000	Millennials

### ***Salary***

Along with geography, age, and years of service, salary also ranks as an important demographic, especially when you're communicating about any financially based plans, such as savings plans, retirement plans, or stock purchase plans.

You'll want to show examples of how these plans would work for people earning at various salary levels. It's a good rule of thumb to show examples beginning with a number less than the low end of your company's salary ranges and then include numbers that can easily be multiplied for your top earners. There's no need to reinforce pay differences between lower-level workers and executives. You should show how everyone, no matter what his or her salary is, can participate in savings and other financial plans.

**Gather the following demographic data on salary:**

- Percentage of workers paid by the hour. Depending on your company, you may have different levels of hourly workers. For example, retail employees are often paid near minimum wage, so their pay is much lower than experienced hourly workers at a unionized manufacturing plant.
- Percentage of exempt salaried workers.
- Employees in various nonexempt bands, from new hires to executives.

A DETAILED PROFILE

At a telecommunications company, we worked with HR and employee communication teams to develop a comprehensive analysis of employee demographics by division. Here's an overview of the data:

Division	Consumer	Business	Network
Number of Employees	3,100	1,500	8,600
Geography	18 locations 65% of employees are in OH, MI, MN	23 locations 70% of employees are in KS, NE, MN	19 locations 47% of employees are in OH and MN
Jobs/Levels	15% exempt 75% nonexempt 10% union 67% in customer-facing jobs	53% exempt 47% nonexempt 72% in customer-facing jobs	20% exempt 17% nonexempt 63% union 61% in customer-facing jobs
Average Age	37	44	49
Average Length of Service	7 years	12 years	22 years
Gender	58% male, 42% female	36% male, 64% female	79% male, 21% female



Since this data is more complete, it offers a number of insights:

- Employees in the Network division are older, have the longest length of service in the company, belong to a union, and are predominantly male. These guys are likely to prefer print communication over electronic channels.
- The Business division is a different story: It is mostly exempt employees, and mostly female. These employees use a computer every day for work but may have limited time while on the job to pay attention to HR communication, since they're interacting with customers.
- In all three divisions, in fact, the majority of employees are customer-facing. This limits the amount of time they can spend on communication.
- Geography is a factor: Employees are spread out across many different locations throughout the Midwest. That makes face-to-face communication challenging, but it can be worth the investment if the issues are important enough.

## USE FOCUS GROUPS TO EXPLORE NEEDS AND PREFERENCES

As you can tell, we're big fans of demographics, agreeing with David Foot that they explain "two-thirds of everything." But to really get inside the minds of employees, you need to go further and talk to them. The best way to do so is to conduct focus groups.

Why focus groups? This proven research method—widely practiced by marketers, scientists, and other professionals since the 1920s—can help you do the following:

- Explore an issue.
- Test a concept.
- Follow up on the launch of a program to see how well it was understood or received.
- Find out why employees answered a survey in a certain way.

Focus groups are a form of qualitative research that explores an issue in depth, allowing people to express their opinions and engage in dialog. Unlike quantitative research (such as surveys), qualitative research does not

provide statistical data. Yet qualitative research is considered a scientifically valid tool that yields valuable insights into what people perceive and believe.

In addition to focus groups, types of qualitative research include one-on-one interviews (often used when the topic is personal or sensitive, or when it's logistically difficult to bring people together) and user testing (observing a person while he or she completes a task, such as visiting a website or completing a form).

Focus groups are ideal when you need to explore a topic in an open-ended way, since you can dive deeper and ask follow-up questions. If you need to ask, "Why is this true?" or "What does this mean?", focus groups are the right research method.

Although focus groups can seem deceptively simple to manage—"All you need to do is gather employees in a conference room and start talking, right?"—experts know that this research method is more complicated than meets the eye. That's why HR professionals often turn to research firms or external moderators to assist with focus group studies.

### ***Guidelines for Conducting Focus Groups***

If you decide to manage your own focus groups, several good books provide how-to information:

*The Focus Group Kit* by David L. Morgan and Richard A. Krueger (Sage Publications, 1997)

*How to Conduct Employee Focus Groups* by Joe DeLuccia, Kimberly Gavagan, and David Pitre (Davis & Company, 2009)

*Moderating Focus Groups: A Practical Guide for Group Facilitation* by Dr. Thomas L. Greenbaum (Sage Publications, 1999)

We can't give you a complete recipe for conducting focus groups. But we believe three factors will help you plan a focus group study: set objectives, develop a discussion guide, and choose participants.

#### *Set Objectives*

Your first step is to set objectives, which articulate—in a disciplined, focused way—what you're trying to learn as a result of your focus group research. Objectives provide a framework to answer the question: What am I willing and able to change as a result of this research?

Setting objectives begins with creating a thesis, a statement that summarizes what you're trying to accomplish.

The thesis can be expressed as statement ("Employees seem to be just going through the motions in the performance management system, instead of participating fully.") or as a question ("How will employees react to the new retirement program?"). In either case, the thesis articulates the core reason you're engaging in focus groups.

After you've nailed down the thesis, use it to create no more than three objectives.

#### EXECUTIVE COMPENSATION

An HR team created the following research thesis: "We suspect that leaders don't understand how compensation works. Is that true, and, if so, how does that lack of understanding affect leaders' perception of the pay system?"

The team then developed these objectives for a focus group study:

- Determine how well leaders understand the compensation program overall.
- Assess the perceived value of specific components.
- Test and validate new plan concepts.

### ***Develop a Discussion Guide***

As soon as your objectives are set, you're ready to develop a discussion guide, which is the term used by researchers to describe the document—part script, part outline—that the focus group moderator uses to facilitate the session.

To create a discussion guide, think about the two or three main things you want to learn. For example, if your thesis involves finding out what employees think about a change to disability plans, you could explore these categories:

- Employees' understanding of the current plans
- Their reaction to planned changes
- How they would like to learn about changes

Once you have your main categories, think about the key questions for each category that will help your moderator discuss the issue with participants. Avoid the temptation to create a long list of questions. The idea is to give the moderator a sense of structure, not to script every word he or she will say.

### **Sample Discussion Guide**

The following is an example of a simple discussion guide used in a one-hour focus group designed to explore how employees were perceiving the current HR program.

#### **Study Objectives:**

Inquire about HR communication needs and preferences, find out how employees are using the HR website, and get employee reaction to recent communication regarding the new benefits plan.

#### **Discussion Outline:**

### **A. Introduction/manage expectations**

- Explain why the focus group is being held, along with ground rules for participation and what to expect.

### **B. HR information needs and preferences**

- How do you currently get information about benefits and other HR programs and policies?
- Do you feel well-informed about your benefits?
- What would you like more information about?

### **C. Use of HR website**

- Do you currently use the company's HR website?
- What do you use it for?
- Do you find the information useful?
- What, if anything, would you change about the site?

### **D. Reaction to recent HR communication**

- Did you receive the recent message from HR about the new medical plan?
- What was your reaction to the message?
- How did it make you feel?
- What, if anything, would you change about similar messages in the future?

### **E. Close**

- Thank you/next steps.

### ***Choose Participants***

Most focus studies involve a limited number of participants. For example, even a large study might engage fewer than 100 people from an overall workforce of 10,000 employees. Because the sample is so small, it's critical to be smart about how participants are selected and to work hard to encourage selected employees to participate.

The best way to select participants is to use a method called “purposely selected” sampling. This consists of deciding on your criteria and then finding people who meet these criteria. This is different from the random sampling used for surveys, and it's a far cry from the casual way in which focus groups are often put together—inviting only people you know.

For example, if your thesis is “How do employees regard the current benefits program?”, your sample would be benefits-eligible employees. You then can decide if you'd like to segment subgroups. When Alison's firm conducted focus groups to gather feedback on an executive pay program, the sample was all executives, but participants were grouped by level: junior and intermediate executives into one set of focus groups, and senior executives into another.

### **Guidance on Selecting Participants**

Using your demographic data as a foundation, answer these questions to jump-start your thinking about who should participate:

- How is your employee population structured? What are the main demographic groups? Do you need to segregate various sets of employees (manager/nonmanager, bands/levels, or new employees versus long-timers)?
- Where are your major locations? Should your sample reflect important differences between locations? For

instance, do you have large facilities and small ones, locations in the United States and in other countries, warehouses versus retail establishments?

- What groups will your company management expect to see represented in order for them to feel comfortable about what you learn in the focus groups? Asking this question can potentially direct you to include a small but important employee group in your research.

First decide on criteria, and then find people who meet those criteria.

### **CHECKLIST FOR KNOWING YOUR EMPLOYEES**

- ✓ Consider who's in your employee audience before beginning any communication program.
- ✓ Gather data on where your employees work to understand their geographic demographics.
- ✓ Use data about length of service to influence the depth of information you provide.
- ✓ Understand how “generational cohorts” shape how employees think, behave, and prefer to receive communication.
- ✓ Compile salary data to inform communication, especially about pay, savings, retirement, stock, and other financially based programs.
- ✓ Use focus groups or other qualitative research methods to explore employee attitudes, experiences, and preferences.
- ✓ Before conducting focus groups, be clear on the objectives of your research to ensure that your study is structured to achieve those objectives.





## 2. Treat Your Employees Like Customers

*In this chapter, you learn*

- *What it means to treat your employees like customers, and why it's important to do so*
- *Four ways to use demographic information and research about your employees to communicate in a “customer-centric” way*

If you do just one thing differently as a result of reading this book, let it be this: **Treat your employees just like your customers.** Take this small step, and big, positive results will follow.

Here's why. Your company has many important constituents—from government regulators to unions, shareholders, customers, neighbors, and the press. Your employees occupy a unique place in this group.

When your employees do a great job, create new products, build your brand, and sell your wares, they also forge a positive link with one or more of the other groups important to your company's success.

Think about it, and you'll realize how appropriate it is to treat your employees like customers. They *are*, after all, customers of the HR benefits, services, and programs your company offers.

## **HOW TO SELL EMPLOYEES ON THE VALUE OF WORKING FOR YOUR COMPANY**

When Jane was hired to head up the HR communications unit at Citibank, her boss said, “We want you to use your background in advertising and marketing to sell employees on the value of working here.” This was innovative in the late 1970s, and it would still be considered an innovative approach in many businesses today.

Yet it works. Whether you communicate electronically, in writing, or in person, treating employees like you treat your valued customers changes everything. It changes how you communicate, what you say, how you say it, and the results you get. In this chapter, we show you how to treat employees like customers of HR products and services, because that’s precisely who they are.

Take a look at the marketing materials your company sends to customers or the financial communications you send to shareholders, and compare them to the HR communication materials your employees receive. Are they compatible in terms of quality? Tone? Clarity? If they aren’t, how do you suppose employees interpret the difference?

## **HOW MARKETERS BEGIN: BY KNOWING THEIR CUSTOMERS**

In Chapter 1, “Know Your Employees,” we emphasized the importance of analyzing the demographics of your employees and using focus groups to determine their experiences, preferences, and needs. Now we show you how to use this new knowledge to design communication that meets employees’ needs while accomplishing your objectives.

### ***Four Ways to Treat Your Employees Like Customers***

If you want to treat your employees like customers, here are four steps you can take that will help you create effective HR communications:

1. Create a profile of your target “customers.”
2. Assess the current state of employee understanding.
3. Build communication around employee preferences.
4. Make it easy for employees to do the right thing.

#### ***Create a Profile of Your Target “Customers”***

We’re kind of geeky, so we love statistics. But it’s not surprising that most HR professionals are less interested in math and more focused on people. That’s why we often start communication planning by creating employee profiles.

#### **What’s a Profile?**

In marketing, “customer profile” can be briefly defined as “A precise description of the characteristics of buyers for a specific product or service.” For a longer explanation, we like how [Answers.com](https://www.answers.com/question-answers/customer-profile) describes a customer profile:

Description of a customer group or type of customer based on various demographic, psychographic and/or geographic characteristics; also called shopper profile. For example, magazine advertising salespeople provide advertisers with customer profiles describing the type of person who will be exposed to advertisements in that magazine. The description may include income, occupation, level of education, age, gender, hobbies, or area of residence. Customer profiles provide the knowledge needed to select the best prospect lists and to enable advertisers to select the best media.<sup>1</sup>

Why are profiles valuable? Product developers and marketers find them useful because they go beyond dry data to bring customers to life. When you can imagine the people you're trying to reach—with all their desires and preferences and quirks—you can do a better job of giving them what they need.

We find the same is true for HR. Profiles help us move from thinking abstractly about employees to seeing them as living, breathing people.

Although profiles are insightful, creating them doesn't have to be a long, drawn-out process. Our simple method goes like this: We ask our clients to pull all the demographic data available on their employees and bring it to a planning meeting. The most relevant facts are projected on a PowerPoint slide or posted on a flipchart.

#### EMPLOYEES AT A FINANCIAL COMPANY

When we facilitated a communication planning session at a financial company, our clients brought the following demographic information to the meeting (which we've altered slightly to share with you):

Band	1	2	3	4
<b>Titles</b>	Nonexempt	Exempt and new managers	Experienced middle managers, directors	VPs and above
<b>Gender</b>	More female	More male	More female	More male
<b>Location(s)</b>	Orlando Rochester Edinburgh	Raleigh Ottawa	Chicago Schaumburg	Chicago
<b>Tenure</b>	5 or more years	5 or more years	5 or more years	5 or more years
<b>Business Area/Function</b>	Middle markets Manufacturing	Middle markets Manufacturing	Finance Corporate functions	Finance or functions

By reviewing this data, we could see many similarities among the groups—such as length of service—but also some important differences. For example, employees tended to be located in different areas depending on their level, and functions were also clustered by level.

To complement our client's demographic information, we bring our own contribution: a stack of stock photographs, each portraying a head-and-shoulders view of an individual. There's a photo of a 45-year-old man wearing a suit, for example, another of a 30-something woman who looks like she's driving a truck, and still another of a guy in his late 20s who works in IT support.

Based on the data, the entire group works together to decide on three or four key demographic segments we need to target with our upcoming communication.

We then break participants into small groups and ask each breakout team to take one demographic group and create a portrait of a typical employee in that segment, using one of the photos provided and a blank flipchart page.

#### PROFILE

At the financial company mentioned in the preceding sidebar, our planning team used the demographic information they had brought—as well as feedback from focus groups—to develop four profile posters. Here is one of them:

##### **Poster 1: Diane (Band 1)**

###### Top-of-Mind Concerns

- Diane is more focused on managing work/life than advancing her career.
- She takes pride in her work and worries about job security.

###### Work at Our Company

- She is unsure whether she wants to be promoted, but she definitely wants to increase her salary.
- She would leave the firm if a competitor offered her higher pay for the same responsibilities.
- Her perceptions about the company are heavily influenced by her manager.

#### Knowledge of HR Policies and Programs

- Diane knows a lot about her benefits—because she uses health benefits for her family—but she knows less about compensation.
- She participates in performance management but closely follows the direction of her manager.

#### Channel/Vehicle Preferences

- Her preferred way to learn information is by meeting with her manager.
- She also relies on enrollment packages mailed to her home.
- She will look at the intranet if it has information she needs.

What do you do with profiles after you've developed them? Some people we know actually hang profile posters in their offices to keep the employee customer in view. Others include profiles in PowerPoint presentations that describe employees—along with demographic data, engagement survey scores, and other information—that they use when presenting to peers or senior management about employees. Still others build profiles into communication plans—right after the section on objectives and before the part about strategies—to make sure their program is on target. Whatever you decide to do with the profiles you create, the idea is to make your employees as vivid as possible, and then make decisions about communication based on your new knowledge.

#### *Assess the Current State of Employee Understanding*

A wise client once said to us, “Never underestimate employees’ intelligence or overestimate their knowledge.” We’ve kept that advice in mind ever since, especially when it comes to HR communication. You are probably a subject-matter expert on (or at least well-versed in) health benefits and/or performance objectives and/or variable compensation and/or short-term disability. But chances are that even your smartest employees have only superficial knowledge about any of these topics.

For example, we conducted focus groups for a consumer products company to find out what leaders understood (and thought about) a valuable but complicated executive pay program. The results? Leaders who participated admitted that they didn't really get it:

- “I’ve been here five years, and I’m still learning every day how this is structured and how it’s weighted and the impact on me. I think it’s too complicated.”
- “I have difficulty understanding exactly how all of this adds up for me personally every year. This is very confusing.”
- “I have the most complicated spreadsheet to manage my compensation. It has macros in it; it has all sorts of stuff just to manage how much money comes into my household. It’s unbelievable.”

This story illustrates that even when employees are highly intelligent (these executives are the best and the brightest in a very smart company) and the subject is something that matters to them (pay certainly ranks high in importance), there can still be significant gaps in what employees understand about an HR policy or program.

That’s why we encourage you to use focus groups to assess your employees’ knowledge thoroughly. Only by doing so can you design communication that effectively explains what employees need to know and do.

### *Build Communication Around Employee Preferences*

Your company's marketing department spends a great deal of time and money to figure out which communication channels your customers read, watch, and listen to. And it also exhaustively tests potential messages to see which words, phrases, and images resonate with customers. Only when that analysis is complete does your marketing group create a communication program designed to reach and engage your customers.

Okay. You know where we're going here. Just do the same with your employees as you prepare HR communications.

You'll want to do the following:

- Conduct focus groups or other qualitative research before you begin your communications.
- Get feedback from employees on your HR communications after you have distributed them (see [Chapter 9, "Measure Effectiveness"](#)).

By getting employee feedback before you create your communications plan and strategy, you'll learn the following:

- What employees like and don't like about a specific benefit.
- Questions employees typically have—or questions that vary based on demographics.
- Knowledge levels—what employees know, don't know, or the "facts versus fiction" of a particular benefit or program.



- Communication preferences—how employees prefer to hear about changes in their benefits or HR programs.
- Usage—who’s using the benefit program, when, and why—and answers to the question, “Does usage vary by demographics?”

#### WHAT’S THE ONE THING YOU WOULD CHANGE?

If you can include one open-ended question in a survey or focus group, here is our recommendation for how to word it: “If you could change one thing about how we communicate HR policies, programs, and issues, what would it be?” We find that employees respond to this question by offering tangible suggestions for making communication better, many of which you can act on immediately to improve your program.

For example, we conducted an employee communication survey for a global industrial company, including our favorite query as the final question. Six hundred employees wrote down an answer, and when we analyzed the responses, we could see some key trends emerging:

Number of Responses	Idea	Sample Quote
55	Be more transparent	“Eliminate the hidden agendas. Give it to me straight.”
42	Make messages more relevant	“A lot of information is available, but it is difficult to tell what is meaningful to me personally.”
39	Improve timeliness	“Provide more lead time when a change affects me personally.”
37	Streamline communication	“Provide a summary of key communication, with links to enable further in-depth reading if employees need more detail.”

The first change we made as a result of these findings was that we helped our clients make messages clearer and more personally relevant and useful. We discuss how to do so in [Chapters 4](#), “[Frame Your Message](#),” and [5](#), “[Write Simply and Clearly](#).”

### ***Make It Easy for Employees to Do the Right Thing***

Most companies make it as easy as they can for customers to use their products. They package products in convenient forms, ensure that instructions are easy to understand, and provide support (via a website or call center) if the customer has questions. In HR, we need to put that same thought, logic, and presentation into helping employees make smart choices—or, *do the right thing*—to take action such as enrolling in benefits by a certain deadline.

For situations where you need employees to take action, make it unbelievably easy for them to do so. Think through where and when they need to act and what prompts will they need. Give them “just in time” prompts to call, log on, or write to get the coverage they should have.

#### PROTECT YOUR PAY

Here's how Jane responded to the challenge of rolling out a Managed Disability Program. The gist of the program was this: If an employee was out sick or hospitalized for five days or more, she had to call a benefit services representative to get her disability approved. Without this approval, pay would stop.

Many people would have put together the Managed Disability Program communication strategy and plan using sentences like this: “If you don't call while you're out sick or in the hospital, your pay will stop.” (Do you talk punitively to your customers? We thought not. It's not a great way to talk with your employees, either.)

Following our mantra of “Make it easy for employees to do the right thing,” our communication program centered on a refrigerator magnet mailed to employees at home. The magnet said, “Protect your pay. Call this toll-free number if you're out sick or hospitalized for five days or more so your pay will continue.” A small brochure accompanied the magnet, with more program details if an employee wanted to know more. Most employees probably put the magnet on their refrigerator, where it would be handy if needed.

Nowhere in any of the communications was the term Managed Disability Program used. It may be a “term of art” in the world of human resources, but there was no upside to introducing the term to employees—any more than you'd roll out a similarly titled program to customers.

When you start applying “Make it easy for people to do the right thing” to your HR and communication challenges, really think outside the cubicle. Sometimes

the best solution might start with changing plan design first and following that up with good communication.

For example, say your goal is to increase enrollment in the company savings plan (or even reach 100% enrollment). One way to achieve that goal is to enroll all employees in the savings plan automatically on Day One, with the provision that they can opt out after six months. Then, if you communicate with employees throughout those six months—pointing out how easy it is to save and sharing projections of how much they can save in both short- and long-term scenarios—perhaps they’ll stay in the plan after six months. In this case, you’ve made inertia (after all, doing nothing really is the easiest thing to do), the right course of “action.”

## **CHECKLIST FOR TREATING YOUR EMPLOYEES AS CUSTOMERS**

- ✓ Create an employee profile that describes a typical employee in key demographic groups.
- ✓ Include a (fictional) photo in the profiles you create so that you can visualize your employee customer.
- ✓ Remember this sage advice: “Never underestimate employees’ intelligence or overestimate their knowledge.”
- ✓ Use focus groups to assess what employees understand about key policies, programs, and issues.
- ✓ When surveying or conducting focus groups, include this question: “What is the one thing you would change about how we communicate?”
- ✓ Give employees the information and tools they need to “do the right thing” when they take action on important programs or policies.



### 3. Plan and Manage Communication

*In this chapter, you learn how to*

- *Ask great questions to start your communication project effectively*
- *Set clear objectives for your HR communication*
- *Organize and manage communication projects*
- *Establish appropriate budgets*

Let's say you decide to take a trip. Do you begin by jumping in the car, stepping on the gas, pulling onto the highway, and heading west just because the road takes you that way?

Probably not (unless you're 20 years old and setting off on a cross-country road trip to find yourself). Instead, most of us don't depart until we have a clear destination in mind. And once we know where we want to go, we usually plot our course (thanks, Google Maps) or enter the coordinates into our GPS. Since we're busy, we usually choose the shortest route.

Why the travel metaphor? Because it's a good way to illustrate a mistake many of us make in communication: We just start doing it without having a plan or map. How many times have you heard a colleague say, "We need to communicate this program. I'll write an e-mail."? Or "People need to know about this policy. I'll create a PowerPoint presentation."?

If you pull the trigger before taking aim, your communication can miss the mark. Or, you risk using the wrong tool for the wrong job. It can happen too soon, be over too quickly, or not provide what employees need to know to make smart choices. And, to return to our original metaphor, it probably gets lousy gas mileage.

In this chapter, we show you a more efficient way of planning HR communication. Once you put your objectives in place and plan your approach, all the steps to get there become a lot more obvious.

## **START EACH COMMUNICATION PROJECT BY ASKING GREAT QUESTIONS**

Whenever someone says (or you think), “We need to communicate this right away,” you should stop, take a deep breath, and ask these two questions:

- Why do we need to communicate this information?
- What do we need employees to know, believe, and/or do as a result?

These are the key foundational questions that will help you set a single overarching goal for your communication as well as develop up to three specific, measurable objectives. We show you how to create goals and objectives in a moment. But in the meantime, as long as you’re on a roll, keep asking questions to learn all you can about the need the communication is meant to address. Here are more good questions:

- When do employees need information to take action?
- Does this program support broader company goals?
- How will we know our communications have been successful?

- What obstacles, if any, do we face, and how can we overcome them?

Sometimes people preface their questions by saying, “This is probably a stupid question, but....” And almost always, the response is, “That’s a great question.” In business, sometimes the best questions are so basic that they almost never get asked. One assumes, instead, and that assumption can lead to miscommunication instead of clear communication.

### **USE THE ANSWERS TO THESE QUESTIONS TO ESTABLISH A GOAL AND OBJECTIVES**

Occasionally you need to take some time to ask questions about what you want to achieve and how you know if you’re successful before you arrive at

- Your overarching goal
- Your objectives (in most cases, aim for up to three objectives)
- How you’ll measure your success in achieving your objectives

The process of asking questions and then establishing your goal and objectives will keep you from developing objectives that are unrealistic, unreasonable, or unachievable.

For example, if a colleague wants to “make employees feel good about the fact that we’re not paying any bonuses this year,” you’ll have a hard time achieving that objective. It’s unrealistic, and it’s also highly unlikely that people will feel good about not receiving money they were probably counting on.

Suppose you change the preceding objective to “Help employees understand why we can’t pay bonuses this

year—and share three steps we can all take to improve the chances we’ll receive bonuses next year.” You have a better chance of achieving that objective, because it is realistic, and you can measure it. For example, you could conduct a random online survey after you communicate.

One of the simplest ways to see if you’ve set clear objectives for your communication is to determine how you’ll measure success. If you can’t figure out how to measure the success of your objectives, try restating the objective until you can come up with a way to measure whether you’ve achieved it.

## WHAT’S THE DIFFERENCE BETWEEN A GOAL AND AN OBJECTIVE?

Many dictionaries have similar definitions for “goal” and “objective”:

**Goal:** A broad statement of what you hope to accomplish. May suggest an idealistic or long-term purpose.

**Objective:** Often implies that the end or goal can be reached.

Here’s a useful overview for project management purposes:

Goal	Objective
Broad overview of what we want to do over time	Specifically what we want to accomplish soon
The purpose of our actions	What we want to accomplish
Long term	Short term
Not easily measured	Can be measured



## QUESTIONING HELPS IDENTIFY PERSONAL AGENDAS, TOO

When you start a communication project, ask yourself (or your client) if there's anything you *personally* want to accomplish while working on this project. For example, do you have a personal developmental goal you want to achieve? A specific experience you'd like to have? What would make this project a winner for you? Invest some time in thinking about what you want to achieve or experience. Your personal goal could be "Build better relationships with my peers in the Marketing department" or "Learn how to give a better presentation" or "Get some visibility at headquarters."

The Center for Creative Leadership is an educational organization that teaches leaders to be more effective. It has determined through research that we learn most of the information that helps us succeed through on-the-job experiences—not from seminars or training courses. Therefore, it's important to determine what you can personally achieve—or what your client can personally achieve—while you help your company or HR department reach a specific goal.

### IS IT AN E-MAIL OR A VIDEO? OR IS IT ANOTHER SOLUTION DESPERATELY SEEKING A PROBLEM TO SOLVE?

A colleague once enthusiastically approached us and said, "We need to produce a video about this conference I just hosted! I'd like to begin working on it right away!" Ten minutes into our conversation, after we'd asked the colleague a lot of questions, we realized that a video was not a good idea.

What were our colleague's objectives? To inform the HR community about the highlights of the conference in an easy-to-digest way.

Although video *can* be effective, "highlights" videos of conferences tend to be dull shots of people presenting (with equally dull PowerPoint to match). Even footage of interactive segments (such as team-building exercises) tends to seem out of context. Plus, the audience might view video highlights as follows: "Oh, look, Marge. All the really important people went off to this fancy resort, and even though I wasn't important enough to be invited, I did receive this long video with a bunch of talking heads."

After discussing our colleague's objectives, we suggested a different idea: "Perhaps we can help you write an e-mail about this," with links to intranet content. We also advised our colleague to send conference attendees an e-

mail with key points (such as action steps) that they could share with their staffs and colleagues in other departments.

If you want conference participants to “bring the conference home,” it is a good idea to establish that as one of your objectives while you’re still planning the conference. This way, you can let attendees know that’s a goal, and you can make it easy for participants to do the right thing and share what they learned.

## **MANAGE HR COMMUNICATION PROJECTS EFFECTIVELY**

Huge tomes exist that tell you in great detail how to manage a communication project effectively. In some cases, reading that tome might be a great investment of your time and talent. Here, we share some faster, simpler ways to help you get your work done.

Here’s one of the simplest project plans for any HR communication, presented in just four easy steps:

### **1. Research**

### **2. Plan**

### **3. Do**

### **4. Measure**

If you have one hour—or one week—to get something done, this is a great way to organize your time. For example, suppose your boss or client needs information in one hour for an e-mail to all employees to announce a new fund in the company’s 401(k) plan. Also assume that e-mail is the best and only vehicle to communicate that employees should take advantage of the opportunity to invest immediately. You’d want to spend the first part of that hour asking questions or doing online research to learn more about the purpose of the new fund, who should be investing in it, why, and so on.

What you learn will help you plan—that is, help you decide how you want to present this information given

your employee demographics. It will dictate the types of examples you present. If you spent 20 minutes doing research and planning, now spend 25 minutes writing your e-mail and editing it to keep it as brief as possible. Make sure that the subject line and boldface subheads help your readers skim and get valuable information. Finally, share your finished product with a colleague to measure whether your communication works. Does your colleague understand what you want every reader to understand? If not, make some tweaks so it's crystal clear. Then take your e-mail to your boss or client to review.

The following sections discuss more activities you can consider doing in each of these simple steps.

### **Research**

- Get the demographic, geographic, and psychographic information about your audience.
- Identify what communications (media and messages) have worked well with this audience in the past—or what media and messages would logically work well with this audience at this time.
- List any obstacles or misunderstandings you need to address in your communication.
- Find out what your competitors have done in similar circumstances, if applicable.
- Find out what companies your management admires have done in similar circumstances.

If you have a board of directors, find out what your board members' companies have done in similar circumstances. Just spending an hour or so using Google should give you a lot of useful information. Government or industry statistics can help you put information in

context, for example. The research phase can take weeks, days, or merely hours or minutes. However long it lasts, make sure you spend some time on research and fact-gathering. All the great work you do in planning and implementing can't make up for shoddy research.

### ***Plan***

- Make decisions about media, messages, and process based on your research. Test your plans with a sampling of your eventual audiences and also with all key stakeholders (other departments you need to coordinate with so that your project goes smoothly).
- Revise your plans based on what you learn.

This is the time to invite your colleagues to help make your work better (and get them invested in your project's success, too). As one of our colleagues wisely said, "Share your good work, and let others share in its success." We agree.

### ***Do***

In this step, you create and distribute your communication which includes writing copy, videotaping, designing print and presentation materials, getting stuff printed—all the usual things you need to do to get your message presented, packaged, and distributed. (We cover this step in a lot more detail throughout this book.)

### ***Measure***

In Chapter 9, "Measure Effectiveness," we provide a comprehensive view of effective communication measurement. But keep these steps in mind as you plan:

- Include a survey in written or electronic communications.

- Share what you learn from measuring success with your management and colleagues.

### ***So, How Long Will This Take?***

Possibly one of the most frequently asked questions about communication projects is some variation of “How fast can you get this done?”

With an unlimited budget, you can move mountains and get communications produced quickly by working overtime. With a less ambitious budget, experience shows you can produce good work anywhere between three weeks and three months. It depends on the topic, its complexity, and the need for multiple shareholders to agree, to name just a few variables. One of our favorite graphic designers used to quip, “If you want it fast, cheap, and high quality, pick any two.” We agree. Taking the time to do research and to test communications with focus groups is literally priceless in the value they provide. You’ll never regret an investment in time that helps you create effective communications.

## **CREATE AWARD-WINNING COMMUNICATIONS AND COMMUNICATION PLANS**

When Jane facilitated a two-day conference for communication managers in Houston, she invited Otto Glade, a local communication professional, to speak to the group. He had won numerous Gold Quill awards of excellence from the International Association of Business Communicators (IABC), a worldwide professional organization for organizational communicators. Jane asked him to share his secrets for success with the group.

Otto’s formula was simple and elegant: He used the IABC Gold Quill entry form as a project plan for each communication he produced. This helped him stay focused on what information he needed to do a good job. This strategy can work the same way for you.

If you use this structure to describe your communication plan, you'll typically end up with a two- to three-page project overview. This is a great way to sell your idea to colleagues and management in your company or client's company.

Here's an overview of what the Gold Quill award entry form typically asks you to describe:

- **Need/opportunity.** What need or opportunity does your communication project address? Clearly describe the issues your company faces, and outline any effect these issues have on company performance, reputation, image, profits, and participation. Highlight any formal or informal research findings that support your analysis of the need or opportunity.

- **Intended audience(s).** Identify your primary audience and any other audiences. What is your audience's state of mind? What key audience characteristics do you need to take into account as you develop your solution? Consider psychographic as well as demographic characteristics. Describe any audience research you plan to conduct.

- **Goals and objectives.** Goals describe what your communication project is designed to accomplish. Choose one or two key goals to describe in detail. These goals should be aligned with your organization's future needs. Objectives should be realistic and measurable and should examine outcomes such as quantity, quality, time, cost, percentages, or other criteria. These measures are often financial, but not always.

- **Solution overview.** Outline your project's solution and the logic that supports it. Describe why you plan to take the action you've outlined. The solution should demonstrate your thought process, imagination, and approach to problem solving. Discuss how you will

involve stakeholders in developing the solution. Identify key messages. Present the tactics and communication vehicles you plan to use. Identify your role in the project and your level of involvement and responsibility.

- **Implementation and challenges.** State your project budget. Show how you plan to make efficient use of money. Discuss time frames. Describe any limitations or challenges that you face as you communicate and implement your ideas. Note any special circumstances, and discuss how they will be addressed.

- **Measurement/evaluation of outcomes.** How will you measure your project's results? Every result should be linked to one or more objectives. Results must be shown to be valuable, thorough, and convincing. Measurement should demonstrate outcomes, not outputs. For example, if your media relations campaign was designed to support a product rollout, you should measure bottom-line figures about sales targets or the number of qualified sales leads, rather than just measuring the number of clips and impressions or advertising value equivalent. If your challenge was to improve employees' understanding of an issue, you must show that their knowledge increased as a result of the communication plan you implemented.

## **DESCRIBE YOUR COMMUNICATION PROJECT SUCCINCTLY**

The best way to describe your communication project in the fewest possible words is to identify the following elements and then put them into a single sentence:

- Who
- What
- When

- Where
- Why
- How

Here's how that would work for several different projects:

Topic	Project One	Project Two	Project Three
<b>Who</b> (subject)	Financial experts	All company managers	Health and safety officials
<b>What</b> (action verb)	Provide advice to all employees	Work with employees to identify and put new steps into practice	Encourage workers to follow new safety procedures
<b>When</b>	Throughout this year	Each fiscal quarter	This month
<b>Where</b>	At headquarters	Nationally	In all factories
<b>Why</b>	To cut expenses	To increase profits	To reduce accidents
<b>How</b>	Seminars, website, and how-to kits	Informational campaign via e-mail, website, print, and meeting-in-a-box kits	Posters, mailings to home, meetings, and \$100 for each worker if objectives are reached

Newspaper reporters use this technique to write the lead sentence in any news article—just identify the who, what, when, where, why, and how (the last two being the hardest to determine in some cases—especially crime stories).

Here's a one-sentence overview of each of these projects:

- **Project One.** To help us cut expenses here at company headquarters, throughout the year financial experts will share advice with employees in special seminars, on our website, and in how-to kits.



- **Project Two.** To increase profits, a new quarterly informational campaign, including meeting-in-a-box kits, e-mails, website, and printed instructions, will provide all company managers with information they need to work with their staffs to identify and put into practice steps to help us reach our goal.

- **Project Three.** Bet you can tackle this one on your own.

## ESTABLISH AN APPROPRIATE BUDGET

Jane once heard an HR director proudly announce, “Now that our intranet is up, we’ll never have to produce another brochure or newsletter for employees. We can save all that money and stop killing trees!”

### THE TRUTH ABOUT KILLING TREES

As a small aside, paper companies raise trees like any other crop these days (and no one is crying about killing corn!). Trees are planted, harvested, and replenished, just like corn. Recycled paper has grown as an industry and offers another good option, albeit a more expensive one. Please share this information with the next person who tells you that producing print means “killing trees.”

Let’s think for a minute about the wisdom of eliminating print. It’s like saying now that we have e-mail, we’ll never need to send our customers another brochure. Maybe not. Yet, in our experience, sometimes print does the best job for your employees, so we encourage you not to limit yourself to electronic communication tools. In Chapter 7, “Use the Right Tool for the Job,” we talk about using the right tool for the right job, and you’ll see that print still performs a valuable service.

Now, back to budgeting. Here are several ways to determine budgets for HR communications projects:

- **Unit cost.** Come up with a “per employee” cost to inform each employee of a specific benefit (or determine

the unit cost to communicate *all* HR benefits and services). The more employees who work at your company, the lower your unit cost will be. Compare the unit cost of *communicating* to the actual cost of *providing* all benefits/one benefit to an employee. Obviously, your unit cost to communicate should be a small percentage of the much larger cost to provide the benefit.

- **Percentage of salary cost.** Determine how much money your company spends on payroll, and then develop a communication budget for the year based on a percentage of your organization's salary cost. Ideally, your communication budget won't exceed 10% of the cost of pay.

Whatever amount you propose to spend on communicating, you can make the case that you're spending an amount equal to X% of the cost of all employees to make sure they understand, use, and value HR products and services.

- **Percentage of benefit cost.** If it costs your company \$200,000 a year to provide a specific benefit, isn't it worth up to \$20,000—or up to 10% of the benefit's cost—to make sure everyone understands, uses, and values that benefit? Again, you can use this logic to build a budget for one specific benefit or all benefits as a group.

You may also want to look at the money your company spends on advertising and marketing—and then develop your HR communication budget as a derivative of the dollars spent in those areas. Some of the communications you produce are *legally required*, you could also see what your company's annual legal budget is and propose your annual HR communications budget as a derivative of that number.

Depending on your industry, and your company's ability to attract and keep needed talent, you may also want to find out what your competitors are spending on HR communications. This information might not be as useful as what we just discussed in helping you develop a budget. But it could help you make your case even more solid when you present your budget to management.

Basically, we're suggesting that you base your budget for communications on a derivative of numbers familiar to your management team. Also propose funding that makes sense for your company's size, competition, and revenues.

### **AND WHEN THERE IS NO MONEY . . . SIGH**

If you work for a not-for-profit organization, or for a company that only a Scrooge would love (and who among us has not?), some of the preceding suggestions might work for you. Yet you may find that you rarely have the budget dollars to do the quality of work you want—the level of quality that will promote effective use of HR benefits and services.

Here are some further ideas to help you supplement a weak budget:

- Get employees involved as photographers or illustrators for your HR communication materials.
- Invite a local graphic arts instructor to present his or her students with your communication needs as an assignment.
- Ask a donor (contributor) company to provide the resources of its HR communication team to help your HR communication team.

## **CHECKLIST TO MANAGE YOUR COMMUNICATION PROJECT EFFECTIVELY**

- ✓ Decide what you want your employees to know—to understand—or do at the start of each HR communication project.
- ✓ Clarify your goal and up to three objectives for your project. Specify how you'll measure success for each objective you set.
- ✓ Identify what you want to get out of the project on a personal level (such as what developmental experience you want to have).
- ✓ Create a simple project plan to help organize and manage your project.
- ✓ Invest in the time needed to do research up front and to get feedback on complex communications through focus group tests.
- ✓ Develop a budget for your project that appropriately reflects the importance of the message and the importance of your objectives.
- ✓ Summarize what you're doing by identifying the who, what, when, where, why, and how. Then express the results in a single sentence or paragraph.

## 4. Frame Your Message

*In this chapter, you learn*

- *How to “frame” your message: organize it in a way that meets employees’ needs and helps them understand how the pieces fit*
- *Why the way you communicate with employees needs to be different from how you pitch programs to management*
- *How to leverage techniques from Hollywood to distill your message*
- *What the old-fashioned telegram can teach us about structuring content*
- *How to use a mathematical formula—1-3-9-27—to organize communication*

You’ve just given a presentation to senior management about your new program. Your PowerPoint deck was appropriately detailed: 44 slides explaining why the program is needed, how you designed it, and what it contains. And your hard work paid off, because the meeting went well; management approved the program, giving you the go-ahead to implement it.

Now it’s time to communicate with employees. And here’s the first thing you should do: Close the PowerPoint file and take out a blank sheet of paper. Why? Because the way you structured your message to “sell” your program to management is very different from how you need to frame your message for your employee audience.

Again, why? As you saw in Chapter 2, “Treat Your Employees Like Customers,” it starts with demographics: Your employee audience has a different perspective than senior managers. And that difference means you need to rethink how you shape your key messages to meet the needs of your employee audience.

***How the Communication Needs of Senior Managers and Employees Differ***

	Senior Managers	Employees
<b>Most important part of the message</b>	Context: How this helps the company succeed	Personal impact: “What this means to me” and “What I need to do differently”
<b>Level of detail</b>	High: To demonstrate that all aspects of the issue were thoroughly explored	Low: Quickly get to the point
<b>Preferred channel</b>	Presentation with discussion	Varies by group: some written, some spoken, some visual
<b>Tools</b>	Charts, graphs, analyses	Key points, bullets, checklists
<b>Time spent</b>	Several hours	Several minutes

So how do you proceed? Here’s the essence: Refer to the objectives you created in Chapter 3, “Plan and Manage Communication.” With those objectives in mind, use that blank piece of paper to answer this question: What’s the most important thing employees need to know? As you write the answer, limit your response to 15 words or less.

Congratulations! You’ve just “framed” your message: You’ve created a core statement that captures the essence of what you need to communicate. You’ve also created the foundation for a message platform, which will help

you organize all your communication about your new program.

This sounds good, but if this task is new to you, you may need some help. Stay with us; we show you three easy-to-use approaches to framing your message:

- “Go Hollywood” to create a high concept
- Use the inverted pyramid to organize your message
- Leverage the 3-9-27 formula to structure content

## **“GO HOLLYWOOD” TO CREATE A HIGH CONCEPT**

We know what you’re thinking: What does Hollywood have to do with HR communication? Well, as you’ve probably figured out by now, we believe in borrowing the best techniques from any field to make our communication more effective.

And, as it turns out, no one is better than Hollywood’s movie studios at distilling a product into just a few words and at making that message riveting to audiences around the world. Movie promoters have realized that they have just a few seconds to capture an audience’s attention as people walk by a movie poster or flip through TV channels. So movie people have figured out how to capture the essence of a film in a single, simple statement.

That statement, in movie talk, is called a “high concept.” The idea is that, in order to pitch (to a producer or the audience), you have to convey an entire two-hour movie in about 12 to 15 words. Once the movie gets the green light, the high concept is used as the basis of all marketing, including ads, posters, publicity, e-mails, and websites.

### ***Going Up!***

Here's another term for "high concept": an "elevator speech." The idea is that you get into an elevator with a colleague who says something like, "Hey, I hear we're changing the vacation policy. What's up with that?" Your challenge is to answer the question in the time it takes to ride the elevator; that's why it's called an elevator speech.

By the way, the latest term for delivering information quickly and concisely is an "escalator speech." The assumption is that you don't even have as much time as it takes to ride the elevator: You have only about 20 seconds, or the length of time it takes to say about 140 characters (the standard length of a "tweet" on the social media platform Twitter or a status update on LinkedIn or Facebook).

### ***And the Oscar Goes to . . .***

Based on the following "high-concept" statements, name the Academy Award-winning movie:\*

\* Answers: a) *Slumdog Millionaire*, b) *Rainman*, c) *Titanic*, d) *The Sound of Music*

- a.** A teenager is one question away from winning India's "Who Wants to Be a Millionaire." But is he cheating?
- b.** A selfish man seeking his inheritance discovers his autistic savant brother, abducts him, and takes him on a cross-country road trip.
- c.** A rich girl and a poor boy meet on the ill-fated voyage of the "unsinkable" ship.
- d.** In 1930s Austria, a woman leaves a convent to become a governess to a Naval officer widower with seven children.



Here's why we love the "high concept": because you can use the technique to communicate anything—a new initiative, changes to a benefits program, a company strategy. The key is to boil down a complicated idea into its essence so that your audience can understand it instantly.

#### LONG-TERM DISABILITY GETS THE "HIGH CONCEPT" TREATMENT

Sheila, the compensation and benefits director at a major pharmaceutical company, faced a challenge: Not enough employees were signing up for the company's long-term disability program. Sheila knew that one in five U.S. workers suffer an accident or illness that prevents them from working for months at a time. And she also knew that many of her company's employees did not have the savings to weather a long period without pay. So how could she persuade more employees to enroll in the company program?

First, Sheila worked with her company's provider to make changes to the disability program that would make it more appealing to employees. Once senior management approved the changes, Sheila took our advice and put away the PowerPoint she had used at the management meeting. Instead, she took out a blank piece of paper.

Her mission: to write a "high concept" of about 12 to 15 words that would convey the benefits of the new long-term disability plan. After some deliberation, Sheila wrote the following:

*Long-Term Disability Plan gives you more coverage for less money*

Not bad. But we'd suggest that Sheila also try to include why long-term disability is so important. Here's what we mean:

*Protect your income if you can't work; new Long-Term Disability Plan offers more coverage for less money*

You get the idea. The key is to capture your main point succinctly. It takes some finesse to balance the need to be brief with the need to include enough information. But the more you practice the high-concept approach, the more confident you will become.

### ***High-Concept Worksheet***

Here's an opportunity to practice your new knowledge of creating the high concept. We've completed the first one; it's up to you to create a high concept for the others.

Issue You Need to Communicate	High-Concept Summary (15 Words or Less)
<p>In addition to the company-paid life insurance plan, which automatically provides coverage equal to an employee's annual salary, the company now offers a voluntary group life insurance plan. This gives employees the opportunity to purchase additional life insurance at group rates, which are cheaper than what employees would pay with individual policies.</p>	<p>Through the company group life insurance plan, you can buy additional coverage at cheaper rates.</p>
<p>Next year, your company will switch dental plan providers from Guardian to MetLife PPO. The change is being made to reduce plan costs to the company. MetLife has more in-network dentists than Guardian. A slight increase (less than 3%) in employee premiums will occur. The deductible will increase from \$25 to \$50. The annual maximum coverage will increase from \$2,000 to \$2,500 (a positive change for employees). Orthodontic coverage will not change.</p>	
<p>The tuition reimbursement process is changing. In the past, employees wanting to get approval for a course had to fill out a paper form, get their supervisor to sign it, and send it to HR. Now employees need to visit the HR portal, fill out an electronic form, and ask their supervisors to access the form to complete their section. The amount of tuition reimbursement isn't changing.</p>	

## USE THE INVERTED PYRAMID TO ORGANIZE YOUR MESSAGE

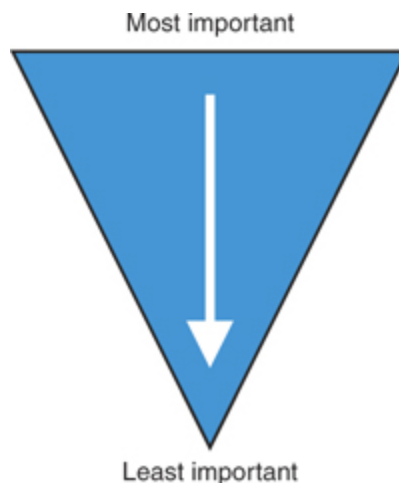
Now that you've got the essence of your message, what do you do next? We suggest you turn back the clock to an antiquated form of communication—the telegram—for inspiration on how to organize your content.

Back in the 19th century, newspaper reporters relied on the telegram to send a breaking news item to their editors. The problem was that, especially in the early days, the telegram was unreliable; the lines were always going down for one reason or another, such as high winds or Indian attacks.

So reporters began structuring their messages with the most important news first, in descending order of importance to the end. That way, if only part of the telegram got through before the transmission was interrupted, the newspapers would still get the scoop.

Around this time, editors began to encourage all their reporters to use this structure, whether or not they had to use a telegraph. “Write 15 inches of copy on that story,” an editor would tell a reporter. The story would be typeset, and if the editor didn’t have room for the entire story, it would be easy to him to cut from the bottom to fit the space available.

This way of organizing information came to be known as the inverted pyramid. The top contains the most critical points, and the bottom contains details or optional information, as shown in Figure 4-1.



**Figure 4-1 The inverted pyramid**

Way back in the day, when Jane was in journalism school, budding reporters learned another technique to help them create the first paragraph of the pyramid: five Ws and an H. She learned that the lead paragraph of a news story is the most that many readers will read or scan, so she was urged to make sure to convey the following elements to communicate the most important information:

- **Who:** The subject of your communication
- **What:** The action: what action will occur, what needs to happen
- **When:** The date the change will occur
- **Where:** The location(s)
- **Why:** The motivation behind or reason for the action
- **How:** The process and method of the action

Fast-forward to today's fast-paced, information-overloaded world. You may be surprised to learn that the old-fashioned inverted pyramid is still the best format for much of the information you need to convey.

Employees are too busy to sit and read content from start to finish; they want to skim and scan to get to the most relevant parts. So the inverted pyramid provides a quick, easy-to-digest way to get information.

Remember that the same principle you used to develop your high concept applies to the inverted pyramid: The information most important to employees comes first. As you travel down the pyramid, you can then add context and details.

### ***“Am I Doing This Wrong?”***

After Alison gave a presentation on best practices in communication at a regional HR conference in DeKalb, Illinois, she opened the floor to questions. A woman in the front row raised her hand.

“I’m an HR manager for a hospital,” she said by way of introduction. “You said that the most effective way to create a message is to put the most important, most relevant information up front.”

“That’s right,” said Alison.

“Early in my career, I was taught that you tell the story in chronological order. So when I send an e-mail to employees about a benefits change, for example, I start with why we decided to make a change and what options we explored. And then I write about what’s changing.” She paused. “Am I doing this wrong?”

Alison hesitated. She didn’t want to insult the HR manager, but she had to tell her the truth.

“Sorry, but yes, you are,” Alison said. “What employees need first is what’s changing and what the change means to them. They may want the background information eventually, but make sure it comes much further down in the message.”

#### **AN INVERTED PYRAMID FOR LONG-TERM DISABILITY**

Remember Sheila and her new Long-Term Disability Plan? After she drafted her high concept, Sheila wrote an e-mail about the plan. She put the most important information first, then organized the content in descending order, with details at the end. Here’s what she wrote:

**Protect your income with the new Long-Term Disability Plan**

**Provides more coverage for less money**

*Sign up during Open Enrollment*

What would happen to you and your family if you couldn’t work for an extended time because of a serious injury or illness? Because most people don’t have

enough savings to cover expenses, a long-term disability (one lasting more than 26 weeks) often puts them in financial jeopardy. But you can protect yourself by signing up for the Company's Long-Term Disability (LTD) Plan. And this is a great year to do so, because the plan has been modified to cost less and provide greater coverage.

Disability insurance pays a portion of your salary if you become unable to work due to an illness or injury unrelated to your job. (Workers' Compensation covers job-related injuries.) For the first 26 weeks you are out of work, you are automatically covered by the Company's Basic Short-Term Disability Plan. After 26 weeks, you need the Long-Term Plan, which covers you as long as you are disabled, or until age 65.

This year's Open Enrollment is a great time to enroll in LTD. That's because the Company has redesigned the program to include the following:

- **Lower contributions.** The Company has negotiated better rates, so the cost for LTD next year will be nearly 50% lower than last year.
- **One-time waiver for evidence of good health.** For coverage next year only, you can enroll in LTD without a medical screening. (If you don't enroll now, but you want to do so later, a medical screening will be required.)
- **Increase to full coverage for current enrollees.** If you are currently enrolled in LTD at a maximum coverage of \$5,000 (because you either did not submit evidence of good health or were declined a higher amount of coverage), your benefits will be increased automatically to the full benefit amount.

To find out more, visit the HR portal or call the HR service center at XXX-XXX-XXXX.

## LEVERAGE THE 1-3-9-27 FORMULA TO STRUCTURE CONTENT

Math may not have been your favorite subject in school, but when it comes to structuring complex content, a simple mathematical model can be your friend. That model is 1-3-9-27. This doesn't stand for a multiplication equation; it represents a format you can use to organize even the most detailed communication.

Here's what it looks like:

<b>1 High Concept</b>			
<b>3 Key Messages</b>			
<b>9 Supporting Points</b>	point point point	point point point	point point point
<b>27 Details</b>	detail detail detail detail detail detail detail detail detail	detail detail detail detail detail detail detail detail detail	detail detail detail detail detail detail detail detail detail

This principle is the same as the one used to organize a closet. When your content is arranged by category (shoes, handbags, dresses), it's easier to store, view, and find when you need it. Especially when you're dealing with detailed issues such as health and retirement plans, 1-3-9-27 puts everything in its place—which helps employees easily understand the content when you communicate.

Plus, 1-3-9-27 builds on the foundation we've described throughout this chapter: You start with your high concept, develop key messages (the same as you would for building an inverted pyramid), and then fill in the details.

Depending on the topic, you may not use all the elements of 1-3-9-27, but you know the structure is there if you need it.



## FILLING IN THE BLANKS

Sheila found the form helpful for plotting the details of changes to her Long-Term Disability Plan. You may notice that she has structured her content slightly differently than when she wrote the e-mail using the inverted pyramid. That's because this time she tried to organize all the related content, not just emphasize the advantages of the new plan.

Although Sheila thought the 1-3-9-27 table was useful, she realized that she didn't need to fill in all the blanks, because her plan doesn't have a lot of details. (But she thought 1-3-9-27 might really come in handy when communicating open enrollment.)

<b>1 High Concept</b>	Protect your income if you can't work; new Long-Term Disability Plan offers more coverage for less money		
<b>3 Key Messages</b>	Lower contributions: Employee cost for LTD will be nearly 50% lower than last year.	Better coverage	Other changes employees need to know
<b>9 Supporting Points</b>	<p>Reduced contributions begin on Jan. 1.</p> <p>Your monthly cost is based on a formula derived from a percentage of your income.</p> <p>Example: Chris, a 33-year-old employee, has an annual salary of \$50,000. He is currently paying \$19.75 a month for LTD. Next year, he will pay only \$9.49, a savings of \$10.26 a month.</p>	<p>One-time waiver for evidence of good health: For coverage this year only, you can enroll in LTD without a medical screening.</p> <p>No exclusions for preexisting conditions.</p> <p>Increase to full coverage amount for current enrollees.</p>	<p>Disability benefits will not be paid from the retirement plan for individuals who become disabled after December 31.</p> <p>Beginning January 1, Medicare Part B premiums will no longer be paid for disabled people who qualify for Medicare.</p>
<b>27 Details</b>	For employees who qualify, a pension supplement is paid beginning at age 65.		



## **CHECKLIST FOR FRAMING YOUR MESSAGE**

- ✓ Start with your objectives: What do you need employees to believe and do? That becomes the foundation of your message.
- ✓ Put away the PowerPoint you used to present to senior management, and start with a clean sheet of paper. Remember that what matters most to leaders may be quite different from what employees want to learn.
- ✓ Steal a technique from Hollywood and create a “high concept”: a single statement (of 15 words or less) that captures the key message you want to convey.
- ✓ Create your content using an old-fashioned journalism framework called the inverted pyramid. Put the most important information first, and then arrange the remaining information in order of descending importance, down to the details.
- ✓ Try the 1-3-9-27 method for organizing all your details, especially for more complicated communications.

## 5. Write Simply and Clearly

*In this chapter, you learn how to*

- *Attract readers the same way magazines, newspapers, and advertisers do*
- *Package information in memorable, easy-to-read chunks*
- *Write in a way that everyone will understand*
- *Use stories, specific examples, and concrete language*
- *Check your writing one last time to make sure it's good to go*

You're waiting in the airport when you hear the bad news over the PA system: Your departure has been delayed for two hours. So, with time to kill, you head to the newsstand and browse the magazine racks. Here's some good news: Those magazines are not just entertainment; they're also inspiration for how to write HR content simply and clearly. The same techniques that editors use to get you to read their magazines, advertisers also use to encourage you to buy their products and newspapers use to inform you—all work equally well in the world of HR communication.

That's because effective writing follows universal principles. Employees do not differentiate how they react to communications at work versus at home. They don't say, "This isn't easy to understand, but that's okay, because it's just from my company." They don't say, "The

company video with those talking heads was boring, but I watched it anyway,” because they wouldn’t watch a boring movie at home. They wouldn’t read a long, rambling, complex article online or in print, and they won’t do that at work either.

## **EARN POINTS FOR DOING IT WELL**

When you write in short, easy-to-read, conversational language that everyone can understand, *everyone will*. We show you how, in five simple steps:

1. Convey what matters most to employees.
2. Emphasize “how to.”
3. Slice, dice, and chunk content.
4. Use plain language.
5. Be concrete.

### ***Convey What Matters Most to Employees***

In Chapter 4, “Frame Your Message,” we showed you how to develop a “high concept” to summarize your key message, and how to use the inverted pyramid to organize your message. We also shared an important reporters’ tool—five Ws and an H, which is used in journalism to convey essential facts. We think the five Ws and an H are so integral to successful writing that we’re showing them to you again:

- **Who:** The subject of your communication
- **What:** The action: what action will occur, what needs to happen
- **When:** The date the change will occur
- **Where:** The location(s)

- **Why:** The motivation behind or reason for the action
- **How:** The process and method of the action

Here's the key: As you capture the five Ws and an H, focus on the employee. Ask and answer these questions from the employee's point of view:

- What does this mean to me?
- Why is this important?
- What do I need to do?
- When do I need to act?

Put that important information up front in your communication, and then reinforce this information throughout: in photo captions, subheads, callout quotes, stories, tables, and charts.

#### A FEW GOOD WS (AND AN H)

Sometimes the five Ws and an H are so useful that an entire communication piece can be constructed around them. Here's a case in point. A biotechnology company needed to let employees know about a pay change. The company operated on a fiscal year, and it was changing to align its pay raises with the performance management cycle. To communicate the change, the company created a one-page piece. Here are the highlights:

##### **Company Changes Pay Cycle; Raise Schedule Affected**

##### **What is changing**

- The pay cycle: when and how salary raises are paid. Starting this year, pay raises will become effective on September 1 instead of in July.

##### **What is *not* changing**

- The performance management schedule, which still runs from July 1 to June 30
- The performance management system

##### **Why the change?**

- To improve efficiency. Payroll systems are being consolidated across the company, so we're moving to a consistent schedule.
- To create a better performance/pay system. This change allows us to roll out future improvements—such as online performance and compensation tools—

more easily across the company.

**How will you be affected?**

*This year:*

- Your raise will become effective on September 1, and you'll see the increase in your first September pay.
- If you received a retroactive payment in September for July/August raises, that will end with this year's pay adjustment.
- The move from July to September will be factored into the salary budget provided to each manager.

*Next year:*

- Your raise will become effective on September 1.

**What do you need to do?**

- Understand the pay cycle change. Get the details by visiting [the HR portal].
- Get more information if you need it by calling XXX-XXX-XXXX.

***Emphasize “How To”***

Remember that scene in the airport newsstand when your flight was delayed and you were looking at magazines? If you meandered over to the section with consumer magazines—such as *Good Housekeeping*, *Men's Health*, *Better Homes and Gardens*, *Bon Appetit*, and *Seventeen*—you might have noticed something about the “cover lines” (the short headlines that promote what's inside that issue). Here's a sampling of what you might have seen:

- How one “Biggest Loser” *really* lost 140 pounds
- Banish beauty blunders
- Drop a dress size in 6 weeks
- Make dinner like a pro—in just 30 minutes
- 7 success strategies your CEO doesn't want you to know
- Sleep deeply | Wake up energized
- How to love a crazy job

- Your best spring garden ever

What do these cover lines have in common? They promise to help readers solve a problem, improve something they do, and, fundamentally, be happier. Magazine editors use these lines because they know that “you” and “how to” are the most compelling headline words you can use. They’re so compelling, in fact, that they work even if you don’t explicitly use them. (“Sleep deeply” is short for “Here’s how you can sleep deeply.” We get that “you” and “how to” are implied.)

The official name for this approach is “service journalism,” explains Don Ranly, professor emeritus at the University of Missouri School of Journalism. We often quote Dr. Ranly because he has such good advice about how to present information. The idea behind service journalism is that you (the writer) perform a **service** for the reader by putting together useful “how to” information. In other words, if you package information in a way that is *useful* for readers, they will be more likely to *use* that information to take action.

(Don also calls this technique “refrigerator journalism” because people cut out or print useful articles and post them where they will see them every day—on the refrigerator door.)

In short, the secret that advertisers and magazine editors know is that people crave information that makes things easier, simpler, faster, and better. So if you write your messages that way, employees will pay attention.

**Write “Benefit” Headlines Like Advertisers Do**

Advertisers know that the most successful headlines are what they call “benefit” heads: headlines that tell you what benefits their products offer you, such as give you softer skin or whiter teeth. (Smart advertisers don’t emphasize a product’s “features,” such as the number of servings or list of ingredients, because customers don’t find those as appealing.)

While HR programs rarely give employees softer skin, most HR “products” do offer employees tangible benefits. So your headlines should focus on those benefits, not list the features.

For example, a *feature* of your retirement plan may be that it offers employees eight different investment funds. A *benefit* of your retirement plan may be that the company matches employee contributions dollar for dollar. Which will appeal most to employees? Here are two headlines. Which do you think most employees will be drawn to?

- “Our retirement plan offers you eight different investment options”
- “How you can be paid to save” or “How to double your savings”

**Tell Readers “How To”**

Luckily, HR information lends itself to service journalism because it personally affects employees, and there’s often a how-to component.

Here are some examples of how to follow Don’s advice to create headlines that provide a service for your employees. (All would engage employees’ interest much more than a bland heading like “Your Medical Plan.”)

- Money (subhead: How you can make more of it and save for tomorrow)
- How to make sound investment decisions
- How to decide what amount of life insurance you need
- 5 ways to increase your productivity without leaving your workstation
- How flexible work arrangements create a win-win for you and your employer
- 3 steps to choose your best medical coverage

***Use Odd Numbers for Maximum Retention***

A noted writer with lots of experience in the business press once confided this wonderful little secret to us: Odd numbers are more memorable than even numbers. That's why you'll find lots of "3 ways to..." and "5 things to remember..." and "7 ways to solve a problem" in our collected works.

***Slice, Dice, and Chunk Content***

No, we won't give you a cooking lesson or try to sell you one of those infomercial products ("It slices! It dices! It does your laundry!"). Instead, we show you how to cut your copy into manageable chunks so that employees quickly get your message.

*The bad news you know already:*

**People do not read!**

The next time someone wants to communicate complicated information in great detail, remind him or her of the following facts:



- Most people read only headlines and the first paragraphs.
- People are likely to stop reading if materials include words they don't understand.
- Most employees spend less than one minute reading a newsletter.
- It takes an average reader one minute to read 200 words.
- Web readers read 25% slower and scan 79% of the time, reading only 20% to 28% of the words. Only 16% read word for word.

We need to “chunk” because we’ve become a society of skimmers and scanners, glancing through a print publication or browsing in a website to find what we need quickly. We read shorter chunks of information more readily than we will read huge, gray columns of words with no break in sight.

As a result, communicators need to find ways to package our content into “chunks” that make it easy for our audience to dive in and remember information.

For example, you’ll notice that we liberally use bullet points throughout this book. That’s because bullets help you do the following:

- Present an easy-to-scan list of words
- Give readers a series of instructions
- Divide a long, complex sentence into discrete select points

We just showed you an example of what happens if you take a long sentence and divide it so that each bullet

starts with a verb. That's another hidden benefit of bullets: They beg for parallel construction that creates a nice, easy rhythm for the reader. We prefer to use verbs as the starting point for bullets because verbs communicate action.

Of course, bullets aren't the only way to chunk your content. You can also try the following:

Chunking Method	When to Use It
Checklist	Another form of bulleted list, but the checklist creates an expectation of action, as in a to-do list
Numbered sequence	Indicates that there are a certain number of points or action steps to pay attention to
Sidebar	Content relating to the main topic that adds context or provides further texture
Callout	A short piece of information, such as a quote or single fact
Table	A great way to organize complex information. (Originally, we wanted to present this information in a bulleted list, until we realized that a table is easier to read and better organized.)

#### CREATE A CHECKLIST TO GUIDE EMPLOYEES THROUGH A PROCESS

It was open enrollment time, and our client, a benefits manager for a large corporation, had a lot to communicate. So we helped her create an enrollment package that used every chunking tool available, including this overview:

##### Open Enrollment Checklist

1. Review and compare each benefit plan option.

✓ Review your personalized enrollment worksheet to see which healthcare options are available to you.

✓ Read the At-a-Glance sheets to familiarize yourself with the main features of each plan.

2. Access the online Health Plan Decision Maker, and use the following:

✓ Medical Plan Comparison Tool

✓ Spending Accounts Tool

3. Enroll online or over the phone.

✓ Go to [website] to enroll, or call the HR Service Center at XXX-XXX-XXXX.

- ✓ Be sure to enroll by November 15.
- 4. Review your confirmation statement.
- ✓ Make sure that your benefits elections and dependent information are correct.
- ✓ If your information is incorrect, call the HR Service Center.

#### ***Axe the Deadwood***

Another way to reduce copy into meaningful chunks is to axe the deadwood. Whenever you see an empty word or phrase, replace it or delete it. Pretend every word costs you one dollar out of your paycheck, and suddenly, you'll find yourself editing like never before. For example, cross out every "In the event of" you see and replace it with the wonderfully brief equivalent "If . . ."

A good rule is that if you would not say a phrase aloud to another person, don't put it in writing.

#### ***Open the LATCH to Organize Your Writing Better***

Need help figuring out how to create a bulleted list, checklist, or table? We gain inspiration from Richard Saul Wurman, author of *Information Anxiety*,<sup>1</sup> who notes that there are five, and only five, ways to organize information. They are best remembered by the acronym LATCH, which stands for the following:

- **Location.** This describes where certain things are in relation to others. For example, during orientation to a new job, it's useful for an employee to know where the cafeteria and restroom are, and where to find various departments or offices.
- **Alphabet.** This isn't a great way to organize a grocery store, but it sure makes sense on the spice rack. Many topics benefit from being looked at from A to Z.
- **Time.** The timeline is a great way to present historical information or to project into the future. It is an

especially good device to summarize what benefits kick in when, or to show what happens to some benefits while an employee works for the company and when he retires.

- **Category.** Most stores organize similar items together. This technique also works well when you're writing about certain HR programs, policies, or benefits. For example, a communication about time off might include programs that are administered by several different HR departments, but that distinction isn't of interest to an employee. She just wants to know the different situations in which she can take time off and how much time off she gets.

- **Hierarchy.** Organizing from the bottom up or the top down—from smallest to largest, or most expensive to least—works well on its own or in combination with a category approach.

### ***Use Plain Language***

Many of us who have worked in HR for a long time are susceptible to a syndrome known as “The Curse of Knowledge.” Chip Heath and Dan Heath describe this syndrome in their book *Made to Stick*: “Once we know something, we find it hard to imagine what it was like not to know it. Our knowledge has ‘cursed’ us.”<sup>2</sup> The result is that we write content that's too technical, so it's difficult for anyone who is not an expert to understand.

Luckily, you can cure yourself of this curse in several ways. The first is to stop using jargon that no one but you and your other subject matter experts find interesting. Second, you can get rid of any and all words and terms that are difficult to understand. For instance:

Instead of:	Try:
Leverage	Use, employ, apply, exercise
Capability	Skill, talent, ability
Implement	Do, apply, put into practice
Integrate	Mix, combine, merge
Enable or facilitate	Allow, make possible, help, aid, assist
Input	Participate, contribute, take part, share
Innovative	New, original, fresh, novel, creative

But you might protest that you must use specific HR terms because they're the only way to accurately describe certain things, or because they're legally required. If this is the case, you must not assume that the average (or even above-average) employee understands these terms. Instead, define the term—and, even better, provide a quick glossary.

#### DEFINE TERMS IN A SIDEBAR FOR EASY REFERENCE

In creating an open enrollment package, we included a glossary of terms that were somewhat familiar, yet might still cause employees some confusion. Here's a sample:

- **Copayment.** The flat dollar amount you pay when you visit a doctor or have a prescription filled.
- **Deductible.** The amount you pay each calendar year before you begin to receive reimbursements from the plan.
- **Out-of-pocket maximum.** Limits on the amount of money you or a covered dependent must pay toward eligible medical expenses in a calendar year. Once you reach that limit, the plans pay 100% of the allowed amount for the rest of the year.
- **Precertification.** A requirement that you or your healthcare provider must notify your medical plan before you receive certain medical services.

#### *A Good Test for Simple Language*

How do you know if your language is simple enough? Check your readability. The average American reads at a 9th grade level, so some companies use that as a guide (as do publications such as *Reader's Digest*).

But an HR communicator we admire recently convinced senior management that all employee communication at her company needs to be written at a 7th grade level, which happens to be the level of most marketing (including ads created by her company). Her research showed that the 7th grade level is easiest for employees to understand. As she tells it, “We’re not ‘dumbing down’ anything. We’re making information accessible to everyone.”

To check your readability using Microsoft Word, first open the Preferences menu and then the Spelling and Grammar section. Make sure that “Show readability statistics” is checked. Now, when you’re drafting or editing a Word document, go to the Tools menu and choose “Spelling and Grammar.” Run your document through the spelling and grammar checking process (always a good idea, anyway). At the end, a window will pop up that shows your Flesch-Kincaid grade level score. If it’s 12th grade or above, your writing is probably too complex.

#### *How to Keep It Short and Simple*

Here are some rules of thumb:

- Keep sentences at about 14 words.
- Limit paragraphs to three to four sentences.
- Create articles (in print or on the web) that run only 300 words or less.
- Use three to seven words in headlines.

#### ***Be Concrete***

Here’s the first sentence of a bad job description that we suspect confused rather than attracted candidates:

We're looking for a business/marketing expert who is a strategic and creative thinker with a natural ability to translate complex technical concepts into business results-oriented narratives that resonate with the organization, business, and industry.

This lead sentence is a lot of sound and fury, signifying nothing. It's an overload of jargon, and it doesn't begin to answer the basic question: What will the person in this job actually *do*? (By the way, this is just the beginning of the bad job description; you can see the whole horrible thing in [Chapter 10, "Recruiting."](#))

When confronted with poor information like this (which you often are), your best tactic is to ask a lot of questions. The answers will give you information you need to change the vague to the concrete.

To create a meaningful job description for the job just mentioned, you'd want to know who this person would report to, how many people he or she would supervise, what the main deliverables are, when they are due, what groups the person would work with, how much time he or she would spend on different activities, and so on.

Collect concrete, specific examples and stories, describe how the person in the job will spend most of his or her time, and note special skills or expertise that will be valued. You'll have a job description that will attract qualified candidates.

#### ***Tell Me a Story***

One of the best ways to make communication concrete is to tell personal stories. Like photos, they are worth a thousand words. If I can find one person with a story that will make my life easier, make me more productive, make me happier at work, that's much more tangible than all the abstract terms you can muster.

We are all interested in personal stories because we realize, “Here’s someone just like me” or “Here’s someone I admire.”

In some HR communications, you can feature real employees telling real stories—and that will make your communications much more powerful. But employees may not want to talk about certain topics. You can still tell the story; just don’t use the person’s real name or details.

#### A SHORT STORY

A benefits director wanted to “bring life insurance to life” to make it meaningful to employees. But she knew she couldn’t use an actual employee’s story. So she created a fictional character (based on a real situation) to illustrate the need for insurance and to show how reasonable the costs were:

Brenda is 45 years old and makes \$40,000 a year. She is a single mom with two kids who worries about their financial well-being if something were to happen to her. To ease her mind, Brenda is choosing Voluntary Group Universal Life coverage for herself at 2.5 times her annual earnings, or \$100,000. The coverage costs \$0.126 per \$1,000 for Brenda’s age group, so her contribution is \$12.60 per month.

## CHECKLIST FOR WRITING SIMPLY

To make sure your message is perfectly clear, you’ll want to master “sailing the seven Cs.” When you’ve finished writing (or when you review someone else’s writing), ask yourself if your writing is

✓ **Clear**—Is it easy to understand?

✓ **Concise**—Is it as brief as it can be?

✓ **Comprehensive**—Does it include all the necessary topics?

✓ **Complete**—Does it include all the necessary details?

✓ **Correct**—Is the information accurate?



✓ **Credible**—Does it add up?

✓ **Conversational**—Does it sound like a real person talking?

## 6. Leverage Visuals

*In this chapter, you learn how to*

- *Apply visual techniques to enhance communication—even if you’re not artistic*
- *Use text treatments to eliminate boring gray type*
- *Leverage charts and tables to organize information*
- *Tell an instant story using photography*
- *Put icons to work as an information shortcut*
- *Build an infographic to capture complex topics in a visual way*

As we explain in [Chapter 5, “Write Simply and Clearly,”](#) there’s no doubt that clear writing is a key component of effective communication. But another element is just as important, yet it’s one that’s often overlooked. This element is—you guessed it—visuals.

The more we understand about the workings of the human mind, the more we see the importance of visuals. For example, half the brain is devoted (directly or indirectly) to vision. We process images 60,000 times faster than text. Even letters and words are experienced visually: We learn the alphabet by associating A with apple, B with ball, and so on. When we read the letters “b-a-l-l,” we don’t process them individually. Rather, we “see” an image of the entire word—and we instantly

associate the word with a mental picture of a bouncing sphere.

Marketers and the media leverage visuals to sell their products and convey ideas to an increasingly diverse world. Plus, because our world is overloaded with information, these persuaders know that visuals quickly cut through the clutter to capture people's attention and influence their thinking.

## **VISUALS PERSUADE**

Presenters who use visuals are 43% more effective in persuading audience members to take a desired course of action than presenters who don't use visuals, according to a study by the University of Michigan School of Management.

Perhaps as a result, visuals are growing in importance in our society. From advertising to entertainment, from highway signs to retail store displays, visuals dominate. Writes Paul Martin Lester, Ph.D., professor at California State University at Fullerton, "Images . . . fill our newspapers, magazines, books, clothing, billboards, computer monitors, and television screens as never before in the history of mass communications." As a result, "We are becoming a visually mediated society. For many, understanding of the world is being accomplished, not through reading words, but by reading images."<sup>1</sup>

### ***Leverage Visuals to Help Employees Understand***

What does this mean to you? Quite simply, visuals need to be one of your key communication strategies. And even if you can't draw, don't think of yourself as a visual person, and don't have the budget to hire a graphic designer, you can make communication more appealing through the simple use of visual techniques.

## VISUALS EXPLAIN

Dan Roam, author of *The Back of the Napkin*, is a strong advocate of the impact of even the simplest visuals. As he puts it, “Visual thinking means taking advantage of our innate ability to see—both with our eyes and with our mind’s eye—in order to discover ideas that are otherwise invisible, develop those ideas quickly and intuitively, and then share those ideas with other people in a way that they simply ‘get.’”<sup>2</sup>

### *Climb the Visual Tree*

The first step in using visuals to enhance your communication is to understand the Visual Tree, a concept created by Alison’s colleague David Pitre to illustrate the array of visual approaches available to us (see [Figure 6-1](#)).

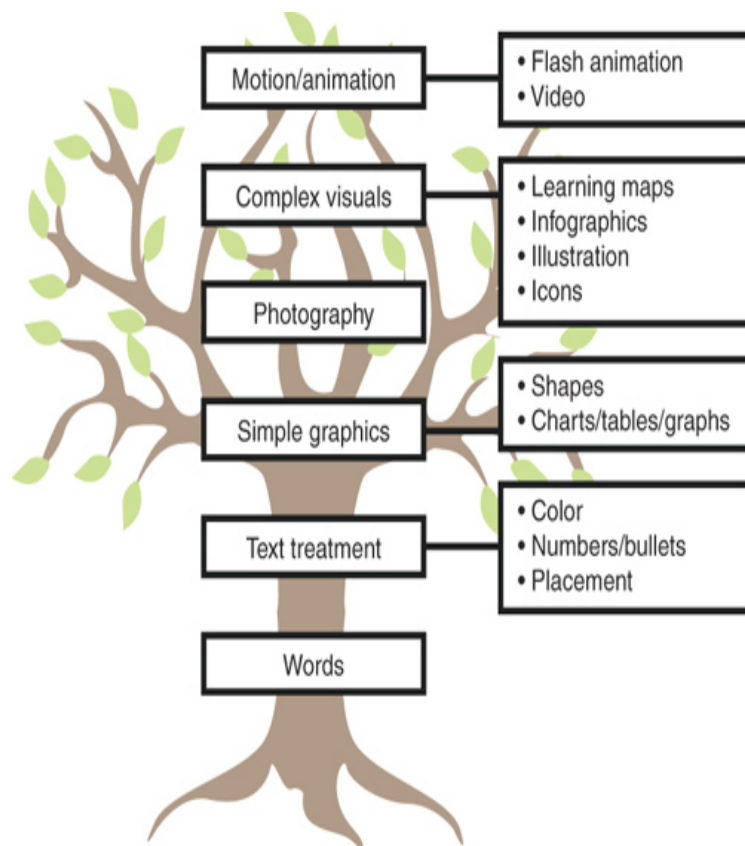


Figure 6-1 The Visual Tree

We start at the bottom of the tree, before visuals, when all we have are words. But as we work our way up, we see the increasingly sophisticated visual options, leading all the way to the top, to moving images such as video and animation.

We show you how to use five branches of the Visual Tree—text treatment, simple graphics, photography, icons, and infographics—to make your communication more compelling. We give you tips on how to achieve many of these methods with available tools such as Microsoft Word and your digital camera. And we provide examples of applying visuals to a common HR communication challenge: providing information to employees during open enrollment.

### ***Learn More***

New to using visuals? Here are two ways to learn more:

- **Observe.** As Yogi Berra once said, “You can observe a lot just by watching.” Visit your favorite shopping website to see how designers use colors, images, and even white space to make merchandise appealing. Browse through a consumer magazine and notice the use of type treatments. Next time you’re at the supermarket, pay attention to how the packaging is designed to draw you in.
- **Explore.** Much information about visuals is available for free on the Internet, including an [About.com](#) learning section on design basics, a website about color ([www.colormatters.com](http://www.colormatters.com)), and even videos on YouTube that give the history of graphic design.

## TAKE TEXT TO THE NEXT LEVEL

We love words as much as the next person; in fact, our ideal vacation includes a beach and a book. But even people like us don't want to have to search through a sea of gray text to find information we need when we need it.

So the first step in making your content more visual is by giving it a “text treatment”—breaking up the wall of words:

- Use bullets, numbers, and other chunking techniques, as demonstrated in [Chapter 5](#).
- Give your text some oomph by using **boldface** or *italics*, making headlines or subheads larger.
- Break the boundaries of black and white by using color to highlight text.

In [Figure 6-2](#), a communication about a change in a medical plan is made easier to read by using the framing techniques we show you in [Chapter 4](#), “[Frame Your Message](#),” and the writing approaches described in [Chapter 5](#). Then a text treatment—subheads in boldface type—is employed to enhance the look of the piece and make it easy to scan.

## New medical plans begin January 1, 2011

The company is making key changes to our medical plans designed to manage costs and simplify our offerings, starting with the Comprehensive Medical Plan.

### Comprehensive Medical Plan will become Comprehensive PPO

This change preserves valued plan features while offering cost-saving opportunities:

#### Freedom to seek care from any health care provider

The new plan will cover in-network care at the same rate of 70 percent. Participants may continue to seek out-of-network care, covered at 60 percent of the allowed amount.

#### Better discounts in-network

Because this plan will now be part of Aetna PPO network, participants in most locations will benefit from better provider discounts, which means lower out-of-pocket costs for in-network care.

#### Same deductibles

The savings we will realize by changing to the PPO network enables the company to maintain current deductibles and out-of-pocket maximums for 2011. Both in-network and out-of-network care will count toward deductibles and out-of-pocket maximums.

#### Improved preventive care coverage

All preventive care will continue to be covered at 70 percent of the allowed amount (60 percent out-of-network), even before the annual deductible is met.

Figure 6-2 Using typography

### ***Beware the Typography Trap***

One common mistake that many nondesigners make is to overdo the use of typography fonts. (A font is a set or family of typefaces, such as Arial or Times New Roman.) After all, it's so easy to replace one font with another—and even to use a different font for every word in a sentence. But there are two very good reasons not to indulge in font madness. First, although occasional use of a different font creates interest, too many competing fonts are just distracting. And second, most organizations have guidelines that specify which fonts support your brand; you want your communication to be consistent with your company's look and feel.

To **emphasize many items, you underline** or use **boldface** for everything you think is **important**, but

pretty soon your sentence looks **stressed out** and you've actually made it **harder to read**.

Another effective way to call attention to a point you want to make is to put some

white space

around it. For some reason, the eye just zooms in to that big empty space to see what gem is sitting there.

## **PUT SIMPLE GRAPHICS TO WORK**

We're ready to climb the Visual Tree to the next branch, where you can find simple graphics such as shapes, charts, tables, and graphs.

We start with familiar shapes: squares, rectangles, ovals, and circles. "Shapes are at the root of graphic design," writes designer Eric Miller on [About.com](#). "They are figures and forms that make up logos, illustrations, and countless other elements in all types of designs."

How should you consider using shapes? The simplest way is through the use of charts and tables to organize, connect, and separate information. In [Figure 6-3](#), a complicated set of information—the differences between this year's PPO health plan and next year's plan—is neatly contained within a table. The shapes at work are just squares and rectangles, but they lead the reader's eye to find the facts he or she is looking for.



## Changes to PPO plan

	Current PPO plans		New PPO plan
	2010 Basic	2010 Select	2011 Enhanced
Office visit copayment	• \$20 non-specialist • \$40 specialist	• \$20 non-specialist • \$40 specialist	• \$25 non-specialist • \$40 specialist
Outpatient coverage	85% coinsurance with an out-of-pocket maximum (\$2,400 individual/ \$4,800 family)	100% coinsurance	90% coinsurance with an out-of-pocket maximum (\$1,250 individual/ \$2,500 family)
Inpatient coverage	85% coinsurance	\$250/day copay with an 8-day copay maximum (\$2,000) per year	\$500/day copay with a 2-day copay maximum (\$1,000) per year

**Figure 6-3 Using tables**

Shapes also serve as symbols, providing visual shortcuts for key concepts:

✳ signifies something special

✕ marks the spot or indicates “don’t”

✓ invites you to check something off your list

★ tells you to pay attention, often because something’s on sale

■ conveys balance

## TAKE A PICTURE

Visit any news website (CNN, *USA Today*, BBC), and what's the first thing you see? A photo that conveys today's top story. Stand in front of a newsstand, and what attracts your eye? Cover photos of celebrities, models, and, in the case of food magazines, a delicious meal. Look at today's newspaper, and what do you notice first? Even in the case of traditionally "gray" newspapers such as *The New York Times* and the *Wall Street Journal*, the most prominent feature on the front page is a large and evocative photo.

If, as Dr. Lester from the University of California says, we're living in a "visually mediated society," the medium most often used is photography. Ever since the advent of digital photography (and the ability of most mobile phones to snap a photo), nearly everyone's communicating with pictures instead of words. Visit a popular 20-year-old's Facebook page, and you'll see photos of him, his friends, his travels, and even what he ate for lunch.

How should you use photographs in your HR communication? We recommend two ways: stock photography and photos of employees.

### ***Stock Photography***

Stock photos are, according to Webopedia, "professional photographs of common places, landmarks, nature, events, or people" that photographers provide to a service that then makes them available for sale.

Sometimes stock services act as a paid library—you can "rent" the photo for one specific use—and sometimes the service is more like a bookstore, where you buy the photo and use it as you see fit.

The advantage of stock photography is that, for a reasonable price (and sometimes even for free) you can

find nearly any photo you need, from a laughing baby to a piggy bank. And you can always locate photos of people who look like employees, to create communications employees can relate to.

In Figure 6-4, an article about a new life insurance option has been made more interesting by including a photo of a little girl holding an umbrella. The idea is to convey protection and to associate insurance with sheltering people you love.

## **Protect your family with voluntary life insurance**

Now you have a better way to protect your family with the company's enhanced voluntary life insurance coverage.

As a result of this change you will be able to:



- 1.** Increase your coverage amount to up to eight times annual salary
- 2.** Reduce your contributions by approximately 20 percent
- 3.** Increase your coverage level by up to one times annual pay each year during Open Enrollment without submitting evidence of good health

**Figure 6-4 Stock photography**

The downside of stock photos, of course, is that those smiling people aren't really employees. So you have to decide which is better: the convenience and professionalism of stock photos, or the authenticity of having pictures of your actual employees.

### ***Stock Photo Sources***

Search the web for “stock photo,” and you’ll find dozens of services available. Here are the three most often used by graphic designers we know:

- **iStockphoto** is a comprehensive stock photo service where members contribute content (which, in addition to photos, includes illustrations, video, and Flash animation). iStockphoto has many people photos in its collection, and the costs are reasonable: You can buy low-resolution images for a website or PowerPoint for as little as \$1 per image.
- **Shutterstock** is a subscription-only collection, so you pay a monthly rate that allows you to download a certain number of photos. If you’re a regular buyer of stock photos, and you need a large collection to choose from, Shutterstock may be for you.
- **Veer** is at the top of the price range, but it also offers the most sophisticated photos and illustrations.

### ***Employee Photos***

We remember a time when the only way to obtain photos of your employees was to hire a professional photographer and arrange a photo shoot. Although that’s certainly still an option—one of our clients just made the investment to illustrate a printed piece about culture change—digital photography gives you lots of other ways to include real-people photos in your communications.

Along the way, expectations about the quality of photos have changed. With the growth of social media—especially networking sites such as Facebook and content-sharing sites such as YouTube, SlideShare, and Flickr—we’ve all gotten more relaxed. The philosophy is that it’s better for photos and videos to be “real” than to be perfect. You can be the photographer and take the

photos you need—by getting out your digital camera and asking employees to say “cheese”—or you can reach out to employees and ask them to submit their own photos. For example, you can ask parents to share baby photos to use in your maternity leave communication. Or suggest that active employees provide photos of themselves exercising to promote a wellness program. Use your creativity (and invite employees to do the same), and you’ll find endless possibilities for picturing employees (by encouraging them to create the photos).

### ***Illustrate the Specific Point You Want to Make***

If you have the budget to work with illustrators, they offer you another way to make your point clearly and quickly. What’s great about illustrations is that you can show something it would be difficult to photograph (such as an accident happening), and you can include just the information that makes your point. Look at a variety of magazines and newspapers, and notice which stories benefit from illustrations and which from photographs, and then take your cues from the professionals.

## **CREATE SHORTCUTS USING ICONS**

We’re now ready to ascend to the upper branches of the Visual Tree to the mighty icon, which the Merriam Webster dictionary defines as “a pictorial representation: an image, emblem, or symbol.” Or, as Alison wrote in her book, *Your Attention, Please*, an icon is “a small, easy-to-recognize image that is universally understood.” Think about the image on a restroom door signifying men or women. Or the recycling symbol. Or how an outline of a folder indicates a location on your computer for storing files.




We like how designer and graphics instructor Jennifer Farley describes icons: “From the hieroglyphics on the pyramids of ancient Egypt to the orange RSS icon now

gracing so many websites, icons have been used in both print and in web design . . . to draw the eye quickly to important parts of the document or web page.”

The advantage of icons, says Ms. Farley, is that they “convey lots of information quickly” and can be used to grab people’s attention or to rapidly communicate an idea.

We find lots of uses for icons in HR communication. For example, the enrollment communication shown in [Figure 6-5](#) introduces an icon for each plan component: healthcare, dental, and vision. Throughout the rest of this enrollment package, which employees received at home, the icons reappear every time information is conveyed about that particular plan. And when employees visit the HR website, those icons appear again to provide a quick way for employees to find information about each plan. Icons therefore become a convenience for employees; they don’t even have to read words to locate what they’re looking for.

### Understanding your benefits

Benefit Plan	Current Benefit	2011 Benefit Change	What you need to do
 <b>Comprehensive Medical Plan</b>	<b>Deductibles:</b> Individuals: \$400 Family: \$800	<b>Deductibles:</b> Individuals: \$800 Family: \$1,600	Consider contributing to the Health Care Spending Account to use before-tax money to pay your deductible for eligible expenses.
 <b>Dental Plan</b>	Preventive care covered at 90%.	Preventive care covered at 100%.	Take advantage of preventive dental screenings to keep your teeth and gums healthy.
 <b>Vision Care Plan</b>	Not available as a stand-alone plan.	<b>New Vision Care Plan</b> available on a before-tax contributory basis, including benefits for eye examinations and eyewear.	Consider enrolling in the Vision Care Plan. Visit [website URL] for more information.

**Figure 6-5 Using icons**

## **MAKE COMPLEX CONCEPTS SIMPLE THROUGH INFOGRAPHICS**

Imagine that you were just appointed commissioner of a new transit system in your city that combines buses and light rail trains that connect to the Amtrak train station and the airport. You need to communicate to riders how they can get from point A to point B, which often involves transferring from one vehicle to another.

What's the best way to do so? Ideally, the solution would be a single page that riders could carry with them as they travel. This page also would become a poster displayed at bus stops and ticket windows, and an image posted on your system's website.

What you need, of course, is something like the New York City subway map, which uses a visual system for showing routes, modes of transportation, and where all those vehicles go.

That visual system is known as an information graphic, or infographic. And the best definition we found was on Wikipedia (yes, we know, not always the most reliable source): "Infographics are visual representations of information, data, or knowledge. These graphics are used where complex information needs to be explained quickly and clearly."

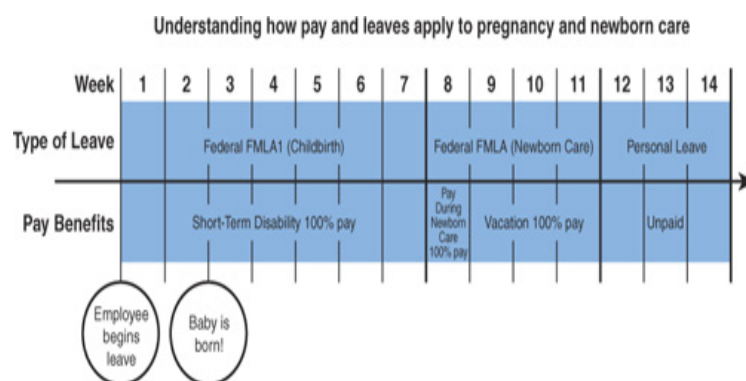
Wikipedia goes on to give examples of infographics:

- In newspapers, such as *USA Today*, they're used to show the weather as well as maps and site plans for newsworthy events.
- In scientific literature, they illustrate physical systems, such as cutaway views of anatomy, astronomical diagrams, and images of microscopic systems.

- Transit systems use infographics to integrate a variety of information such transfer points and local landmarks.

The more complex your information, the more you should consider creating an infographic. For example, if your performance management system has a lot of moving parts—goal setting, mid-year review, year-end review, calibration, bonus calculation—an infographic could be created to capture all the components. Then it could be shared with your HR team or managers so that they clearly understand how the system works.

In [Figure 6-6](#), an infographic helps convey the details of maternity leave. The organizing principle is time. In this company, a typical maternity leave spans 14 weeks—two weeks before the baby is born and 12 weeks afterward. So the infographic is organized to show pay and leave choices the employee might make during the period.



**Figure 6-6 Infographic**

## WHEN YOU DON'T HAVE MONEY FOR GRAPHIC DESIGNERS

If you don't have the budget to work with a graphic designer, and yet you know you really could use a professional's help, here are two suggestions:

First, get recommendations of talented graphic designers from communication professionals in other companies. Then meet with a few designers to see if they would agree



to a single-time fee to create a template you could use for all your communication needs. Or perhaps you could offer something that would be an incentive for the designer to give you a price break (sometimes it can be as simple as a credit line). If you can get a price break, approach your management with evidence to persuade them that working with a specific designer would be a good investment.

The second suggestion (which we mention briefly in [Chapter 3, “Plan and Manage Communication”](#)) is to visit a local college that teaches graphic design. Ask one or more instructors if your need for communication design or illustration could become a class project. This would be a win-win situation. The students would see what it’s like to work in the real world, the student whose work is selected would have a work sample before graduation, and you would get a great design or illustration for free.

## CHECKLIST FOR LEVERAGING VISUALS

Now that you’ve climbed the Visual Tree, you’re ready to leverage visuals in your communication. Keep in mind the following:

- ✓ Even the simplest text treatment (**such as putting text in boldface**) can make your communication more interesting.
- ✓ You can use simple graphics—tables, charts, and shapes—to organize information, make it easier to access, and give it more energy.
- ✓ A compelling visual is as close as your digital camera or the photo-taking abilities of your employees.
- ✓ When time is of the essence, icons are an effective shortcut.

✓ Whether you're navigating the subways or helping people understand complicated HR systems, infographics make the complex simple.

## 7. Use the Right Tool for the Job

*In this chapter, you learn*

- *Pros and cons of different communication tools*
- *Why a mix of media works best in many situations*
- *How to make the best use of each communication vehicle*

You're frustrated. You've just returned to your desk after spending 90 minutes at a meeting where you learned a single fact that easily could have been communicated in an e-mail. Now, as you try to catch up on your e-mail, you open a long message that leaves you with more questions than answers. You go online to watch a video that lasts eight painful minutes and doesn't tell you anything you didn't already know. A colleague asks for feedback on a poster, designed to be displayed outside the cafeteria. It contains so much information that it can only be read by someone standing six inches away.

We call this syndrome "Bad Use of Communication Tools." Too often communication falls short because people use the wrong tool for the job. Perhaps they send an e-mail when a conversation is needed, or call a meeting just to provide background information. This is the equivalent of picking up a hammer when you need to drill a hole.

### A THOUGHT ABOUT TOOLS

*"I think the hard thing about tools is that it takes a fair amount of effort to become proficient."*

—Bill Joy, computer scientist and cofounder of Sun Microsystems

A second mistake is to choose the right communication tool but misuse it. Examples of this problem include an e-mail as lengthy as an employee handbook or a meeting that's all presentation and no discussion. This is like using a hammer to drive a nail, but hitting the nail so hard that it cracks the plaster.

This chapter helps you do it right by showing you how to choose the appropriate communication tool. It also gives you tips on making that tool work for you and your employee audience.

## **REVIEW THE TOOLS IN YOUR TOOL KIT**

Let's start by understanding the pros and cons of each tool:

Tool	What It's Right For	What It's Wrong For
E-mail	Quick, actionable information	Providing detailed information, communicating tough topics
Website	Comprehensive information available anytime, opportunities for employees to connect with one another	Urgent information
Print (brochure, newsletter)	Telling a story, putting issues into context	News
Workplace communication (posters, bulletin boards)	Quick reminder or overview	Details, context
Audio (podcasts or CDs)	Bringing an issue to life, telling a story	Complex information, anything best conveyed visually
Video	Dramatizing and illustrating an issue	In-depth information
Meetings (face-to-face or virtual)	Explaining complex content, answering questions	One-way delivery
Social media, such as Facebook, wikis, blogs	Connecting employees to each other	Broadcasting "official" information

By knowing what each tool does best, you can begin deciding how to use each one for the communication you have planned.

But before you jump in, we remind you of two important steps:

**1. Consider employees' communication needs and preferences** (see [Chapters 1, "Know Your Employees,"](#) and [2, "Treat Your Employees Like Customers"](#)). For example, if your sales force consists mostly of Millennials, those employees will probably prefer electronic communication over print (or even face-to-face). And they'll expect to find information easily and get their questions answered quickly.

**2. Revisit your objectives** (see Chapter 3, “Plan and Manage Communication”) to make sure you focus on what you need employees to know, believe, and do. By doing so, you’ll make sure your choice of vehicles will accomplish your objectives.

## **DECIDING ON THE BEST TOOL**

Here are examples of how an HR manager might match employee needs, objectives, and the appropriate communication vehicle:

Employee Need	Your Objective	The Right Tool	Example
"I want to talk about healthcare options at home with my family."	Employees make the best decision about healthcare and enroll on time	Print	Open enrollment mailing
"I need to figure out what I'll receive from my 401(k) retirement account when I retire."	Employees fully participate in the 401(k) plan	Website	Retirement benefit estimator
"I want to understand how our bonus program is changing and what it means to me."	Employees understand the change and don't overwhelm HR with inquiries	Meeting	Face-to-face or virtual sessions to explain changes and answer employee questions
"Show me how all our different policies and benefits work together when my baby arrives."	Affected employees know what the benefits and policies are and take appropriate action	A one-pager (in print or online)	A chart or graphic that shows all relevant information about maternity leave
"I have a lot of questions about disability insurance."	Employees enroll in long-term disability	A live chat	An instant-messaging session in which employees ask questions and get an immediate response from an expert

#### CELEBRATING YOUR NEW AND IMPROVED DENTAL PLAN

Is a toothbrush a communication tool? Not usually, but you can use a toothbrush—or a T-shirt or pedometer or other object—to call attention to what you need to communicate. For example, when one client announced an improved dental plan, we recommended giving away toothbrushes in travel cases. The result? The requests for more toothbrushes exceeded the number of employees. (In short, people loved them.)

The secret to using nontraditional tools? Make sure that the object is something relevant—a key chain doesn't communicate wellness—and that it's something employees will value. You don't need to conduct a survey to find this out; a small number of informal conversations with typical employees will give you the feedback you need.

## USING EACH TOOL EFFECTIVELY

Now that you know how to choose your tools, we show you how to enhance the way you use some of the most common vehicles: e-mail, print publications, and posters and bulletin boards. We also include tips on the newest form of communication: social media. (We cover face-to-face communication in [Chapter 8, “Make Meetings Meaningful—and Support Managers.”](#))

### ***E-mail: Love It, Hate It, Need It***

Ah, e-mail. We love e-mail’s ease of use, speed, and responsiveness. But we hate the feeling of being besieged by a never-ending onslaught of incoming messages.

#### ***How Many E-mails?***

According to The Radicati Group, a technology marketing research firm, here’s why you feel overloaded:

- 90 trillion: The number of e-mails sent in 2009
- 247 billion: The average number of e-mails sent each day
- 1.4 billion: The number of e-mail users worldwide
- 81%: The percentage of e-mails that were spam

Because employees receive so much e-mail, they’ve become skilled at deciding in seconds whether to press the Delete key or open a message and keep reading. How can you make sure your e-mails don’t get thrown in the trash? Here are a few tips:

- Use e-mail only when information is timely and action is required.
- Clearly outline action steps.



- Write strong, direct subject lines that summarize what you're conveying.
- Use the inverted pyramid (see [Chapter 4, “Frame Your Message”](#)) to organize the body of your message.
- Rely on bullet points, numbers, and other devices (see [Chapter 5, “Write Simply and Clearly”](#)) to chunk your message into easily digestible bits.
- Limit your message to a single screen.

#### TO THE POINT

When the economy took a nosedive in 2008, the Compensation and Benefits department at a major corporation began hearing from employees that they were anxious about their rapidly diminishing retirement funds. So the department asked the company's accounting firm to offer seminars on financial planning.

Since the subject was so compelling, we knew we could keep the message simple and still get employees' attention. Here is the e-mail we wrote:

##### *Subject line:*

Have questions about your finances? Get answers at this workshop.

##### *Message body:*

Acme is partnering with our accounting firm, Smith & Smith, to offer free workshops on Financial Planning in Uncertain Times. Led by certified financial planners, the group sessions will offer insights into how you can adjust your financial strategies to respond to a weak economy.

Workshops will be held between May 1 and July 2 at many locations and via the web on Live Meeting.

For a full schedule, visit [link]. To sign up, visit the website or call XXX-XXX-XXXX.

#### **Graphic E-mails Get Attention**

What's better than even the best text e-mail? If you have time and resources, consider creating a “graphic e-mail.” This designed e-mail (programmed using HTML, the same code used to create websites) looks like an ad when the recipient opens it. You're probably familiar with graphic e-mails, because you receive them from online retailers such as Lands' End, Victoria's Secret, and The Gap to advertise special offers such as free shipping.

Graphic e-mails (which some people call “e-cards” because they’re like electronic postcards) allow you to communicate a simple idea (see **Figure 7-1**). That way, employees don’t have to read a text message; they can quickly scan the “ad.” E-cards can be used to communicate the following:

- Dates and deadlines, such as the beginning and end of open enrollment, or the deadline for submitting a Flexible Spending Account claim
- Events, such as upcoming sessions about healthcare plans or retirement programs
- One compelling message, to reinforce or link to more comprehensive information on an intranet site



**Figure 7-1 A graphic e-mail**

ANOTHER THOUGHT ABOUT TOOLS

*“Man is a tool-using animal. Without tools he is nothing; with tools he is all.”*

—Thomas Carlyle, 19th century Scottish writer

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### ***(Still) Powerful Print***

About a decade ago, print was nearly extinct as an internal communication channel. Companies had invested so much in their intranets that they cut budgets for other forms of communication. The environmental movement was on the rise, and it seemed wrong to “kill all those trees.” (See the sidebar [“The Truth About Killing Trees”](#) in [Chapter 3](#).) And, let’s face it, print took a lot of work to do well.

As a result, many organizations eliminated print. But then something strange happened. HR people began to notice that employees were calling more often, because they didn’t understand key programs as well. After one company stopped producing and mailing open enrollment packages, the HR director discovered that employees were covertly printing dozens of pages from the intranet site (which, by the way, cost the company a lot more money than if the material had been sent to a printer). Other clients realized that eliminating print was unfair to employees who had limited electronic access.

Consider print’s value to certain employee segments:

Segment	Why Print Works
Manufacturing or retail	Many workers have limited access to e-mail and the intranet and may be uncomfortable with technology.
Call center	They have computers but have little time during working hours to read e-mail or browse the intranet.
Remote workers	People such as sales representatives, flight attendants, and service technicians prefer portable communication that they can stick in their bag and peruse when they have a few minutes.
Technology	It may seem counterintuitive, but IT and other technology workers find that print gives them a break from screen time.

As a result, print has returned to its rightful place in the toolbox, especially for communicating complex information such as enrollment options. And that's good news, because print has been proven to be more effective than electronic communication as a way to get people interested. (More good news: The cost of print has declined, and there are many "green" ways to print.)

Want an example of the power of print? A 2006 study of consumer behavior demonstrates that people are more engaged by print media such as newspapers and magazines than they are by electronic media such as TV, radio, and the Internet.

By "engagement," the authors—academic researchers at Ball State University's Center for Media Design—mean the amount of concentrated time that consumers spend on media. Known as the Middletown Media Studies,<sup>1</sup> the research is based on more than 5,000 hours of direct observation of consumers using media.

The upshot is that people are much more likely to devote their full attention to print publications than they are to other media. So although consumers spend far more

time on TV, radio, and the Internet, they're likely to be multitasking. They might have two or more of these channels on at once, or might be using an electronic medium as "background noise" while involved in other activities. Can a study about external media be applied to internal communication? Absolutely, because employees use media in similar ways, no matter where the information comes from.

#### *Three Ways to Tap the Power of Print*

- **Make print service-oriented.** Print is an ideal medium for service journalism (described in [Chapter 5](#)). It can help employees understand key issues so that they can see where they fit and know how to make a contribution. Think "how to" and "news you can use."
- **Paint a picture.** Follow best practices from magazines to make your information visual using photographs, charts, graphs, and other graphic elements. The most arresting visual of all? People's faces.
- **Give employees the choice of skimming or reading.** Depending on their interest in the topic, some of your readers will just scan—looking quickly at the headline, subheads, photo captions, and sidebars—and others will devour every word. Make sure your content is chunked to appeal to both.

#### STILL ANOTHER THOUGHT ABOUT TOOLS

*"Man must shape his tools lest they shape him."*

—Arthur Miller, playwright

### ***Waiting in the Cafeteria Line***

Our next trip to the toolkit is for an often-neglected tool: workplace communication such as posters, bulletin board postings, and electronic signs and screens. Why would we care about these? Because even if your company has some virtual workers, most employees spend the majority of their time in the company's office, manufacturing plant, store, warehouse, or other facility. That means they walk through an entrance, clock in (if they're hourly workers), visit the restroom, and wait in line in the cafeteria. And while they do so, they could be getting valuable information by looking at posters, bulletin boards, or electronic signs or screens.

The best part about workplace communication is that, even if your budget is miniscule, you can create posters or bulletin boards. All you need is paper, some tacks or tape, and the know-how to get your message across.

#### WHAT'S THE FASTEST-GROWING ADVERTISING VENUE?

If you guessed television, radio, or even online, you'd be wrong. The two fastest-growing advertising venues are outdoor (billboards) and in-store (such as signs stuck on the floor and video screens near the cash register). Why? Because advertisers know they can catch their audience's attention when they are driving down the road or pushing a cart. A few facts:

- The world market for outdoor advertising was projected to reach \$30.4 billion in 2010, a growth of 10%, according to Global Industry Analysts.
- Transit advertising is the fastest-growing outdoor advertising mode.
- "Digital signage" is the hottest trend in store displays. An array of retailers—from supermarkets to bookstores—are experimenting with these screens.

### *High-Potential Posters*

Poor posters. They have such potential, but they're often created quickly, without much thought. The result is often mediocre: they lack a strong visual element, are full of words, try to convey too much content, and are not compelling. And employees, who always know good communication when they see it, respond appropriately. Here are some employee comments from a focus group study we conducted recently at a manufacturing facility:

- “I never look at posters. They just don't seem relevant to me.”
- “Posters here are terrible. You have to stand there and read them. Who has time for that?”
- “I glance at the posters on the way to the cafeteria, but most of them seem like they're just up so that someone can check something off their list—you know, ‘I put it on a poster, so I communicated it.’ But if no one pays attention, what's the point?”

This is a missed opportunity, because posters are such a great way to convey concepts to people where they pause and/or congregate: In the break room. Waiting outside the credit union. Standing in the elevator.

Posters are especially valuable for employees who don't have easy electronic access. But, as Hollywood film studios (think movie posters), advertisers (billboards), and retailers (visual displays) know, posters work for anyone. After all, we have to look at something, so it might as well be attractive, interesting, and persuasive.

For inspiration, look not within your own company, but at world-class posters. There's a great website about posters throughout history at [www.artlex.com/ArtLex/p/poster.html](http://www.artlex.com/ArtLex/p/poster.html). For a “greatest

hits” list of movie posters over the last several years, go to [www.impawards.com](http://www.impawards.com).

## **Poster Tips**

- Always use a strong visual.
- Severely limit the number of words. (Headlines should be fewer than seven words.)
- Test whether a poster works by putting it on a wall, approaching it from the side, and walking by it at a normal pace.
- Hang posters at eye level in a variety of high-traffic areas.
- Keep posters up long enough so that employees notice them, but not so long that they become wallpaper.

### *The Best Bulletin Boards*

We love bulletin boards because all you need to be successful is some cork board, a box of pushpins, and the ability to channel your inner third-grade teacher.

Here are a few rules of thumb for making the most of bulletin boards:

- **Create interest and engagement through colorful visuals.** Employees need information that is quick and easy to digest and understand. Visuals such as progress charts, diagrams, photographs, and posters support the need to “get it fast.”
- **Target high-traffic locations.** While the size of your bulletin boards may vary depending on available space, what’s critical is where they’re located. Avoid positioning bulletin boards in narrow hallways, where the tendency is to walk past them without noticing. Instead, display



bulletin boards in open areas where employees are more likely to stop and visit, such as the cafeteria or break room or near an elevator.

#### LOCATION, LOCATION, LOCATION

A major retailer had a comprehensive and effective employee communication program. But the HR director felt that communication in each store could use some improvement. So we went to visit several locations to explore what was going on. One of the first things we noticed was the bulletin boards. There were lots of them—some with specific themes (such as sales and promotions), and others of a more general nature. And the people who ran the bulletin boards took the assignment seriously: Most boards were colorful and creative.

There was just one problem: Almost every bulletin board was in the wrong place. One was located in a narrow, heavily trafficked hallway; it was unlikely that anyone would stop to look at the board and risk getting trampled. Another was at the very end of the locker room area, where no one ever went. And, worst of all, there was no bulletin board near the place every employee visited twice a day: the time clock.

Our advice? “We love your bulletin boards,” we told the HR director. “But they’re being wasted. If you move them, they’ll be a lot more effective.”

• **Develop a consistent architecture.** You need a blueprint to organize the information on your bulletin boards. Key content areas could include the following:

- ✓ A calendar of upcoming meetings and events (local or corporate-wide)
- ✓ Job safety policies
- ✓ Employee recognition
- ✓ Career development opportunities
- ✓ Goals/strategies/performance results

• **Designate individuals to maintain the bulletin board(s) in their area/location.** This includes revising and/or replacing outdated information and collecting employee feedback if you have interactive features such as suggestion boxes.

## EVERYBODY INTO THE POOL!

An employee communication tool that's getting a lot of attention these days is social media. In case you're not completely familiar with this new-ish communication channel, we bring you a definition from Brian Solis, one of the gurus of social media marketing:

**Social media** describes the online tools that people use to share content, profiles, opinions, insights, experiences, perspectives, and media itself, thus facilitating conversations and interaction online between groups of people. These tools include blogs, message boards, podcasts, microblogs, lifestreams, bookmarks, networks, communities, wikis, and vlogs.

A few prominent examples of social media applications are Wikipedia (reference); MySpace and Facebook (social networking); Twitter and Jaikue (presence apps); YouTube (video sharing); Second Life (virtual reality); Upcoming (Events); Digg and Reddit (news aggregation); Flickr and Zoomr (photo sharing); Blogtv, Justin.tv, and Ustream (livecasting); Stickham and YourTrumanShow (episodic online video); Izimi and Pownce (media sharing); [del.icio.us](http://del.icio.us) (bookmarking); and World of Warcraft (online gaming).<sup>2</sup>

If you're older than, say, 30, you may consider social media to be an activity mostly for the young. But social media is not just for kids. Although 18-to-29-year-olds are the largest users of social media, 43% of 30-somethings and 29% of 40-somethings use these tools—and the numbers keep increasing. For example, we've found that the business social network LinkedIn is more popular among people over 30, whereas there are more Facebook fans among Millennials (born between 1980 and 2000).

Despite the growing popularity of social media, many of us are unsure how to use this tool. After all, there are so many possibilities and quite a few risks. Here are a few suggestions for including social media in your communication program:

- **Be clear about your objectives.** We know—we keep referring to objectives. That’s because understanding what you’re trying to accomplish is such a great way to focus—and to make good decisions about the best ways to communicate. Resist the temptation to launch social media because the cool kids are doing so. First, figure out how social media helps you get to where you need to go.

- **Don’t go it alone.** Social media isn’t “owned” by anyone; it’s bigger than any one function. So the best way to tackle social media is often to form a team that includes HR, IT, Legal, and Corporate Communications. By doing so, you can address all the aspects: technology, external reputation (all those crazy bloggers), policies, and employee engagement.

- **When you’re ready to start, don’t jump into the deep end; just dip your toe into the water.** The nice thing about social media is that you can quietly experiment, see how it goes, and then ramp up or switch gears. Many tools are free or cheap, and commonly used IT platforms such as Microsoft SharePoint have social media options such as blogs and wikis built in.

- **Give it a go with recruiting.** As we explain in [Chapter 10, “Recruiting,”](#) many companies start by supplementing their traditional recruiting communication efforts with Facebook, LinkedIn, and Twitter. It’s a great way to get your feet wet while attracting potential employees who aren’t reading newspaper classified ads.

• **Ask your employees what they use and what they need.** In the very early days of social media, we had several clients who enthusiastically plunged into creating internal Facebook-like networks. But some of these efforts failed; employees just didn't use them. What was the problem? As one employee told us, "I'm already on the real Facebook, where I connect with all my friends and colleagues. Why would I create a new profile and new connections when I don't need to?" Make sure you understand employees' preferences for how they would use internal social media channels.

• **Help employees solve problems and get work done.** Networking is fun, but your best employees are focused on doing their jobs. That's why many organizations are exploring social media's potential for making work easier. For example, a major pharmaceutical client has introduced Yammer, an internal microblog that works like Twitter. Employees form groups and then post comments or questions such as "Looking for data on how XX software can increase run time. Can anyone help?" or "Just ran a successful test using XX new methodology. Would be happy to share my results." When employees are located in multiple locations and a variety of time zones, they appreciate that Yammer is a great way to collaborate with colleagues and get work done despite geographic or time differences. Isn't that what it's all about?

A FINAL THOUGHT ABOUT TOOLS

*"A bad workman always blames his tools."*

—Proverb

## SUMMING UP: PUT EVERY TOOL TO WORK

When you're communicating something especially important, you'll want to include a variety of tools to help employees understand their options and make good choices.

When we helped a major pharmaceutical company communicate open enrollment in a year that included many changes, we recommended a communication program that included nearly every tool available: newsletters, fact sheet, postcards, posters, benefits fair, website enrollment, cafeteria tent cards, and plasma screen panels in major lobby locations. Here is how each tool contributed to the overall success of the open enrollment:

- **Newsletters** helped share complex subjects in short, easy-to-read segments, including charts, bullets, and lists.
- **The fact sheet** gave employees information in one concise page to encourage them to act. For example, one piece listed excuses employees might use to postpone enrolling ("I don't need it," "I can't afford it") and gave compelling reasons to act now.
- **Postcards** reminded employees that it was time to act. We used postcards for two different events. The first reminded employees to enroll, sharing website and phone information. The second focused on one aspect of enrollment: long-term disability.
- **Posters** were put up throughout facilities—outside cafeterias and lunchrooms, near elevators, at entrances, and on bulletin boards—to reinforce key messages.
- **A benefits fair** gave employees the chance to ask questions and get answers immediately.

- **Website or phone enrollment** offered employees a fast, simple, inexpensive way to enroll and to see immediately what their costs would be. Employees without web access could call a toll-free number to enroll.

- **Cafeteria tent cards** encouraged employees to “Enroll today.”

- **Plasma screen panels** provided information about where employees could attend a benefits fair and reminded them of the upcoming deadline for enrollment.

## **CHECKLIST FOR CHOOSING THE RIGHT TOOL FOR THE JOB**

- ✓ Consider your audience and your message.

- ✓ Think about all the tools at your disposal (along with the pros and cons of each), and then determine how each might help you communicate a specific message.

- ✓ Make sure you’re making the most out of each tool.

## 8. Make Meetings Meaningful—and Support Managers

*In this chapter, you learn how to*

- *Improve meetings to realize their potential as an effective communication channel*
- *Make web/virtual meetings more dynamic and compelling*
- *Provide managers with information, tools, and skills to improve communication with their teams*

We've been around for a long time, so we remember the “good old days” before electronic communication made it possible to reach anyone anywhere at any time. And, although we mostly prefer today's communication, one aspect used to be better: meetings.

Since meetings are a key form of communication in most organizations, you'd expect them to be effective. But too often meetings are long, boring, and unproductive.

While it's not our intention to fix every meeting, we'd like to help you improve the meetings you hold to inform employees about HR programs, policies, and benefits. For example, many HR professionals we know invite employees to meetings during open enrollment to help them understand health plan changes. A defense company used meetings when it made radical changes to its retirement plan: The HR team traveled to all company locations and held a series of “road shows” to explain the new plan to employees. And it's a best practice to include

web briefings or face-to-face sessions whenever the topic being communicated is complex or emotional.

After all, meetings can be the best channel for explaining complicated topics, providing context and allowing employees to get their questions answered.

In this chapter, we show you how to improve your meetings with employees (and, in fact, with anyone). We also provide advice on how you can help the most important communicators in your company—managers—improve their person-to-person communication.

## **FIRST, THE BAD NEWS**

Alison goes to a lot of meetings. In fact, during a recent month she attended a gathering of a company's top 100 leaders, a session for a corporation's HR network, and a regional conference put on by a leading communication organization.

Her conclusion? Despite the fact that much great information was shared at these meetings, the planners had a lot to learn about creating dynamic and effective meetings. Here are just a few of the mistakes made:

- **Uncomfortable venue.** At one session, more than 100 attendees were shoehorned into a small, windowless room designed to hold no more than 70 people. As a result, participants were oxygen-deprived, cramped, and cranky.
- **Too many presentations.** PowerPoint presentations can be effective, but not when a daylong meeting consists of nothing but presentation after presentation. That's just mind-numbing.
- **Not enough visuals.** With all that PowerPoint, you'd think there'd be plenty to look at. Yet many meetings



offer few visuals to break up the sea of words on slides.

- **Poor time management.** Speakers allowing no time for questions. Sessions running long, stealing time from later sessions, cutting into breaks, truncating lunch. Not enough time allocated to hold a breakout session. All are examples of poor time management, which ruins the meeting flow and causes participants to zone out.

- **Not enough dialogue.** If a meeting's only objective is to disseminate information, do yourself a favor, and save a bunch of time by publishing a report. But if the intention of your meeting is to create learning so that people can solve problems or take action, you must build opportunities for dialog into the agenda. That requires time, space, and planning.

## **OUR MISSION FOR MEETINGS**

Despite the fact that meetings often disappoint, we continue to have high hopes. In fact, meetings have such potential that we've created this mission statement for what we'd like them to be: **Meetings should not only share information but also engage, motivate, educate, and solve problems so that participants think and act differently as a result.**

Is this possible? Absolutely. We'll show you how.

### ***Good Meetings Begin at the End***

By "the end," we mean outcomes: objectives you want to achieve by getting people together. The worst meetings contain a kitchen sink full of miscellaneous stuff, messy and without direction. By contrast, the best are focused, with a clear purpose. What's the difference? Having clear objectives, of course. (You know by now that we're big fans of objectives, and we recommend that you use them for meetings as well as other communication.)

To decide on your focus, set one to three objectives that address at least one of the following questions:

- What will participants learn by the end of this meeting?  
What decision will be made?
- How will participants think differently? What will they believe?
- What actions will participants take after the meeting?  
What will they do?

### ***Your Friend, the Agenda***

After you've set your objectives, the best meetings are carefully designed to achieve them. The old-fashioned word for this design is "agenda," but you need to do more than create a bulleted list of content to cover. You should structure your meeting to have a flow that makes sense, build in opportunities for participants to—well, participate, and to manage time so that you get everything done.

To get started, think of your meeting as a television talk show. Channel your inner Oprah or Larry King. You'll need a dynamic host, interesting guests, supporting visuals, and opportunities for audience (participant) feedback. Your agenda becomes a guide that helps you do the following:

- Devote time to the things that matter most
- Set aside blocks of time for important topics
- Allow adequate time for recharging, informal discussion, and relationship building

## COME TOGETHER

During an economic downturn, a manufacturing plant went through some rough times: a product line was suspended, and employees were furloughed or their hours were cut. When business improved, the plant manager wanted to create an event that would bring employees together to focus on where the organization was headed and create understanding about what employees could do to contribute to the plant's success. The plant manager turned to the HR director for help. She created an agenda that included both presentations and opportunities for participation:

Time	Content	Facilitator
9:00 a.m.	Introduction	Plant manager
9:05 a.m.	Communicate the detailed vision and mission—where we're headed—and behaviors we need to focus on to get there  Answer questions	Plant manager
9:45 a.m.	Identify strengths  Each table brainstorms three to five strengths (one per card) that will help us achieve the vision and mission  Table participants vote on one card and present it to the group  All cards are gathered, sorted, and prioritized into a Top 10 list	HR
10:15 a.m.	Break	
10:30 a.m.	Define attributes for the new way of working  Using flip chart paper, each table creates a mind map (a diagram of related words) of attributes we need to work differently  All participants draw on their table's page  Pages are displayed around the room  All pages are gathered and consolidated	HR

11:30 a.m.	<p>Identify obstacles and solutions</p> <p>Using a flip chart, each table develops three to five obstacles or weaknesses</p> <p>Teams develop a solution for each obstacle/opportunity (solutions can be practical or “blue sky”)</p> <p>Tables report on one obstacle/solution</p> <p>Pages are gathered</p>	HR
12:15 p.m.	Lunch	
12:45 p.m.	<p>New-day resolutions</p> <p>Using the day’s learning, each participant writes down on two cards one thing he or she will do differently going forward (“I resolve to...”)</p> <p>All participants share their resolutions with a colleague</p> <p>The management team share the resolutions with the whole room</p> <p>All participants keep one card and turn in the other</p>	HR
1:00 p.m.	<p>How we’ll communicate with you going forward</p> <p>Aggregate all cards/docs from all sessions and draft a plan</p> <p>Communicate update/results to employees in shift meetings next week</p> <p>Follow up with town hall meetings in 30 days</p> <p>Take questions</p>	Plant manager
1:45 p.m.	Meeting close	

### ***Set Participants’ Expectations***

As soon as you start your meeting, it’s important to manage everyone’s expectations, particularly if you plan to go beyond the typical static session.

To set expectations, at the beginning of the meeting let participants know the following:

- What you'll accomplish in this session (objective/outcomes)
- What you'll cover, including order and timing (agenda)
- What everyone in the meeting will do (roles)
- How you'll conduct the meeting (rules of the road)

### ***Manage Information Sharing***

We're well aware that a key reason people hold meetings is to share information. But that doesn't mean you should take this process for granted. Effective information sharing is not just a matter of slapping together a PowerPoint deck. In fact, pinning your whole approach on PowerPoint can be a big mistake.

For example, recently a client visited us, asking for advice on the CEO town hall meetings she had just been put in charge of. The client opened a folder and pulled out a printout of a PowerPoint deck. "This is what the CEO has been doing," she said, straining as she lifted the thick stack and plunked it on the desk.

It was a car-wreck moment: We didn't want to look, but we had to. And the reality was worse than we feared: There were 55—count 'em—slides. And they weren't visual; these slides were chock-full of charts, graphs, and data.

"How long are your town hall meetings?" we asked the client.

"An hour," she replied.

"Any time for questions and answers?"

“Just a few minutes,” she said. “But nobody asks any questions, anyway.”

That wasn’t surprising. After 50 minutes of this dizzying array of information, employees were brain-dead. The problem wasn’t just the quantity of slides; it was how the meeting was organized. Nine separate topics were covered. Large quantities of data were reported. There were no stories, just thousands of facts.

Worst of all, none of it was directly relevant to the employees. There was no way for them to get involved, no call to action, no opportunity to do anything but passively sit in the audience, waiting for it to be over.

How should our client stop this information-sharing madness? Here’s some advice:

- Start, of course, with objectives.
- Always keep participants’ needs in mind. Ask yourself: What information is important to them? What do they need to know? Why? What do you want them to do with the information?
- Consider other methods of sharing information. PowerPoint’s a default, but are there other options? Create a fact sheet or other handout? Do an interview-style Q&A? Design posters?
- Use *more* PowerPoint slides—but with a lot less content per slide. Keep each slide clean and simple. Avoid using too many slides with detailed information, dense with text and graphics. Instead, use slides to illustrate only the main points.

### ***Create a Facilitation Approach***

If you're serious about making meetings meaningful, you need to go beyond passive presentations and create a truly interactive experience for participants. Doing so is worth the effort, because when participants have a chance to "work with" content, their retention increases.

Alison was reminded of the importance of interaction a couple of years ago when her youngest son, then a high school senior, was in the process of visiting prospective colleges.

Despite the fact that colleges are quite effective at communicating at a distance—via websites, print materials, and social media—their on-campus meetings can be terrible. Out of four colleges Alison and her son visited during one trip, two started their tours with a mind-numbing, worst-practice PowerPoint presentation, narrated by an Admissions geek.

The presentations were as bad as you'd find at any corporation: a series of slides with bulleted lists, with the presenter reading every word.

After the first three minutes, Alison's son whispered, "This is just for the parents, not for the kids."

Well, no, because she was as cranky as he was. So, to amuse herself, Alison began to silently consult on how to run the session better. There were about 15 prospective students (and about 20 parents) in the group. Why not ask a couple of students a warm-up question such as "What is one reason you're here this morning?" And a student would answer, "Because my mother made me," and everyone would laugh.

Or run some You Tube-type clips, produced by actual students? Or put out a bunch of facts, and then give students a pop quiz, with a prize for the kid who got the

most correct answers (and a prize for the one who got the fewest correct answers).

She could have gone on, but luckily the presentation came to an end, and it was time to take the campus tour (which wasn't that great, either, but at least there were no PowerPoint slides).

Here are other ideas for creating a more interactive meeting:

- After a presentation, break participants into small groups (two or three people) and ask the groups to generate tough questions about the topic.
- Use an exercise called “vote with your body,” in which participants move around the room to indicate their agreement with key statements.
- Put flipchart paper on the table, and invite participants to create a mind map (a diagram of related words) to brainstorm solutions to a challenge.
- Reverse the agenda for the typical town hall meeting. For the first 45 minutes of the meeting, invite employees to answer questions posed by the senior manager—to share their opinions on various topics. Then let the senior manager share what she has learned and talk about how she will use that information going forward.

Want more ideas? A slew of books are devoted to facilitating dynamic meetings. Here are three to get you started:

*How to Wow: Proven Strategies for Presenting Your Ideas, Persuading Your Audience, and Perfecting Your Image* by Frances Cole Jones (Ballantine Books, 2009)



*The Art of Facilitation* by Dale Hunter, Anne Bailey, and Bill Taylor (Jossey-Bass, 2009)

*Breaking Robert's Rules: The New Way to Run Your Meeting, Build Consensus, and Get Results* by Lawrence E. Susskind and Jeffrey L. Cruikshank (Oxford University Press, USA, 2006)

## **WHAT ABOUT WEB MEETINGS?**

Thanks to advances in technology, we no longer have to get together physically to have a meeting. We can have a teleconference, meet via videoconference, or join each other on a web meeting platform (such as Microsoft Live Meeting, Cisco Go-To-Meeting, or WebEx). The risk is that all the potential pitfalls of face-to-face meetings are magnified if you run a virtual meeting as a glorified conference call, showing PowerPoint slides but providing no opportunity to participate.

What should you do differently? Here are five ways to start:

- **Focus on your objectives.** (This is so important that we're mentioning it yet again.) Maybe you're trying to facilitate understanding among participants, or to get people to work together to solve a problem. In any case, be sure that your agenda is designed to achieve your objectives and that you're using the best web tools to support your agenda.

- **Become familiar with available features.** Many meeting organizers are uncomfortable with their video or web meeting system, so they only use the few tools they know—usually presenting PowerPoint slides. But good systems offer a wide array of tools to make meetings more dynamic. To find out what's available, watch a demo on the service's website or take the available training, which is usually free. Then begin to experiment

with how you can use these features to enhance your meeting.

- **Try one new tool.** The easiest, which is available on most web services, is Chat. It allows participants to write a question or comment, which is then posted for all to see. We use Chat to encourage participants to ask a question at any time, without interrupting the presentation. But you can use Chat in many different ways, including as a message thread.

- **Take a test drive.** At a small team meeting, experiment with running the session completely differently, using all the options available. Instead of presenting, try the Sharing feature to show participants a sample document or website. Create a poll, and allow participants to vote. Play with the whiteboard feature. Hand over the controls to another participant, and let him or her play.

- **Trust the force.** Virtual meetings can be a great way to communicate and get work done, if you give them a chance. So leave behind your assumptions and see what's possible.

Finally, we've found nothing beats actual face-to-face meetings for sharing information, solving problems, and more. If an international group is going to work on a project over the course of a year or many months, it's worth the investment to bring that group together for two or three days, with a mix of informal and formal get-togethers. Then, when you need to meet during the course of your project, you can do so economically via a web-based platform and have a much greater degree of participation, because participants will genuinely know each other from having had face-to-face time together.

## SUPPORT YOUR LOCAL MANAGER

When it comes to HR communication, employees are inclined to look for answers when they need to take action or make a decision. Whom do they turn to?

Their managers, of course, who provide useful, just-in-time information.

Since most managers feel they have a business to run—and do not want to become experts in the HR field—it can be a challenge to get them to learn a bit more about HR topics. Your role is to keep managers in the loop so that they're ready to answer questions as they come up. Here are four ways to help managers succeed in this important communication role:

- **Brief managers before the rest of the organization.** When you're rolling out a new program, train managers first. They'll have the inside scoop and feel knowledgeable enough to answer questions. Hint: Our favorite (efficient) way to do this is interactive, web-based briefings.
- **Provide FAQs.** As mundane as Frequently Asked Questions are, managers find them very helpful. Don't forget to include the tough questions and avoid corporate speak. Ask real questions that employees would ask, testing your FAQs with employees and managers before you finalize them. Get rid of the jargon, and write the way you talk. The best FAQs sound like a real person (a smart one) who anticipates and answers all your questions. The worst sound like a Dilbert cartoon: great to make fun of, but of no help to managers.
- **Create an intranet microsite devoted to managers.** If your company has an intranet, consider a special section just for managers. A managers' site is perfect to house resources and build skills. Make it social

by including discussion threads so that colleagues can share challenges and solutions. Provide access to on-demand learning that people can access quickly when faced with a challenge.

- **Don't ask managers to hold a special meeting.**

Managers are consumed with getting the job done; they don't need more to do. Focus on helping them respond to queries as they're raised and talking about key issues in regular team meetings.

#### THE FIVE-MINUTE MANAGER

One multinational organization set up a program to send all managers a weekly e-mail with a maximum of five minutes' worth of information for the manager to share in any weekly staff meeting. By keeping to brief, highlighted information, HR made it easy for managers to do the right thing. If employees asked questions, the manager knew where to find the answers, and then he or she could share the answers with employees at the next week's staff meeting.

## TRY A MEETING IN A BOX

There are times when you really need managers to get together with their employees on an important topic. If so, make it as easy as possible by creating a "meeting in a box." To create one, you simply combine everything a manager needs to communicate a new program into one package (which can be a physical box or an electronic download). The box will include a video overview of the new program, print handouts for employees to take away, and a discussion guide for the manager to use in a staff meeting. It can even include a feedback form to measure the usefulness of the communications. Again, if you make it easy for managers to do what you want them to do, you increase the likelihood that they will do just what you ask.

For example, let's say it's mid-year review time, and you need everyone to participate, despite the stress they're feeling right now. How? Here are three tools to give

managers to encourage them to have mid-year conversations:

- **Use visuals to illustrate the process.** Create a visual map of all the steps (and who is responsible for each) to help managers understand the process.
- **Be clear about roles.** Clearly articulate the roles of both managers and employees so that everyone knows what they are expected to do.
- **Provide FAQs.** Address burning questions managers might have about the process or their role by providing them with FAQs and answers.

#### HELPING MANAGERS UNDERSTAND A NEW COMPENSATION PLAN

A pharmaceutical company revamped its variable-pay plans to create a single global program for managers called the Long-Term Incentive (LTI) Plan. The challenge was to introduce this program so that managers themselves would understand the changes and be prepared to answer questions from employees.

We created a print piece highlighting the plan's components. Then we invited managers to web-based meetings that focused on complex plan components such as restricted stock units and performance share units. The meetings were designed to present information, but a considerable amount of time was allocated for Q&A. Questions asked by managers during the sessions were collected, and at the end of all sessions, a FAQ document was created and distributed for managers to use with their employees.

As a result, 95% of managers attending the web meetings said they understood the new LTI Plan. One program—the restricted stock unit plan—required managers to take action, and 100% of those affected did so before the required deadline.

### CHECKLIST FOR MAKING MEETINGS MEANINGFUL (AND HELPING MANAGERS)

- ✓ Start with the end in mind by creating clear, focused objectives.
- ✓ Build an agenda that helps create a game plan for your meeting.

- ✓ Create highly interactive meetings, getting everyone involved.
- ✓ Use PowerPoint wisely—as a visual tool, not a crutch.
- ✓ Make virtual meetings work better by employing available features such as chat, polls, and sharing.
- ✓ Brief managers so that they're comfortable with a topic and prepared to answer questions.

## 9. Measure Effectiveness

*In this chapter, you learn how to*

- *Evaluate all dimensions of communication effectiveness*
- *Write clear survey questions*
- *Implement a survey*
- *Translate survey data into recommendations you can act on*

What's the most dangerous assumption you can make about communication? That just because you've sent a message, employees have received it, understood it, bought into it, and acted on it.

The truth is there's only one way to know your communication has been effective: by measuring its effectiveness. Measurement also helps you know how to make improvements.

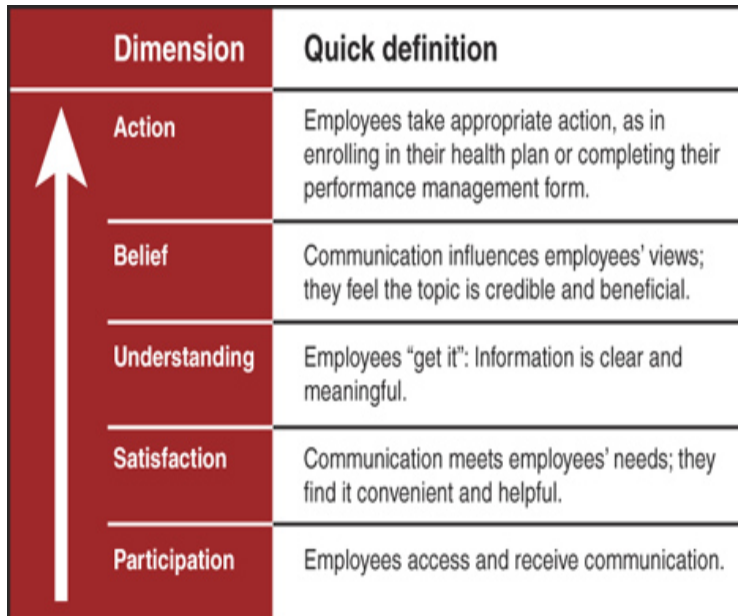
That's why it's surprising that many HR and communication professionals neglect measurement. They think measurement is too time-consuming, too expensive, and too mathematical. (After all, we didn't choose our career because of our love of statistics!)

As two non-math majors, we're here to reassure you that measurement doesn't have to be difficult. In this chapter, we show you a simple model for communication measurement. We demonstrate how to apply this model to different situations. And we provide examples of

survey questions and other tools, as well as advice on what *not* to do.

## DEFINING EFFECTIVENESS

When we started our careers, communication was considered to be more art than science. The commonly held belief was that because communication was subjective, you couldn't measure it. But we know now that effectiveness is not just a matter of preference. You can measure whether communication creates knowledge, changes minds, and influences behavior. We developed the model shown in [Figure 9-1](#); it defines five dimensions that together equal communication effectiveness.



Dimension	Quick definition
Action	Employees take appropriate action, as in enrolling in their health plan or completing their performance management form.
Belief	Communication influences employees' views; they feel the topic is credible and beneficial.
Understanding	Employees "get it": Information is clear and meaningful.
Satisfaction	Communication meets employees' needs; they find it convenient and helpful.
Participation	Employees access and receive communication.

**Figure 9-1 Five dimensions of communication effectiveness**

How do you measure each of these? Here's an overview:



Dimension	What Is Measured	How It's Measured
Action	The program's success, such as the percentage of participation and completion of a desired action	Program metrics
Belief	Confidence Attitude Credibility/trust Pride	<i>Survey questions like this one:</i> The new incentive compensation plan rewards individual achievement. — Strongly agree — Agree — Disagree — Strongly disagree
Understanding	Knowledge of key topics Understanding of actions required	<i>Survey questions like this one:</i> I know how to use the company's new travel policy. — Strongly agree — Agree — Disagree — Strongly disagree
Satisfaction	Relevance Timeliness Usefulness/value Quantity and frequency Ability to participate	<i>Survey questions like this one:</i> The IHR portal contains useful information. — Strongly agree — Agree — Disagree — Strongly disagree
Participation	Open e-mails and click through to links Attend meetings/sessions Spend time on the intranet	Activity metrics, such as web trends data and meeting attendance

When people think about measurement, they usually envision a survey. However, you'll notice that not every effectiveness dimension is evaluated by asking employees to complete a questionnaire. In fact, when it comes to participation and action, surveys can be deceiving: People tend to give more positive responses than their actions indicate. For example, they'll report that they visit your website several times a month,

because that's what they remember. But your web metrics may indicate otherwise. Or, employees will respond that they intend to enroll in long-term disability coverage, but the only way to measure the result of that intention is through actual enrollment results.

## **SURVEY ESSENTIALS**

When you want to measure employees' beliefs, understanding, or satisfaction through a survey, here are the seven essential steps to take:

1. Create focus.
2. Choose the right method.
3. Ask good questions.
4. Get buy-in and participation.
5. Conduct the survey.
6. Analyze and report on the results.
7. Communicate and take action.

### ***Create Focus***

If you've ever taken a survey that meanders from topic to topic, seemingly without a sense of direction, you've experienced the problem that occurs when measurement lacks focus. The survey's designers had good intentions, but somewhere along the way they lost control of the questionnaire. The result is a survey that's too expansive, making it confusing for respondents (and more likely they'll give up before they're done). Plus, because survey organizers get so much data on so many different subjects, it is difficult for them to act on all those findings.

It's much better to focus on just a few key topics and create a short survey that gives you just the results you need. To do so, start by considering your survey's purpose: the reason for the research. Purpose answers the big question: Why are we doing this survey? For example, using effectiveness dimensions as your guide, here are examples of what you might focus on:

- Satisfaction with your intranet site
- Understanding of healthcare plan choices
- Confidence that the performance management system helps employees manage their careers

### ***Choose the Best Method***

The most commonly used research method these days is an online survey, using either web-based software or an online service such as Zoomerang or SurveyMonkey. There's good reason for this: Online surveys are cheaper, faster, and more timely. And in most cases, electronic surveys result in a greater response rate than old-fashioned paper surveys. However, before you decide to go with an online survey, consider these questions:

- **Who is your target audience?** If not all your employees have easy electronic access, by distributing a survey exclusively via e-mail or the Internet/intranet, you may overlook an important segment of your employee base. Consider using a print survey or electronic/print combination.
- **How long is your survey?** An electronic survey needs to take less time to complete than a paper survey, because it's difficult to read a computer screen for a long time. If you are planning on asking a lot of questions, an online survey isn't for you. You're much better off with a paper survey, where employees can scan the page much

more quickly. In our experience, the longer the survey, the fewer responses you'll get—so, when you want a high response rate, stick to a one-page (or one-screen) survey.

- **What is your timetable?** Electronic surveys take less time to send out, complete, and tabulate. If you're working with a tight time frame, an online survey is best.

### ***Ask Good Questions***

The heart of every survey is questions. Writing effective survey questions is a precise science: Market researchers extensively study how people respond to words and phrases. Although you're not a research expert, you can apply the same thinking by making sure your questions are as clear and specific as possible.

Most survey questions ask about one of four attributes:

**1. What did you do? (Experiential)** Questions that ask about experiences employees have had. Opinion or belief does not play a role in answering these questions. Example: "I attended the town hall meeting last month."

**2. What do you think or believe? (Attitudinal)** Used when trying to gauge feelings, opinions, and beliefs. Example: "The benefits newsletter helps me learn about my healthcare plan choices."

**3. What do you know? (Knowledge testing)** Used when trying to gauge awareness or knowledge of an issue. Can be self-assessment or actual knowledge-testing questions. Example: "I understand how to choose the healthcare plan that's right for me."

**4. Who are you? (Demographic)** Allows you to cross-reference a person's location, tenure, job category, or other characteristics against his or her responses with results from other levels. Example: "In which region do you work? (Northeast, Midwest, Southeast, etc.)"

Whichever type of question you're writing, remember the following:

- **Be simple.** Put away your thesaurus, and forget all the fancy words you know.
- **Know precisely what you're asking.** Ill-defined or vague questions are an easy trap. You may understand what you mean by a question such as "Do you believe you have enough information to support our strategies?", but will your respondent? What exactly is "support?"
- **Include only one concept.** Keep your questions narrowly focused. Two questions combined into one create confusion. For example, if you ask employees about their level of agreement with the statement "E-mails from HR and Employee Communication are timely," you're really asking two questions. While you may be interested in e-mails generally, employees may have different experiences with the two distinct sources.
- **Avoid jargon or obscure language.** Don't use complex terms the participant might be unfamiliar with.
- **Stay neutral.** Make sure you avoid leading questions that can influence a participant to a certain response. Leading questions are a common problem that violates the integrity of your data. How could an employee disagree with "I am actively involved in setting my goals and objectives" or "I never have enough time to take advantage of career development courses"?
- **Use a consistent four-point scale.** There's a lot of debate in the research world about which answer scale is best. A 5-point scale, from "strongly agree" to "strongly disagree" with "neutral" in the middle? A scale that varies from question to question? For more complex topics, a 7- or even 10-point scale? Here's what we've found works best. Create a simple 4-point scale—

Strongly Agree, Agree, Disagree, Strongly Disagree—and design all your questions as statements (“The open enrollment package answers all my questions about healthcare plans”). Eliminate the middle “Neutral” response; for most communication questions you ask, employees have a distinct opinion and don’t need the Neutral option. Use the same scale throughout your survey for consistency.

- **Limit open-ended questions.** Too many open-ended or write-in questions will contribute to a condition called “Survey Shutdown,” in which a respondent leaves the survey before he or she is finished. Every survey should be limited to one open-ended question. If you feel the need to include many open-ended questions, a focus group is the better option.

*(Bad) Example: Survey Fatigue*

One of the professional organizations that Alison belongs to conducted a survey about the organization’s print publication and its electronic newsletter. Since Alison believes that feedback is a good thing, she decided to participate.

But the survey was so long, extensive, and open-ended that it was exhausting to complete. It contained 29 questions, a lot for an online survey. Even worse, 16 of those questions were open-ended. And they weren’t the usual “Do you have any suggestions?” questions; they required deep thought. Here are just a few examples:

- “List up to five issues or trends in branding and marketing that you want us to address in our magazine.”
- “What do you like best about our magazine?”
- “What other industry-related e-newsletters do you subscribe to?”

- “What kinds of products or services would you like to see advertised in our magazine or e-newsletter?”

Whew! Only the most dedicated reader (or member) would take the time to answer every question. Most people would either do what Alison did—answer just a few questions and skip the others—or get to a certain point and jump ship. In research parlance, that’s called “noncompletion.”

What caused this problem? There are at least two reasons. First, the survey creators wanted to explore issues in an open-ended way. But the wrong tool for this job is a survey, which is a quantitative, closed-ended, data-producing instrument. The right method is qualitative—either focus groups or interviews.

Second, the creators didn’t consider the experience of survey respondents. If the creators had tested the survey, they would have realized that completing it would take at least 15 and probably up to 30 minutes—way too long for an online survey.

Before you are tempted to include open-ended questions in your next survey, consider the fatigue factor.

### ***Get Buy-in and Participation***

Preparing the organization to participate in your survey requires as much effort as developing the right set of questions. If you conduct research without adequate communication in advance, your target audience may fail to see its value, which may negatively impact participation.

Depending on the breadth of your survey, you should reach out to three primary audiences:

- **Senior leaders.** It’s important to engage this group, because you may be knocking on their doors when you

have your results and recommendations in hand. Be sure they understand how you intend to help the business with the results. And if you have any expectations about their role, such as encouraging participation, be explicit. You should also explain how results will be shared (and expectations about their use).

- **Managers.** Requesting information from employees usually means that managers will get questions. Be sure this group understands the timeline, what you want to accomplish, how employees will be invited, and what you want them to do. Then they'll be ready for questions.

- **Employees.** Use a variety of channels to remind employees of upcoming research (e-mail, print, bulletin board posting, staff meetings, voice mail, newsletter article). Hearing about research many times and in different ways will make employees more aware of it.

For all these stakeholders, here are the points you should cover as you set expectations about your upcoming survey:

- **Purpose:** The reason for the research and what you're trying to accomplish.
- **Topics:** The main areas of your research.
- **Logistics:** The target participants and why, as well as who is running the survey.
- **Methodology:** How the survey will be distributed.
- **Results:** What will be done with findings and how changes or actions will be decided.
- **Timeline:** When the research begins and when results will be shared.
- **Benefit:** Why input is important and what's in it for participants.



### ***Conduct the Survey***

Asking the right questions won't be as valuable if you don't ask the right people to participate. That's why it's important to think carefully about your "sample" or selection of participants.

Start by defining your overall target population. Are you looking to study the entire company? A specific site or division? Certain types of employees, such as hourly workers? This first selection is your "target sample" or universe of participants.

Your next step is determining your sample. The most commonly used methods of sampling are a census (your entire organization) or a random sample (a representative group in your organization).

Use a census survey when you want to include everyone in your target sample or your entire organization. A census survey is simple—just ask everyone to participate—and it signals that every opinion matters. However, if your organization is large or complex, a census may be logistically difficult and expensive. And when people in an organization always ask everyone to participate in every survey, employees may begin feeling over-researched.

That's why you should consider a random sample. This is a statistically valid way to conduct research that is routinely used by professional polling companies. For example, when campaigns want to learn what U.S. voters will do, they use random sampling to choose 1,000 people who will represent the entire electorate. In your company, use a random sample as a cost-effective method for taking the pulse of your organization. By systematically choosing names from your employee database (a common method is to select every 11th

name), you can be assured of viewpoints that are representative of the entire employee population.

#### ***Delivering the Survey***

After you've set your sample, you're ready to survey. Here are tips for managing the process:

- Provide detailed instructions, along with contact information. This will help people if they have trouble with the survey form.
- For print surveys, provide an envelope for easy return.
- Be up front about how long it will take to answer the survey, especially if it takes people away from their jobs.
- Communicate the deadline for the survey to be returned. Don't allow too much time, since people tend to answer surveys shortly after receiving them.
- For online surveys, don't include too many questions on one page. If you're using multiple web page screens, let people know how many questions they have left to answer.

#### ***Analyze and Report on the Results***

The results are in! Now you must tabulate the numbers and figure out what they mean and what to do about them. We recommend taking your time to understand fully what the feedback is telling you:

- Start by reviewing the purpose and focus of your survey. Remind yourself what you set out to learn, and keep that top of mind while you analyze the results.
- Now look at the raw data for each question. If your software translates these numbers into percentages, that saves you a step; if not, use your calculator (or a friend in finance) to figure out percentages for each response.

- Begin to draw conclusions. We've found that the best way to do so is to collaborate with one or more colleagues. Give each team member a copy of the raw data report to review, and then get together in a spacious conference room. Using large Post-it Notes, ask each member to record findings, one per Post-it, that seem significant. Group trends, and discuss what the results are telling you. Discuss which results met your expectations and which did not.
- Look for separate results from individual questions that work together to tell a story. For example, you may have asked a question about how helpful your intranet site is for finding information about healthcare plan choices. Another question may have asked how well employees understand a new plan choice. By comparing the results of both questions, you begin to tell a story about how well communication is working to create understanding about healthcare.
- Organize open-ended comments by topic. Use those comments to add texture to your quantitative findings.
- Create five to seven key findings, the main conclusions of your survey results. Decide what you will do in response; these actions become your recommendations.

#### CREATING A RESEARCH REPORT

Based on your analysis, create a report in PowerPoint or Word that includes the following:

- **Introduction:** States the survey's purpose.
- **Methodology:** Addresses how the survey was conducted, including these elements:
  - Timing
  - Sample or census
  - How the results compare to previous surveys, if applicable
- **Key findings:** Summarizes overriding themes.
- **Detailed findings:** Focuses on details, including results for each question.

- **Recommendations:** Provides action steps and answers the questions “What should we do to move forward?” and “What is the next step we should take?”

### ***Communicate and Take Action***

Here’s a step that’s often overlooked: communicating results to key stakeholders, including employees who took the time to participate. Start by sharing the results with leaders so that you can get buy-in for making changes. For example, suppose your results point to the need for more tools to help managers communicate. You need to create a clear picture of how the data supports this need—from preferences to the current effectiveness of manager communication. You also need to demonstrate potential impact on the business, such as better engagement.

Employees need confirmation that you take their feedback seriously. Not only does this signal that the organization is listening, but it also encourages future participation. With most surveys, it can take time to agree on the next steps, especially if a large investment or major change is involved. Plan to share two or three key findings, as well as where you are in the process, within three to four weeks of the survey. Also pledge to keep the lines of communication open as you move forward.

#### **A BENEFITS SURVEY**

Several years ago, the benefits team at a leading pharmaceutical company sought to learn about employee perceptions about their benefits, and how well employees’ communication needs were being met.

The team sent a survey request to a sample of 8,000 employees (out of 60,000); 5,000 completed the survey, for a response rate of 63%. Although most employees completed a web-based survey, the team wanted to make sure that manufacturing employees were included, so paper surveys were distributed at two company plants.

Here were the survey’s key findings:

- Employees felt most informed about vacation, prescription drug, and 401(k) benefits, and less informed about pension, the PPO, the HMO, and long-term disability.

- Employees felt better informed about dental and prescription drug benefits than about any of the individual medical plans.

- Sixty-six percent of employees agreed that the company “gives me enough information to make informed benefits decisions.”

- Most find web technology convenient for benefit transactions, but they would like to rely less on the intranet for benefits information.

The benefits team concluded that there was great potential for improving understanding of key benefits by designing communication that better met employees' needs. The team developed a communication program for open enrollment that included a mail-to-home enrollment package. It gave details of benefits employees knew less about and included a schedule of health fairs with booths staffed by managers of targeted programs, including pension and long-term disability.

## **CHECKLIST FOR MEASURING COMMUNICATION EFFECTIVENESS**

- ✓ Consider five dimensions—participation, satisfaction, understanding, belief, and action—when measuring communication effectiveness.
- ✓ Focus your survey on just a few key areas you can act upon.
- ✓ Make survey questions clear and concrete.
- ✓ Communicate the purpose of your research to encourage buy-in.
- ✓ Consider a sample instead of asking all employees to participate.
- ✓ Analyze your findings by taking the time to draw conclusions and look for patterns.
- ✓ Share the results of your survey as well as action steps you intend to take.

## **Part II. Communicating in Key Situations**

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## 10. Recruiting

*In this chapter, you learn how to create effective recruiting communication by*

- *Describing your company's culture in a compelling way*
- *Using real employees to tell your company story*
- *Providing candidates with easy-to-access information about benefits*
- *Using the right mix of communication channels to reach every promising candidate*

### **“WE WANT ONLY THE BEST AND BRIGHTEST”**

Firms that want to acquire talented people typically say they want to hire “the best and brightest.” Let’s step back for a moment and ask what that really means.

The best person to fill the bill in *your* company may not rank anywhere near the “brightest” in *my* company. For every organization looking for creative people, even more firms are seeking methodical, detail-oriented workers. Many companies have talent needs in between the left-brain/right-brain spectrum. Our point is that there’s no right or wrong here—only the appropriate hire for your organization.

In fact, if your organization is large, many “right answers” might describe candidates; the same qualities

and work ethic that lead to success in one business might not translate well into another.

Given the high cost of failure when an employee doesn't work out, your company needs to invest the time and energy up front to find people with the knowledge, experience, and expertise to succeed. And these people need to fit the culture of your company. Through both the recruiting and onboarding processes (see [Chapter 11](#), "[Orientation](#)"), talented people need to know what it's like to work at your company before they start. After they join, they need coaching, mentoring, information, and feedback to ensure that they'll succeed.

## **KEYS TO SUCCESSFUL RECRUITING COMMUNICATIONS**

Here are five steps you can take to make sure your communication helps your firm acquire the talent you need:

- 1.** Present a clear portrait of your company and its culture.
- 2.** Feature employees describing their jobs and "what it's like to work here."
- 3.** Create job descriptions that accurately describe what the candidate will do every day.
- 4.** Give candidates a thorough overview of company benefits.
- 5.** Use the right tool for the job in recruiting communication.

Let's take a more detailed look at how you can accomplish these goals.



#### WHAT IT COSTS TO BRING IN A BAD FIT

If you research the cost of employee turnover, you'll see most estimates start at about 150% of salary and increase up to 250% for leaders, people with special or highly valued skills, and senior sales professionals.

### ***Present a Clear Portrait of Your Company***

Let's start with a "don't": As tempting as it might be, don't oversell what your company represents or offers. Presenting your organization in a warmer glow than it deserves does not serve you well. It means people might be attracted to your firm and then become unhappy once they start work.

We find it helpful to think about the recruiting process as providing information to potential candidates so that they can opt in or opt out. Either way, that's good for your company. If there's something about your company that really excites a candidate, that person will apply. Conversely, if there's something that prevents someone from even wanting to meet with you to know more, you probably don't want to waste time and talent trying to persuade that person to join you.

#### ***Define Your Culture***

Allan A. Kennedy and Terrence E. Deal coauthored *Corporate Cultures: The Rites and Rituals of Corporate Life*. A former McKinsey consultant, Kennedy likes to define "company culture" as a fancy way of saying, "That's how we do things around here."<sup>1</sup>

Deal and Kennedy point out that a strong culture is a powerful lever for guiding behavior and helps employees do their jobs better in a couple ways. Specifically, a strong culture

- Serves as a system of informal rules that spells out how people should behave most of the time

- Helps people feel better about the work they do, so they are more likely to work harder

The authors point out that there's no "one size fits all" corporate culture. Indeed, they note that the corporate cultures at GE and Xerox were so different in the 1980s that even though both companies were highly successful, the chances that a rising star at GE would or could replicate that success at Xerox were slim to none.

#### *Articulate Who You Are*

After you've thought about what your company truly stands for, articulate this in a straightforward and descriptive way. To demonstrate, here are excerpts from two "who we are" descriptions from two very different companies:

- **FedEx.** "The core philosophy that governs every activity at FedEx is People-Service-Profit (PSP): Take care of our people; they in turn will deliver impeccable service demanded by our customers, who will reward us with the profitability necessary to secure our future. People-Service-Profit: These three words are the very foundation of FedEx. FedEx is dedicated to the principle that our people are our most important asset—a belief that motivated and conscientious people provide necessary professional service to ensure profits and continued growth."

- **Procter & Gamble.** "At P&G, it's about integrity and character. It's about building trust by being open, honest, straightforward, and candid with each other, our customers, consumers, and business partners. We do what we say, and we say what we mean. This is what sets P&G and P&G people apart. As a 'build from within' organization, we see 95% of our people start at entry level and then progress and prosper throughout the organization. This not only creates many wonderful

opportunities to grow and advance, it creates a special camaraderie among fellow P&Gers, many of whom came up through the ranks together.”

### ***Feature Your Employees Describing Their Jobs***

To describe your company and “what it’s like to work here” accurately and positively, we’ve found what works best are photos and video clips of, and quotes from, real employees.

You’ll want to feature people with backgrounds (education, experiences) you want to replicate. If you want former Peace Corps members in your organization, always feature one in your recruiting communications. People like to see “Here’s someone just like me,” because it gives them confidence that this is an organization where their degrees, experience, or education will be valued. And they can see this is a place where they potentially will fit in.

How do you get employees to tell you in their own words what they like about being at your company? Ask them. Here are the types of questions that will give you great information to use in recruiting communications:

- What attracted you to this job? Does the reality of the job live up to your expectations?
- What do you like *best* about your job, and why?
- What do you like *least* about your job, and why?
- Tell me about your typical day at work—and pretend you’re talking to a 12-year-old. (Adding the part about the 12-year-old helps the employee describe his or her day without using a lot of jargon.)
- What are you learning on the job?

- What skills and abilities do you need to succeed in this job?
- What is the next step you'd like to take in your career?  
How is your current job preparing you for your next career move?
- What advice would you offer a friend about joining this organization?
- What advice would you offer a friend about how to succeed here?
- What makes you proud of your company?

We've found that we can ask this set of questions of selected employees throughout the world and get lots of useable quotes in return. In one global financial institution, Jane posed these questions to 25 employees. Most agreed that "the work we do and the people we work with" were what employees liked best about the job.

In fact, as we've worked on recruiting communications through the years, we've realized that describing "the work you'll do and the people you'll work with" should constitute the core of every organization's recruiting communications.

#### GOOGLE, OUR ROLE MODEL

Most HR professionals we know have a love/hate relationship with Google. Sure, the company exemplifies "Best Place to Work," but Google is so much thinner, prettier, and richer than most of our organizations that it's hard to relate to. (If life is like high school, it's the difference between the homecoming queen and the rest of us.)

However, we like to watch what Google does and see if we can learn from it. And in recruiting communication, there's a lot to learn.

Start with the headline on Google's website section that covers employment. It reads: "Let's work together." The site features brief videos of real employees and job descriptions that make sense. There's an overview of the Google selection process, which is thorough, because the company wants to hire only people it believes will succeed.

We also like how the company describes its “Top 10 reasons to work for Google,” including the following:

- **Life is beautiful.** Being a part of something that matters and working on products in which you can believe is remarkably fulfilling.
- **Appreciation is the best motivation**, so we’ve created a fun and inspiring workspace you’ll be glad to be a part of, including on-site doctor and dentist; massage and yoga; professional development opportunities; shoreline running trails; and plenty of snacks to get you through the day.
- **Work and play are not mutually exclusive.** It is possible to code and pass the puck at the same time.
- **We love our employees, and we want them to know it.** Google offers a variety of benefits, including a choice of medical programs, company-matched 401(k), stock options, maternity and paternity leave, and much more.

#### *How Quotes from Employees Add Value*

As you interview employees for your recruiting communications, you’ll hear wonderful examples and expressions of your company’s culture, job content, and more. Here are examples from some of Jane’s recruiting communication efforts:

- “Each new job I’ve accepted didn’t exist before I took it” (from the then-Chairman).
  - “This business takes aggressiveness, because we often have to try 10 different strategies in order to succeed at one.”
  - “You have to love numbers and be very detail-oriented. You can’t breeze through financial reports.”
  - “Creativity is important in anticipating problems before they occur and resolving them when they crop up unexpectedly.”
  - “To succeed here, you have to be aggressive, to spot opportunities and take advantage of them. Then, you work with a team of people to get the job done.”
  - “We’re driven to be much more innovative here, and I like that pressure.”
-

## JOHN DEERE PROFILES

The power equipment company John Deere uses a simple technique to feature its employees on the recruiting section of its website. Along the top are 17 thumbnail photos of representative employees. Click any of these and you're introduced to an employee. Here, for example, is Matt, a cost accountant at the Des Moines Works in Ankeny, Iowa. Matt is clearly young, somewhat hip (nice hair, Matt!), and friendly (great smile, too!).

Here are some of the thoughts Matt shares about his job and the company:

- "They backed me up 100%. I have a bachelor's in accounting and also received my CPA license. John Deere backed me up 100% and helped me pay for the tests and license fee."
- "Choose your best fit. John Deere hired me into the accounting department on the FDP (Finance Development Program) rotation. The FDP is a three-year program where you rotate to a new position each year... Rotation provides the opportunity to choose the area that best fits your skills and interests."
- "It's all about the atmosphere. The company is a close-knit community, and everyone finds time to have fun while still being productive. People are so friendly. Maybe it's just the Iowa atmosphere."

### ***Create Accurate Job Descriptions***

How does a candidate know if he or she really wants the job? From the job description, which paints a picture of what the candidate will be doing every day at work.

The key is to put the legal, technical description back in your personnel files and instead create a description that speaks to the candidate.

As an example of what not to do, here's an excerpt from a description that has been slightly altered to protect the guilty:

We're looking for a business/marketing expert who is a strategic and creative thinker with a natural ability to translate complex technical concepts into business results-oriented narratives that resonate with the organization, business, and industry. You will develop and drive a group-wide communication plan that ensures message clarity and consistency through every level of the organization. The communication plan will clearly establish the communication rhythm of the business (ROB) for your senior leaders and will align with the

overall Company ROB calendar. You will work closely with senior leaders to ensure that their communications (i.e., executive newsletters, e-mails, presentations, etc.) to the organization, business, and industry have powerful impact and are carried out flawlessly. You will be on point to ensure that content, deliverables, demos, and supporting materials are compelling, consistent with other executives' communications, and reinforce the Company story and value proposition to the organization, business, and industry.

Can't you just picture a Dilbert-like person returning home from this job, opening the door, and saying: "Honey, I'm home. Today I drove process improvement. Tomorrow, I hope to display my natural ability to translate complex technical concepts into business results-oriented narratives that resonate with . . . Honey?"

This job description contains more jargon than information and doesn't convey what expertise is needed to do the job. It doesn't answer these questions: What's the level of responsibility: strategic or tactical? What will the person in this job learn? What could this job lead to?

#### THE J.M. SMUCKER COMPANY

By contrast, we like how the jam company Smucker's writes its job descriptions. (We like how the company makes jam, too, but that's a different story.) Here's part of a description of an assistant manager for the consumer communications center. What we like is how specific the description is. We'd like it to be a bit more inspirational, but we appreciate that a candidate would know exactly what the job is all about:

**Location:** Orrville, Ohio

**Reports to:** Manager, Consumer Communications Center

**Job scope:** This position is responsible primarily for assisting the Consumer Communications Center Manager in the development of Consumer Communications Representatives through coaching, training, supporting, and career development. In addition, this position is responsible for supporting the performance goals of the operation, including consumer-escalated situations, managing systems, and maintaining levels of service.

**Key responsibilities:**

- Develop/support the consumer communications representative.

- Provide motivation and maintain high levels of morale in a call center environment.
- Conduct monthly employee reviews utilizing ACD statistics, ePC results, and quality audits on call observations and data-entry accuracy.
- Mediate conflicts within the team and with individuals and groups that support the consumer communications center.
- Handle employee relations/performance issues as they arise.
- Handle escalated consumer contacts while modeling the behaviors and skills required for handling escalated contacts.
- Review follow-up completed by the representative to ensure what was promised was delivered.

### ***Give Candidates a Thorough Overview of Company Benefits***

Your company has a full set of benefits and policies meant to retain your most valuable employees. But you may forget that any one of those benefits may create a compelling reason for a potential hire to submit his application. We've found that different benefits matter more to different candidates, based on their situation. That's why you should make sure that your full spectrum of benefits and policies is easily accessible in your recruiting communication.

For example, Monsanto's recruiting website contains a section called "Helping busy people living busy lives." It includes a "high-level overview of the benefit plans Monsanto offers to eligible employees." It contains links to sections on medical, vision, and life insurance benefits; pension and stock purchase plans; and time off and other key policies.

Although the information is certainly not as comprehensive as a Summary Plan Description, it provides enough details to give you a sense of what Monsanto offers. For example, here is an excerpt from the Dental Plan section:

### **Two Levels of Benefits**



The Dental Plan is designed to help pay the expenses of dental care. Two levels of dental benefits are offered: high and low.

Under the high option, a covered individual can receive benefits up to \$2,000 each year. The low option provides up to \$1,500 each year. There is a separate orthodontia lifetime maximum of \$1,650 per covered individual under the high option—\$1,250 per covered individual under the low option.

If you use an out-of-network provider, you will be responsible for any amounts that exceed the maximum amount allowed in the area as well as your out-of-network deductible and co-pays.

### ***Use the Right Tool in Recruiting Communication***

No doubt you're aware that the hottest trend in recruitment communication can be summed up in two words: social media. More companies every day are getting involved in such social networks as LinkedIn and Facebook, are posting videos on YouTube, or are sharing job openings or other information (very briefly) through the microblog Twitter.

We believe that these new communication channels offer valuable ways to connect with job candidates. But social media is not the answer to everything. As mentioned in Chapter 7, "Use the Right Tool for the Job," you still need a mix of tools—and an understanding of which works best for which purpose—to reach your future employees.

Here are a few things to remember when using social media tools in recruitment communication:

- **Be short and sweet.** Twitter posts, or "tweets," are limited to 140 characters, and there's an expectation that all content will be quick and timely. For example, here

are some tweets that were posted on the Raytheon job site:

“Program Manager position opening at Raytheon in Arlington, VA.”

“Data Center Network Specialist job opening at Raytheon in Rosslyn, VA.”

“Pre-register for Raytheon’s HW/SW Invitational in Denver (July 14 and 15).”

- **Coordinate your efforts.** Some candidates may love the update experience of Twitter, others may be Facebook fanatics, and still others may limit their job search to surfing the web. Make sure that the most important information you want to convey is accessible in all channels, including more traditional venues such as job websites.

- **Get employees involved.** As we mentioned early in this chapter, employee faces and voices are more convincing than any message that “the company” conveys. And this is especially true in social media, which is, after all, a social communication channel. Recruiting teams at companies such as Deloitte, Hewlett Packard, and even the U.S. Army have learned to stay in the background while shining the spotlight on employees. Candidates can direct questions to employees, creating confidence that they’re getting the straight story. That’s powerful stuff.

#### USING VIDEO CLIPS TO ACQUIRE HARD-TO-GET TALENT

A global pharmaceutical firm was growing quickly and needed to hire several hundred employees around the world in all parts of the business. The company’s solution was to tap into the passion of current employees and jump into social media at the same time. They asked employees to turn the camera on themselves and say why they worked there (the good, the bad, and the ugly). The company held an internal contest where employees voted on their favorite videos and then pushed the “employee-generated content” externally (through Facebook, Google, and so on) to attract new hires.

To achieve this, the company sent 125 FLIP video cameras to all locations and relied on the site head administrative assistants to manage the "lending library" of cameras. (Generally, they provided one camera for every 50 employees.) The program was voluntary, and the company received 132 submissions from 28 countries. "It was really a fun campaign," says the lead communicator. "And while this program wasn't the only key to our success, it was an important element, and we achieved our hiring goals."

## CHECKLIST FOR RECRUITING TALENT

If you're serious about attracting the best people for your company, here are some suggestions to help you communicate effectively:

- ✓ Check out the employment sections of the websites of companies you admire. Compare what they offer and how they present their employment proposition with how your company does it. What can you do differently to improve your talent acquisition communications?
- ✓ Let real employees do the talking—and feature people you want to replicate in your new recruits. Don't limit yourself to a "one of each" approach to diversity (one white, one black, one . . .)—it's really dated.
- ✓ If your company takes months to make a decision, let new hires know that; don't sugarcoat parts of your company culture you think may not appeal to potential employees. When a new employee leaves after a short time, it's a lose-lose situation that costs your company time and money.

## 11. Orientation

*In this chapter, you learn how to help new employees feel knowledgeable about the company so they're prepared to do great work. We share advice on how to*

- *Help managers understand their role in orientation and give them the tools they need to succeed*
- *Build an effective orientation process*
- *Create an orientation session that informs and inspires*

### WELCOME ABOARD!

The good news is that you've just hired a terrific person for that open position. The bad news is that there's a good chance your new employee might not work out. In fact, according to a study by the training company Leadership IQ, only 19% of new hires achieve unequivocal success within their first 18 months on the job.

What can you do to increase your odds? Build an effective orientation process and program. Traditionally, HR managers focus on the **orientation session**, which we define as the formal event that employees attend (either in person or virtually) to learn essential information about the company.

But, although that program is vitally important, it's not enough to ensure that new employees are set up for success. For that, you need to develop a more holistic

**orientation process** that is well understood by managers and employees. (Some companies call this process “onboarding,” as in “getting the new hire on board.”)

This process is critical because orientation isn’t a one-day experience; it occurs over time, beginning when a person is hired and ending when that person is completely performing the job he or she was hired to do:

- For some positions, the process of orientation may take less than a day, because the new hire can begin performing his or her job duties successfully right from the start.
- For more senior-level employees with specific expertise or experience, the process can take much longer (six months to a year, for example) and requires a bit more effort (but it’s more than worth the effort, we must add).

In this chapter, we focus on the communication components of orientation: briefing managers, building an orientation process, and holding an orientation session.

## **BEFORE YOU BEGIN**

We’ve spent a lot of time listening to employees over the years—both those who just started at their companies, and those who have been around a while. That’s how we know that new employees in particular want answers to a universal set of questions. If you keep these questions in mind when designing your orientation process, you’ll give employees the answers they seek:

- What business is our company in, and how do we stack up against the competition?
- What’s our company history?

- What is our company mission (why we exist) and vision (where we're headed)?
- Who's in charge? What's our current business structure, and who are the people on our management team?
- Why should I care about all these points? What's in it for me?
- How can I succeed here?

Like every communication project, creating an effective orientation program starts with **research**. We've found that the best research for this purpose is qualitative, which means conducting an open-ended dialog with people. Here are some techniques you might try:

- Ask HR professionals from various businesses or locations in your company what information new hires need to succeed.
- Find out some of the reasons people gave in exit interviews for leaving the company within the first year.
- Conduct a focus group with successful people in your company to find out which experiences and information helped them most when they were new to the firm.
- Interview senior managers and find out what they want every new person to know about the company and how it's important to the company's success.
- Talk with representatives of key functions (Marketing, IT, Legal, for example) to find out what they want new hires to know about their area.

Based on your research, set goals for your process and program, and then develop content and delivery and determine how you'll get feedback.

## **“MY FIRST WEEK”**

As you explore improving your orientation process, here's a great question to ask: “What do you remember most about your first day or week?” Alison's firm recently asked this of a team of employees on an onboarding project and heard the good, bad, and ugly of their orientation experiences. Here is some of what they told us:

- “I didn't get my computer on the first day, so I couldn't really do any work.”
- “My cubicle was completely ready for me: computer, office supplies, working phone, etc. That made me feel as if my department wanted me to be there.”
- “My manager arranged meetings with key people during my first two weeks on the job. Those meetings were so valuable for getting up to speed and building relationships with people who would be critical to my success.”
- “I was brought into a conference room and given a stack of HR documents to read, and forms to sign. I thought, ‘I'll never absorb all this, so I'll have to ask my colleagues questions later.’”
- “I had moved between the time I accepted the job and my first day at work, so I needed to fill out a change-of-address online form for payroll. It took me two hours to find the form and figure out how to fill it out.”
- “I had a welcoming committee! The whole team greeted me at the front door and took me to my office. At lunchtime, my boss ordered pizza for everyone. By the end of the day, I felt like I knew my coworkers pretty well.”

## **SET UP MANAGERS FOR SUCCESS**

If yours is like most organizations, your research will reveal that the single most important person in the orientation process is the new employee's manager. Even if your company has a well-integrated onboarding system in place—involving HR, facilities, IT, and other functions—the manager is the glue that holds it all together. For example, the manager does the following:

- Works with other groups to make sure the new employee receives the basics: a space in which to work, a phone, a computer, a company ID, and so on.
- Helps the employee understand what he can expect of the company and what the company expects of him.
- Introduces the new hire to the people inside and outside the department that he will work with. (Because of the collaborative nature of most work, it's important that the new hire begin meeting with the people who will be important to his or her success starting on the first day.)
- Sends an e-mail to colleagues the new hire will be working with that gives an overview of the new hire's work experience, skills, and expertise—and perhaps a fun fact or two. The idea is to give new colleagues some conversation starters as they meet the new hire.
- Provides meaningful work that the employee can do right away and gives feedback so that the work gets done properly.
- Sets goals and provides coaching to help the new employee succeed.

Your job is to make it easy for the manager to provide an effective orientation. This starts with articulating the manager's role. Don't assume that just because the



manager participated in recruiting, he will understand what's expected of him as soon as the new employee starts the job.

#### "WHAT SHOULD WE BE DOING?"

We recently conducted interviews and focus groups at a global industrial company to determine how the orientation process was working and to guide the development of new materials to support orientation. We spoke to local HR representatives, managers, and recently hired employees. Here's what we learned:

- HR reps believed that orientation is the managers' responsibility. "But managers don't know it's their job," said one HR rep, "so we end up filling in the gaps."
- Managers knew they should be involved in orientation but were unclear what to do. Managers who routinely bring new employees on board were much more comfortable with the orientation process than managers who only occasionally hire a new person.
- All the managers we talked to requested a "playbook." "I'd like to understand exactly how the process is supposed to work, and have all the tools available when I need them," said a manager.
- New employees appreciated any help they could get. "Starting a new job is an overwhelming experience," said a newly hired engineer. "Every moment my manager spends with me is very valuable. But I know my manager is busy, so I appreciate tools like online training, a website, and background materials."

Our recommendation? That the company focus not only on creating orientation tools and resources, but it also needs to define roles more clearly for HR, managers, and employees so that everyone understands what's expected of them.

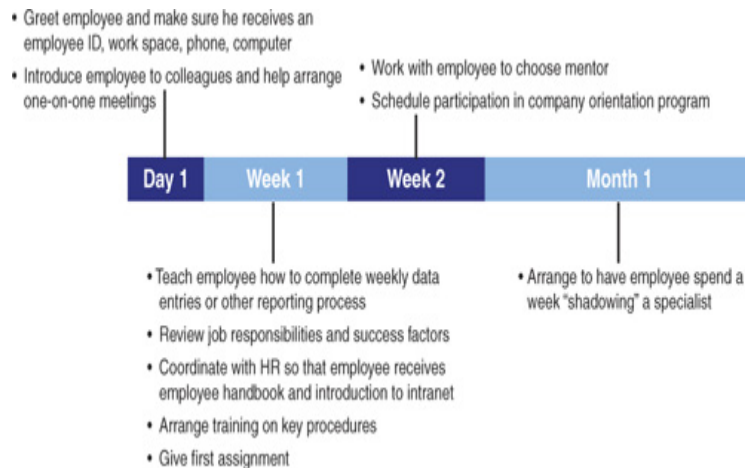
## TRANSLATE THE MANAGER'S ROLE INTO ACTION

When we refer to defining a manager's role, we don't mean creating a long, detailed document with lots of bullet points. Managers are action-oriented. Their big question is, "What do I need to do?" (They very seldom ask the existential Hamlet question, "To be, or not to be?") So, as we heard at the industrial company, managers want a "playbook"—a guide to the steps involved in orienting a new employee—with the supporting tools and information that will help them take those steps.

We find that, since managers live by their calendar, the best way to provide this information is within a timeline. After all, the process of orientation starts on the first day and ends when the new employee is fully performing on the job. So managers need to know what must happen when.

The timeline should cover the entire orientation process and describe all the things that need to happen during that process.

Figure 11-1 is a partial example of what you might include.



**Figure 11-1 Manager's timeline for employee orientation**

## **THAT SPECIAL DAY: THE ORIENTATION PROGRAM**

An orientation program is hardly a new concept. After all, for almost as long as companies have existed, HR departments have been inviting new employees to spend a day (or more) learning about the organization and its products or services, meeting senior leaders, and finding out "how we do things here."

But just because orientation programs have been around a while doesn't mean there aren't ways to make them

more effective. Here are five ways smart companies are breathing new energy into orientation programs:

- **Have a clear idea (yes, an objective) of what you need the orientation program to accomplish.** Is

the emphasis on company knowledge? Engaging new employees in the culture (which can be defined as how we work together)? Understanding how their job fits into the strategy? Decide on a few focus areas, and handle other activities differently.

- **Don't treat the orientation program as a catchall for everything a new employee needs to know or do.** The new employee has to fill out forms, for example, but that activity can be handled another time—even before the first day of work.

- **Give new employees a chance to interact with each other.** If you want to break down the silos that insulate some business units from others and give people a chance to get to know one another, you might schedule a couple of orientation programs a year and bring together employees from different geographies. If it's more important to get employees up to speed quickly, you may hold more frequent orientation programs in different locations. In either case, make sure you include “getting to know you” time in your agenda. Building good relationships with colleagues right from the start is an important step toward success for both the new employee and the company.

- **Think about the advantages and disadvantages of “going virtual.”** After all, with today's online learning and web/videoconferencing meetings, you don't need a physical orientation program to cover some of what new employees need to know. So you may choose to make part of your orientation program a virtual experience. While it may be tempting to create an orientation section on your website and check off

“orientation process” from your to-do list, please don’t. Some of the most important advice a new hire receives will come from personal conversations, not by clicking one link after another. Again, research will help you determine what information will work best online and which needs to be in person.

- **Break open the traditional boring agenda.** If new employees have to sit still in their seats all day, listening to people lecture and watching PowerPoint, they won’t be jazzed about your organization. You’ve made a big investment in hiring these new employees and bringing them together. An orientation session shouldn’t be a passive activity; it should be a motivating, participative experience.

## **A NEW FORMAT FOR YOUR ORIENTATION PROGRAM**

How do you break the bounds of PowerPoint? Begin with the premise that you are there to engage employees in learning about a few key topics, not to cram information into their heads the way you stuff a Thanksgiving turkey! (By the way, we prefer cornbread with sausage.)

You can’t eliminate presentations; after all, they are a proven way to share information. But you can make the program more interactive and energetic by designing sessions that involve participants and let them explore as well as listen:

Questions	Possible Action
What business is our company in, and how do we stack up against the competition?	Make it a game with “valuable prizes” (such as company logo apparel or gift cards to local lunch joints). Two formats that work well: Jeopardy or a cyber scavenger hunt, where you pit teams against each other as they search for information on the intranet and Internet.
Where is our company headed? Who’s in charge? What’s our current business structure, and who are the people on our management team?	Invite a senior manager to be a guest. Ask the manager not only to do a standard presentation, but also to share personal stories about “my first day at the company” and “five lessons I’ve learned about succeeding here.” Challenge new employees to come up with the toughest question they can think of, and encourage the senior manager to give a prize for the best question.
What are our company values?	Invite three to five “real” employees at various levels to lead breakout groups. In each group, present scenarios that explore a value, and ask new employees to address the challenge presented. Share solutions with the entire group.
How can I succeed here?	This is another great opportunity to bring in current employees to share their stories. Schedule a web meeting/conference call with employees across the company, set up like a radio talk show with you as the host. Make sure that employees are prepared by giving them the questions in advance. Ask, “What characteristics make people successful? What challenges have you faced, and how have you dealt with them?” Be sure to cover the ugly counterpart to this question, “What will get me fired?”, so that new hires understand both success and failure at the company in clear, precise terms.

## FUN FACTS

When Jane hosted an orientation program one year, she started the day by giving the audience some positive feedback—a technique you might find helpful in your next orientation program. She said:

“To give you an idea of how special you are, I’d like to share with you a few statistics about our recruiting process. Each year, we interview at 62 colleges in the

U.S. Each year, the management recruiting office here in New York receives more than 15,000 resumes from people who want the jobs you have. Typically, we interview 14 people for every one person who's hired. By the end of this year, we'll hire 1,300 new professionals worldwide—900 of those in the U.S. And we'll hire 600 management associates worldwide—300 of those in the U.S. More than 50% of the new management associates and professionals we hire have graduate degrees.”

#### EXAMPLE: ZS ASSOCIATES INVESTS IN NEW EMPLOYEES

We'd like to introduce you to a company that has made a serious commitment to its orientation program: ZS Associates, a consulting firm specializing in sales and marketing consulting and outsourcing, with more than 1,500 employees working in 20 offices around the world.

When ZS was founded in the early 1980s, it was easy to bring new employees on board, since everyone worked in the same office and interacted daily with the company founders. But as the company grew, it became clear that a special effort was needed to ensure that every new hire has an opportunity to become steeped in what the company does and how it operates.

The result is called New Employee Orientation (NEO). Today, NEO is a weeklong program held seven times a year at company headquarters in either Evanston, IL, or in one of two locations in India (Pune and New Delhi). The objective of NEO is simple, according to Jeff Griesse, chief human resources officer at ZS: “To make our culture come to life.”

To do so, NEO includes these elements:

- A focus on three critical aspects of the company: “Who We Are” (heritage, history, and culture), “What We Do” (services, clients, and markets), and “How We Do It” (practices and processes).
- Active participation from senior leaders, including company founders Andy Zoltners and Prabha Sinha and managing director Jaideep Bajaj. “Having the opportunity to meet senior leaders, and listen to the stories they have to share and how they speak about the firm means a lot to new employees,” says Griesse.
- A chance to get to know other new employees, as well as principals and associates from throughout the firm. Each NEO includes evening social events attended by employees from the local office.
- An opportunity to participate in a simulated client engagement. NEO includes an add-on module called “Jump Start” that gives new employees entering ZS at a more experienced level a chance to solve a typical client challenge in a short amount of time. Since ZS principals play the role of clients, there's a fair amount of pressure, but Jump Start is also a bonding experience.
- A strong sense of what *not* to include in NEO. Since the program's focus is on the company, ZS handles all other information in other ways. For example, new hires are invited to a web session before they start at the company to answer questions ranging from “What time should I arrive at work?” to “What should I wear?” And a separate web meeting is scheduled with new employees to review benefits, payroll, and other HR issues.

## POSITIVE FEEDBACK FOR NEO

What do new employees think of the ZS orientation program? Feedback is overwhelmingly positive. Here's a sampling:

- “It was inspiring to have the opportunity to hear one of the cofounders speak. The presentation helped put the company's background and goals as well as my role at ZS into perspective. I'm glad Andy and Prabha are presenters in the first days of NEO. It's important to have their presence at this event as a first impression.”
- “This was very thought-provoking and did more to give me a positive perception of ZS culture than anything else I've seen thus far.”
- “The exercises were helpful in practicing—the session was very interactive, kept our attention, and helped me understand how ZS expects the project process to occur.”
- “The mock project was helpful because we actually got to work with our tools. I felt much more comfortable going into my first day of work.”
- “The session about the four main project areas and the associate's role helped answer a lot of questions.”
- “Very good session; got me excited about ZS.”

NEO is obviously a big investment, but it's proven its value, says Griesse. “It's important to get employees up to speed as quickly as possible and to make sure they're heading in the right direction,” he explains. “NEO is obviously just the beginning of the journey—our managers spend a lot of their time nurturing their people—but we've found that a great start leads to faster and higher impact with our clients.”

## **CHECKLIST FOR GIVING NEW EMPLOYEES WHAT THEY NEED TO BE SUCCESSFUL**

- ✓ Think about what new employees need to know about your company, its products or services, its history, and other essential topics.
- ✓ Ask key stakeholders—including senior leaders, managers, and current employees—what would make a new hire's orientation experience meaningful.
- ✓ Make sure managers understand their role in orientation.
- ✓ Give managers a checklist or “playbook” for what they need to do, with background material and resources to draw on.
- ✓ Have a clear idea of what your orientation program needs to focus on—and what you'll share with new employees through other channels.
- ✓ Think outside the PowerPoint, creating a format for an orientation program that actively involves employees.



## 12. Policies

*In this chapter, you learn how to*

- *Describe policies in conversational language that's easy to understand*
- *Organize an employee handbook to describe all your company policies*
- *Bring policies to life*
- *Help employees navigate those times when a number of benefits and policies intersect*

When it comes to aspects of your job that make you jump out of bed in the morning, we bet that “communicating policies” doesn’t make the list. Yet you’re well aware of how important it is for employees to understand and follow HR policies such as paid time off and dress code. The challenge is that communicating about policies is always a balancing act. On one hand, policies have to be simple enough to be easily understood and acted on. On the other hand, policies have to be precise enough and complete enough (hello, Legal department!) to protect the company. It’s no wonder that you sometimes want to shut off your alarm and hide under the covers! But never fear. We’re here to help you tackle the policies challenge.

## **HERE'S WHAT I EXPECT FROM YOU AND WHAT YOU CAN EXPECT FROM ME**

Human Resources policies are “the formal rules and guidelines that businesses put in place to hire, train, assess, and reward the members of their workforce” according to USLegal, a company that provides legal templates and forms. We think of policies as an agreement: They give employees information about what the company expects of them and what they can expect from the company.

As a result, “when organized and disseminated in an easily used form...policies can preempt many misunderstandings between employees and employers about their rights and obligations in the business place.” Again, that’s from USLegal, and we couldn’t have said it better ourselves.

Speaking of legal matters, you’ll want to get advice from experts in employment law when you communicate many topics to employees, including your policies. The language of the law is quite different from the conversational, easy-to-understand language that helps create effective HR communications, but it is possible to write about company policies and benefits in an interesting and readable way, and still meet legal requirements.

## **POLICIES: THE SHORT FORM**

Remember the 1984 movie *Gremlins*? While on a business trip to New York City, a dad stops in Chinatown to buy his young son a furry little pet called a mogwai. The shop owner gives three rules for taking care of the pet: Don't get him wet. Keep him away from bright light. And never feed him after midnight. When water is accidentally spilled on the mogwai, it causes him to multiply, producing a number of little brothers. And when the creatures find food after midnight, they turn into scaly monsters called gremlins, and all heck breaks loose.

Policies are a lot like that. You start with one. It's kind of cute. It's easy to take care of. Then you spill coffee on it and suddenly you have a pile of policies. They keep multiplying. And one night when you're working late, you leave a bag of Doritos on your desk—and you can imagine the rest.

For example, when we helped a company create a guide for people managers, we got to spend a lot of time with the company's policies—all 66 of them. Here's a partial list:

- Holidays
- Jury duty
- Military leave
- Vacation
- Job requisitions
- Relocation
- Sending flowers to employees

- Sexual harassment
- Conflict of interest
- Bulletin boards
- Substance abuse

How can you articulate each policy so that it makes sense? How can you organize all these policies so that employees can find them when they need them? We suggest that you start by creating an employee handbook.

### **HERE'S YOUR FRIENDLY HANDBOOK. DON'T BE FRIGHTENED. IT WON'T BITE**

Here's our premise: Policies form an important part of the employment equation, so let's make it easy (and enjoyable, even) for employees to learn more about them.

A handbook can do that for you. It helps new employees understand the rules of the road. It also serves as a reference for longer-term employees—a place to double-check how much time off they get or what to wear when visiting corporate headquarters. In short, a handbook provides information that helps employees succeed (so that the company does, too).

The handbook doesn't need to be a huge document, or an expensive one. It doesn't even have to be a printed document—it can be posted on your intranet or sent via e-mail.

But here's the most important point about creating a handbook: It can't be scary. Yes, a handbook must protect a company from legal problems, but it can't seem like it's written by lawyers. It needs to draw employees in

and make them feel comfortable, not send them screaming into the night.

## OUR HAPPY HANDBOOK

A decade or so ago, Alison's company (Davis & Company) was growing, and it needed to collect and communicate its policies in a more organized way. So we decided to create a handbook. We were well aware of the shoemaker's children syndrome (the ones with no shoes): What we created for ourselves absolutely had to practice what we preached.

So, we developed our first handbook. Since then, we've refined it a number of times. And today, we're proud of our employee handbook: We think it exemplifies what a small-company handbook should be.

Let's show you how it works. It's organized into three sections:

- About this handbook
- Our work together
- Company benefits

In "About this handbook," you'll find a photo of a welcome mat and these sentences:

Welcome to the Davis & Company employee handbook. This book contains policies, benefits, and general information you may need to know as a Davis & Company employee.

Since our inception, Davis & Company has striven to provide a fun, friendly atmosphere filled with smart people working hard to do great work for our clients.

This employee handbook is designed to provide you with a top-level overview of policies and benefits in an easy-to-read, visual format. The information is kept short on purpose, since we're not a culture with a lot of rules and regulations.

Now for the legal wording: This handbook is to be used as a guide. It is not a contract, expressed or implied, and can be revised at any time.

In just a few sentences, the handbook spells out what it's like to work here and what the new employee can expect to find in the guide. Throughout the handbook, we maintain the same friendly tone while explaining as clearly as possible the policies employees need to know about. Here are some examples:

### **Dress code**

Dress appropriately when representing the company. When visiting a client location, please dress appropriately for the client's culture. When a client is visiting the office, dress "business casual."

### **Sickness, personal emergencies, or late arrivals**

In case of an unexpected illness, emergency, or late arrival, please send an e-mail to the staff or call the office (or have someone call on your behalf) prior to—or at the start of—the workday. The person who takes your call will put the information on the electronic calendar and share it with the staff via e-mail. If you miss work for two hours or more, enter it on your timesheet as paid time off.

### **Paid time off**

Davis & Company's system classifies all types of time off—vacations, holidays, sick time, personal time, and any other nonbusiness time away from the office during normal work hours—as paid time off. All of these—tracked in two-hour increments—are deducted from your bank of accrued paid time. Any paid time off that is less than two hours should be made up within that week.

[This is the introduction; it continues from here.]

## DO YOUR HOMEWORK BEFORE PRODUCING YOUR HANDBOOK

If you're beginning a project to create an employee handbook, here are some great ways to start.

First, do your homework. Conduct research with the following:

- **Employees and managers.** Find out what each isn't hearing from the other. Ask, "What do you wish you knew on Day One but didn't?"
- **Plan providers, call centers, and so on.** What do your employees not know, need to know, need to do better for themselves? What mistakes are employees making?
- **Company programs and program and plan managers.** Find out what is working well, what is not, what you wish every employee knew about your program.
- **Employee surveys or questionnaires.** What trends do you see in terms of misunderstood programs or procedures?
- **Senior managers.** What do they want every employee to know, do, and feel? What is driving them crazy right now?

This is a great start to finding out what is working, and what's not, in your organization. What's really great about this process is that *you* might be the person to

change what's not working at your company into what *is* working, simply by doing your job and communicating well.

### ***Establish Your Objectives***

Based on what you learned in your research, set up three overall objectives for your employee handbook, and determine how you will measure the success of each. For example:

If your objective is to:	You might measure success by:
Help employees take advantage of company programs and services	Tracking employee usage of various programs or measuring the overall increase in usage
Reduce time not working (loss of productivity) caused by mistakes employees make in presenting medical claims	Measure percentages of mistakes in claims, and set a goal of reducing mistakes by X% (which increases productivity)

### ***Gather Content***

Now it's time to gather content. An employee handbook typically covers topics that Human Resources manages: policies, benefits, and programs to help the business attract and keep talented performers.

Ideally, your employee handbook also includes information from staff areas throughout the company: Information Technology, Facilities, Legal, Human Resources, Marketing, Public Affairs, Investor or Shareholder Relations, Training, Community Relations. All these functional areas have information to contribute to help employees know what to do in a variety of situations and how to use the services or resources that each area offers.

Employees don't think about company programs and services coming from a variety of internal functions; it's

all “from the company” to them. It’s silly for each staff function to produce its own version of a handbook, because that weighs heavily on the arms of employees. That’s why it’s good to have descriptions of all the services and programs offered by all the staff functions in one resource in print and online.

### ***Organize Your Handbook in a Way That Makes Sense for Your Company and Your Employees***

After you’ve gathered all the background material, you need to organize it. You can use a number of different criteria to do so:

- Timeline of the employment relationship (from joining the company through leaving)
- Alphabetical order by policy
- Order of importance or order of value to your employees (most to least)
- Order of cost (most expensive to least)
- Life events (see more in the sidebar [“The Truth About Killing Trees,” in Chapter 3, “Plan and Manage Communication”](#))

Once you have identified all your content and have organized it in some fashion, look for even bigger labels to put on the content so it will appeal to your readers. Here is an example of what we mean.

#### FINANCIAL SERVICES FIRM

Here is how Jane organized the contents of an employee handbook for a small financial services firm that wanted to keep its low turnover rate. This was a simple 12-page brochure the company could use in recruiting and orientation and as a reference for its current staff. Copy from the handbook’s inside front cover said, “To continue our success, we seek to attract, motivate, and encourage long-term employment of talented, service-oriented people.”

The handbook was organized by importance, starting with pay, and then covering topics in order of sequence, ending with retirement. Here is an



overview of the content:

#### **Creating your wealth**

- Compensation philosophy
- Your base salary
- Annual incentive plan
- 401(k) savings plan
- Employee stock purchase plan
- Sales incentive awards
- Discounts on company products and services

#### **Maintaining your good health**

- Medical and dental plans
- Healthcare, child care, elder care reimbursement accounts

#### **Protecting your future**

- Life insurance
- Dependent life insurance
- Short- and long-term disability
- Business travel accident insurance

#### **Building your skills**

- Company training programs
- Tuition reimbursement program
- Scholarships for children of employees

#### **Balancing your work and personal life**

- Holidays, vacation, and personal days
- Family and medical leave
- Wedding gift program
- Employee assistance program
- Dependent care
- Matching gifts for education

#### **Providing for your retirement**

- Your retirement program

#### **Investing in you**

(A chart overview of company benefits, when you're eligible, and who pays.)

Jane organized the contents based on what the company offered and what employees valued, and then created a series of parallel subheadings, each starting with a gerund. Simply reading the table of contents tells you a lot about the culture of a company and the employment proposition.

### ***Other Ways to Organize***

In another employee handbook we created, we organized information into the following section headings, starting with the basics and then following a more-or-less sequential organization:

- Our work environment
- Getting started
- On the job
- Compensation
- Employee benefits, programs, and services
- Time off
- Problem solving
- Leaving
- Resources

And for still another handbook, here's how we organized the content:

- How we work
- On the job
- Money matters
- Time off
- Benefits for you
- Solving problems
- Leaving the company

## DESPERATELY SEEKING INFORMATION

Whichever structure you use to organize your handbook, keep this in mind: Employees will need help finding just the information they want. Even if you conducted research with managers and employees and put your handbook together accordingly, some employees will look for the topic of “life insurance” in the “pay” section instead of “benefits.” Or perhaps they don’t consider “sick days” time off, so they’d never think to look for that topic in that section.

You need to do three things to make it easier for employees to find what they need:

- **Create a detailed list of contents at the front of the handbook (or on the homepage, if it’s online).**

Don’t just list “benefits”; list specifics such as “vision care” or “tuition reimbursement” with a page number (if your handbook is in print) or link.

- **If your handbook is in print, include an index.**

Book publishers tell us that roughly 50% of all people go to the table of contents to find a topic, and 50% head for the index. That’s why it’s important to have both in your handbook: You make it easy for 100% of your audience to find what they’re looking for.

- **If your handbook is online, make sure the**

**search function works well.** Work with your Information Technology department or vendor to ensure that content is tagged properly. That way, employees can, for example, type “corporate credit card” in the search box and go right to the page they need.

## KEEP THE LANGUAGE CONVERSATIONAL— PLEASE, NO LEGALESE

As you write your handbook, read it aloud to hear if it sounds like one employee talking with another. As we said previously, you do not want the handbook to sound like a lawyer writing to employees (even if you work in a law firm).

Although it's true that more employees today sue their current or former employers, the employees who sue represent an extremely small percentage of your total employee handbook readership. You're preparing the handbook for the majority of employees—those wonderful folks who will never sue you. Nothing you say in the employee handbook will ever *prevent* someone from suing your company. What you say should *encourage* most employees to do a good job.

Including quotes from real employees (along with their photos) is a great way to share the unwritten secrets of success in your environment. For example, in one of the employee handbooks we produced, an employee was quoted as follows: “We never have *problems* here; we only have *opportunities*.” (Emphasis is as the employee stated.) When you include quotes from employees, giving advice about how to succeed in the organization, you're not only sharing great advice; you're also recognizing those employees featured as being successful.

### ABOUT ID CARDS

One of the handbooks Jane created had a section on ID cards. Here are the first two paragraphs:

You received an identification (ID) card during your processing appointment when you first joined us. It includes your name, signature, personnel number, and a probably not-very-flattering photo.

You should always carry your ID card when you come to work, because you'll need it to enter most of our facilities and to prove your eligibility for some employee services.

Note the phrase “a probably not-very-flattering photo.” It indicates that a real human being wrote the handbook. It's a small way for a “voice” to be heard—

the voice of one employee talking to another. That's the tone of voice you should strive for: an employee sharing good advice with a colleague.

## **ENCOURAGE EMPLOYEES TO USE THE HANDBOOK AS A RESOURCE**

The ideal place to distribute the employee handbook is during the orientation process. If you can pull it off, one of the best ways to make employees familiar with the handbook's contents is to hold a competition during an orientation program. You would ask teams of employees to find answers to some of the questions in the handbook. The first team with all the right answers wins.

Education professionals will tell you that if you give a person a resource, and the person *actually uses* that resource within the first hour of receiving it, the chances increase exponentially that the person will use that resource again.

## **PUT A TITLE ON YOUR WORK**

"Working Together" works well as a title for an employee handbook. It indicates that we're all in this together, and having some common understandings about how we'll work together makes sense.

Here are some additional thoughts about good titles for employee handbooks:

- "How to Succeed at [Your Company Name]"
- "73 Reasons Why [Your Company Name] Is a Great Place to Work"
- "How You Bring Good Things to Light at GE" (tie in with advertising slogans)
- "The Benefits of a Career with [Your Company Name]"

## **MEASURE RESULTS**

Include a one-page survey in the employee handbook or on the web page that offers some incentive to employees to complete it and turn it in. This could be a free lunch at a nearby restaurant or the company cafeteria. Also track before-and-after data regarding usage of company programs. Pick a few key goals you set up as a result of your research, and then check back with program managers, call centers, and so on to see what improvements have occurred since you produced the employee handbook.

Hold focus group sessions about six months after distributing the employee handbook. Determine what questions employees still have, what sections confuse them, and what information they want included that isn't there.

Use what you learn to improve the intranet version of your handbook immediately, and update the print version at least every two years.

## **BRING POLICIES TO LIFE**

Of course, even the best-written policy may need support to encourage employees to learn about it and take action on it. For example, a financial services company created a flexible work arrangements policy to allow employees to work on a different schedule or from home. But the company learned that many employees didn't know about the policy, and many managers were skeptical. They believed that the terms "flexibility" and "work" were mutually exclusive.

We helped the company communicate with both employees and managers about two aspects of the policy: the benefits of working flexibly, and how employees (and managers) start and successfully manage such an arrangement.

Sharing the policy itself was certainly the beginning of our communication efforts. But even more important was bringing the policy to life by doing the following:

- Using research to demonstrate the value of flexible work arrangements to show how they can improve productivity and job satisfaction
- Giving examples of different aspects of flexible work arrangements, such as flextime (starting and ending times), flexplace (telecommuting), compressed workweek (full-time work completed in fewer than five days), and job sharing (two employees share the responsibilities of one full-time job)
- Providing all the paperwork needed to set up an arrangement, with clear instructions on how to fill it out
- Helping managers and employees deal with potential pitfalls by communicating scenarios and how to resolve them
- Giving managers and employees a chance to get their questions answered by including FAQs in the print and written communication and by holding learning sessions they can attend in person or via web meeting

## **COMMUNICATE LIFE EVENTS WHEN POLICIES, PROGRAMS, AND BENEFITS INTERSECT**

If you think about the various life events that an employee can experience while working at your company, you may find you need to take extra steps in communicating what happens when various programs, policies, and benefits intersect.

Life events can include getting married, having a baby, moving into a new home, being sick or injured, caring for an older or younger relative, and more. Sometimes, a simple chart can illustrate what happens when.

For more-complex subjects, we like to take a visual approach. For example, having a baby is a life event where provisions from your medical plan combine with policies about parental leave, vacation, and other time-off policies. Having a baby might even require changes in other benefit plans. We found we needed more space than a simple chart to show a timeline with color coding to show which plans or policies kicked in at which point. Our resulting communication was a horizontal placemat-sized document that quickly showed a parent-to-be when he or she was eligible for which time-off provision and how this could be extended with vacation time. It also noted places where the parent needed to take action (to include the new baby in health coverage, for example) as well as information and resources the parent could receive.

## **CHECKLIST FOR MAKING THE MOST OF ALL THAT YOUR COMPANY OFFERS**

To make sure your employees take advantage of everything your company offers, you'll want to do the following:

- ✓ Articulate your policies in a clear, simple way, using nonlegal language.
- ✓ Create a handbook that's geared toward helping employees find policy information quickly and easily.
- ✓ Use employee quotes and examples to make policies more vivid.
- ✓ Bring policies such as flexible work arrangements to life.
- ✓ Create clear visuals that show how your programs, policies, and benefits intersect during important life events such as getting married and having a baby.





## 13. Benefits

*In this chapter, you learn how to*

- *Create benefits communication simpler, faster, and easier*
- *Help employees understand their benefits so they can make smart choices and use benefits wisely*
- *Give employees good reasons to appreciate the benefits your company offers*

### “MY HEAD HURTS”

It comes around every year: benefits enrollment season. And every year you work hard to communicate benefits so that employees will understand your plan (or choice of plans) and take appropriate action.

But every year the task gets more difficult. Healthcare costs keep rising. Plan rules get more complicated. You make changes to keep costs contained, and employees view those changes as “takeaways.” And just when you think you’ve got it all under control, a big curveball (can you say “healthcare reform”?) comes along.

It’s no wonder that every year you end up with a headache that requires a jumbo bottle of extra-strength pain reliever. (Which reminds you that you need to let employees know that over-the-counter medicines can no longer be reimbursed on their flexible spending account.)

We can't take away your headache, but we *can* take the pain out of communicating benefits—both during the enrollment period and throughout the year. In this chapter, we show you how.

Along the way, we give examples from a company Alison's firm has worked with over the past several years to communicate benefits to its employees. For a variety of reasons, we can't share the company's real name, so we call it Walnut, Inc. Headquartered in the New York City area, Walnut has operations throughout North America with 25,000 employees in various functions, including research, manufacturing, sales, and distribution.

## **IS EIGHT YOUR LUCKY NUMBER?**

It's ours when it comes to benefits communication. We've found that following these eight steps make communicating benefits more effective:

- 1.** Set objectives for what your company wants to achieve.
- 2.** Understand employees' needs and preferences.
- 3.** Develop a planned approach.
- 4.** Communicate simply, clearly, and candidly.
- 5.** Manage time wisely.
- 6.** Use tools for what they do best.
- 7.** Focus on what employees need to do.
- 8.** Measure progress and success.

### ***Again, Begin with Objectives***

As we said earlier, we believe that most communication projects should start with the end in mind, so you should set objectives for what you want to accomplish. (See [Chapter 3, “Plan and Manage Communication,”](#) for a lot of advice about how to do so.) This is especially true when you’re communicating benefits. Why? Because you often need employees to take actions that determine whether your benefits are successful. The idea, of course, is to make sure you design communications to support employees taking those actions.

For example, each year the benefits team at Walnut, Inc. sets objectives for desired employee behavior. Here is a sample:

- Increase participation in the long-term disability program.
- Reduce the number of calls to the HR service center (the vendor company that handles enrollment and other calls).
- Influence employees to sign up for benefits throughout the enrollment period. (The idea is to encourage them not to wait until the last two or three days to do so.)
- Encourage a percentage of employees to switch from the “preferred” PPO plan (more choices, higher premiums) to the “select” plan (fewer choices, lower premiums).

### ***Understand What Employees Know and What They Need***

Once you’re clear about what your company wants to accomplish, it’s time to turn your focus to employee needs and preferences. As we describe in [Chapter 1, “Know Your Employees,”](#) qualitative research—such as focus groups—helps you find out the following:

- How well employees understand their current benefits. Don't assume that just because you've communicated the vision plan for the past five years that employees know about the importance of those benefits and how they work. You must dive deeper to get an accurate assessment.
- Perceptions about the value of benefits. Do employees appreciate what they have, or do they undervalue the program?
- What employees need to know—and how they want to receive communication.

#### WHAT YOU CAN LEARN BY ASKING

One of the first things that Walnut's new director of compensation and benefits did when he started his job was to talk informally with a few colleagues to find out what they thought of the company's current benefits. Their answer—that the company's benefits were not as good as those offered by competitors—surprised the director, because his benchmarking research had found that Walnut's benefits were comparable to or even better than other similar companies. He wondered: Did all employees share this misconception?

To find out, the director asked us to survey a sample of employees as well as conduct several focus groups. Research results confirmed that employees thought their benefits were worse than those offered at other companies and that Walnut was reducing benefits. The root cause of this belief? Employees had a low understanding of both their healthcare plans and their total benefits package.

The research also shed light on employees' communication preferences:

- Employees didn't want surprises. They'd rather that change occur gradually than be caught off guard by something drastic.
- When changes were made, employees wanted clear, candid communication.
- Employees needed benefits information in one place and preferred to look at enrollment information at home (at the kitchen table).
- The ideal way to present health plan choices? Employees requested a side-by-side, "apples to apples" comparison.
- Employees wanted communication to be easy to read and navigate.

### ***Develop a Planned Approach***

If you've followed steps 1 (set objectives) and 2 (find out what employees know and what they need), you have a strong basis for developing your approach to benefits communication.

Let's use the Walnut example to explain what we mean. You'll recall that the HR team had specific actions it wanted employees to take. And employees clearly expressed what they needed. In their own words, employees said:

- "Tell me what's changing and what to do."
- "Don't sugarcoat it—give me the facts."
- "Comparisons and examples would be helpful."
- "Make it easy for me to make the right decision."

Putting these together helped Walnut's benefits director decide how to communicate to meet both HR's objectives and employees' needs. Here's an excerpt from the planning tool we used to choose the right communication approach:

Company Objective	Employee Need	Communication Approach
Employees will have a better understanding and greater appreciation of benefits	Benefits information in one place, with enrollment materials mailed to them at home	A print handbook that highlights health plan information and describes other benefits, including life insurance and tuition assistance
Employees will make smart choices about which health plan to enroll in and will use the plan wisely	To compare health plan choices “apples to apples”	Overview of plans in the handbook, plus an at-a-glance “spreadsheet” insert
Employees will place fewer calls to the HR Service Center	Materials that are easy to read and navigate	Use of sections, color, table of contents, index, and other navigation tools, both in print and online  Tone is clear, friendly, service-oriented

### ***Communicate Simply, Clearly, and Candidly***

We’re so passionate about being simple, clear, and candid that we could write a book about the topic—oh, right, we’re doing that here. But our advice especially applies to benefits. Because your company offers so many different benefits, and because many of them are so complex, it’s even more important that you simplify, simplify, simplify how you communicate. Here are a few tips about how to do so (some are reminders from previous chapters):

- **Use the inverted pyramid to organize information.** This classic structure puts the most relevant information first and saves the details for lower down in the message. And it works for any kind of communication, from e-mail to enrollment packages to benefits meetings.

- **Focus on what employees need to do.** In these information-overloaded times, employees want you to

cut to the chase and tell them what action is required. So be clear, with content such as “Five decisions you need to make” and “A three-step process for choosing your benefits.”

- **Be visual.** Instead of long narrative copy, break content into easily scannable segments. For example, create a table that captures key changes to next year’s benefits. Or add a sidebar with a checklist of decision items. And whenever possible, use icons, photos, or sketches to illustrate your points.

- **Avoid the urge to sugarcoat.** Communicating benefits is often a “bad news, bad news” proposition. Sometimes costs increase; other times benefits are eliminated. To maintain credibility, it’s important to communicate honestly. Tell employees why a change was made, how costs were managed, and how they can choose and spend wisely.

- **Don’t be shy about celebrating good things.** Use communication to remind employees about benefits that are designed to make their lives better, such as flexible spending account debit cards, preventive care, discount gym memberships, and free financial advice.

- **Be service-oriented.** Include tips, advice, and Q&As that will help employees be smarter consumers and live healthier. Here are some examples of service-oriented topics you can integrate into your communications:

- How to determine if you’re saving enough for retirement
- Low-impact ways to get more exercise
- How I saved \$300 on my prescriptions



- Five often overlooked discounts offered by the company medical plan

- **Tell the “why” behind benefits changes.** While you want to focus on what’s new and what employees need to do, sometimes it’s also important to remind employees why your company provides these benefits and the process you go through before making any changes. Chances are, senior leaders gave benefits changes a lot of thought, looked through the data, and made strategic decisions based on cost-benefit analysis. Walk employees through that process and present this information as a sidebar in your communication.

*Give Benefits Communication a Much-Needed Voice*

Here’s one more piece of advice under the category “simple, clear, and candid”: Don’t lose the human side of the equation. It’s easy to get so wrapped up in getting the facts right that you forget that communication should feel personal. After all, benefits are a topic that employees take personally. Our colleague Kimberly Gavagan recently wrote a blog for the Davis & Company website that captures this idea so well that we’d like to share it with you:

A friend of mine recently received an envelope in the mail from the life insurance provider for her company. When my friend opened it, she found generic materials sent directly from the vendor—with not even a cover letter from her own company explaining what was inside.

Her company is family-owned. Leaders make an effort to get to know employees and make them feel valued.

This generic, no-personality package was the opposite of what Sasha is used to. It contained a standard brochure and a bland form asking her to select one of two options for her life insurance coverage. There was no indication that this was part of her company’s benefits program.

Sasha was baffled. And honestly, so am I.

This strikes me as a missed opportunity. Every time you send something to your employees about benefits, you are sending two messages. The first, of course, is the information itself.

The second is silent, yet speaks volumes: It's about creating a sense of connection between company and employee. In this case, the connection was lacking and the tone was saying, "We don't care."

Benefits are an emotional issue for employees. They see benefits as a way to take care of themselves and their families, provide financial security in the event of an illness or injury, and help them happily retire.

This is not the time for generic communication.

If you must use the materials your vendor supplies, at least provide employees with a little context: a cover note explaining what's coming, why it's important, and what employees should do.

Even better, benefits communication should align with your company's brand. Model it after your company's ads. Write simply, avoid jargon, and be straightforward.

The best path, of course, is to make benefits communication personal. Employees should feel like it's coming from a human being—one who works at their company and understands them—and not a warehouse.

By doing so, you not only build understanding about benefits, but also create goodwill as well.

#### HOW WALNUT KEEPS IT SIMPLE

Benefits communication at Walnut exemplifies simplicity, clarity, and candor. Here are three examples:

### 1. A poster (displayed outside cafeterias and on bulletin boards)

It's time for open enrollment.

Review your benefits for next year.

Act now to take advantage of new, lower rates for Voluntary Long-Term Disability and Life Insurance.

Enroll by November 28.

### 2. Introduction to a resource book (available online and printed for new employees) that contains information on all Walnut benefits

Your life is complicated. There's so much to do, so much to experience, with a change around every corner. You get married. Get a promotion. Buy a house. Send your first child off to college. Start thinking about retirement.

Walnut benefits are designed to provide a comprehensive program to help meet your healthcare, insurance, work/life, and retirement needs. But like everything else in life, making the best use of your benefits takes effort. By taking an active role in learning what choices are available, selecting the benefits that fit your needs, and using your benefits wisely, you will get the most out of these valuable assets.

This resource book is designed to help you get started. It provides an overview of all your benefits, with helpful hints on each. Use this information to begin the process of becoming informed about benefits, taking advantage of websites and other resources to explore specific benefits in more detail.

### 3. A chart explaining changes to the PPO plans

Basic and Select PPO Plans will become Enhanced PPO.

Walnut will offer the Enhanced PPO Plan, which will replace the Basic and Select PPO Plans, starting January 1 next year. The Enhanced PPO will combine features of both PPOs, as shown in the following chart:

	Current PPO Plans		New PPO Plan
What's Changing	This Year's Basic	This Year's Select	Next Year's Enhanced
Office visit copayment	\$20 nonspecialist \$40 specialist	\$20 nonspecialist \$40 specialist	\$25 nonspecialist \$40 specialist
Outpatient coverage	85% coinsurance with an out-of-pocket maximum of \$2,400 individual/\$4,800 family	100% coinsurance	90% coinsurance with an out-of-pocket maximum of \$1,250 individual/\$2,500 family
Inpatient coverage	85% coinsurance	\$250/day copay with an 8-day copay maximum of \$2,000 per year	\$500/day copay with a 2-day copay maximum of \$1,000 per year

## ***Manage Time Wisely***

When it comes to benefits communication, the Rolling Stones got it wrong: Time is definitely not on your side. In fact, timing is one of the trickiest aspects of communicating benefits, as shown here:

Provide information too early, and employees are likely to ignore it.	“I’ll get to that later.”
Send messages too often, and employees will think there will be more, so they can wait to act.	“I’ll catch the next one.”
Send too much information, such as daily e-mails for a month.	“This is really annoying. I’ll just keep pressing the delete key.”
Communicate just in time, and employees will respond in a timely manner.	“I’ll do this right now.”
Give information too late, and employees will feel blind-sided.	“Wait! Wait! I need more time!”

We don’t have a hard-and-fast rule for managing time wisely. Instead, in each situation, we work at achieving the right balance. We seek to give employees enough time to understand an upcoming change so that they can get used to it. And we give employees a heads-up when something is coming. (“Next month is when enrollment starts.”) But we also want to be as “just in time” as possible so that employees have the information right before they need to take action. Finally, we’re big fans of “friendly reminders”—short messages that don’t overwhelm or annoy, but give employees a gentle push to get going.

The best way to manage timing, we find, is to create a timeline as part of your communication plan (see [Chapter 3](#)). That way, you can map out how employees will learn about benefits and ensure that the timing

creates understanding and encourages people to take action. **Figure 13-1** shows what we mean.

Element	Audience	Activity	Dates
Employee Benefits Update–September	U.S. (non-PR), non-union, employees	Employees receive newsletter–printed version	9/15
Leader Briefings	Senior HR/senior management	Hold senior leader meetings	10/17
HR Portal	U.S. union and non-union	Site changes launched	Week of 11/5
Health Fairs	Employees at key locations	Health fair in Madison	11/5-11/28
Posters and Screens	U.S. union and non-union employees	OE posters in locations	11/15-11/26
Reminder E-mails	U.S. (non-PR) employees	Distribute e-mail #2	Week of 10/29
Open Enrollment Package	U.S. (non-PR), non-union employees	Employees receive kits	Week of 10/22
Employee Benefits Update–October	U.S. (non-PR), non-union employees	Employees receive newsletter with OE Package	10/15

**Figure 13-1 Communication timeline**

*More Examples: “Here’s a Preview” and “Don’t Forget”*

Our friends at Walnut think a lot about timing. One technique that’s worked well is to provide a heads-up about upcoming benefit changes about a month before open enrollment begins:

### **Preview of Benefit Changes for Next Year**

Many employees have said it is helpful to learn about changes in advance of Open Enrollment. While you’ll find details of next year’s benefit changes in your Open Enrollment packet in early October, here’s a preview of what’s changing.

For next year, Walnut has made changes that keep projected healthcare cost increases under control and also has added plan features that can save you money and time. This includes important changes to the medical plans, Health Care Spending Account, and voluntary life insurance. Read on to learn more.

Once enrollment begins, Walnut sends e-mail, displays posters, and mails postcards designed to provide gentle reminders to employees. For example, here's a personalized e-mail sent only to employees who have not yet enrolled:

**Don't wait until the last day to enroll!**

Our records show that you have not yet made your benefit elections for next year. If you are not currently enrolled in Long-Term Disability coverage, don't miss out on this one-time opportunity to join the plan without submitting evidence of good health.

Also, you must enroll in the Health Care and/or Dependent Care Flexible Spending Accounts if you want to participate in these accounts next year.

The deadline for enrolling in all these plans is November 29.

Enroll online by visiting [www.mybenefits.com](http://www.mybenefits.com).

Enroll by phone by calling 800-XXX-XXXX.

If this is your first time enrolling online, at the Login screen, enter your social security number in the "user name" field and the last four digits of your employee ID number in the "PIN" field.

Questions? Call the HR Service Center at 800-XXX-XXXX.

The result of making an investment in timing? Walnut has been able to achieve one of its main objectives: persuade employees to act throughout enrollment, and not wait until the last minute to sign up. (This saves the company money by not incurring extra vendor charges and also reduces errors.) For instance, by giving

employees information in advance during one year's open enrollment, Walnut persuaded them to sign up early:

***This Year's Daily Enrollment Was More  
Balanced Than Last Year's***

Time Period	Last Year Enrollees	This Year Enrollees	Change
First 3 days	1,768	3,117	+76%
Last 3 days	8,982	7,344	-18%

***Use Tools for What They Do Best***

We talk a lot about tools in [Chapter 7, "Use the Right Tool for the Job,"](#) so we'll be brief here. In fact, we can boil down our advice to one sentence: When it comes to benefits communication, don't use e-mail for everything.

E-mail is great for timely reminders. And for quick checklists. And to provide handy links to information available on a website.

But e-mail is not as effective as other communication channels for conveying complex information. For instance, we love web tools that help employees enter personalized data and calculate the best choices for them. And we love posters and postcards for providing important information at a glance.

However, we must confess that our favorite tool for communicating benefits is still, after all these years, a print publication. Whether it's a brief flyer (such as a "Slim Jim" that fits into a #10 standard envelope), a four-page newsletter, or a full brochure, we find that print fits the bill for the following:

- Compiling all the facts that employees need to understand benefits and make decisions

- Including charts, tables, and other ways to compare information
- Bringing benefits to life through examples
- Allowing employees to share information with significant others

#### WALNUT SAYS, "PRINT IT"

Like many companies, about 10 years ago Walnut discontinued its open enrollment mailing and went to a strictly online format. But when we asked employees what they thought about the change, here's what they said:

- Employees weren't getting the full story from the website, just bits and pieces. That contributed to their lack of understanding about benefits.
- Since employees preferred print, they were creating their own packages by printing web pages. But that wasn't as effective as a well-designed print piece.
- Employees perceived the move to online-only information as another takeaway. "Bring back our printed information!" was a typical comment.

As a result, Walnut reinstated its enrollment package—the first year as a full brochure with information about all company benefits, and in subsequent years as a newsletter (which was also available online). Walnut also started using print when communicating about specific benefits, such as disability and tuition reimbursement. Figure 13-2 shows a flyer distributed in information racks near cafeterias, break rooms, and facility entrances.

Are you enrolled in  
the Long-Term  
Disability Plan?

**If not, don't miss out on this  
one-time opportunity to enroll!**

---

**You can't afford not to.**



**How would you  
take care of your  
family if you had  
no income?**



**Protect your income if an  
illness or accident keeps you out of work.**

---

**Did you know?**

- People in their 30s are three times more likely to suffer a disability than die.  
- National Association of Insurance Commissioners
- Almost three in 10 workers entering the workforce today will become disabled before retiring.  
- Council for Disability Awareness
- Unexpected disabilities caused at least 17% of personal bankruptcies in 2001.  
- Council for Disability Awareness

Figure 13-2 Benefits flyer

***Emphasize Action***

One thing we like about benefits communication is that it's action-packed. Seriously. The reason to communicate is not simply to provide information; it's to give employees what they need to do something (and that something usually helps them). So we plan and create our communication keeping desired action steps in mind. We use words and phrases such as these:

- Act now
- What you need to do
- Reminder
- How to
- Don't miss out

#### KEEPING TRACK

How can you tell if your action-oriented communication is working? We share some tips on measuring benefits communication in a moment, but we also recommend collecting whatever metrics you can about what employees are doing. Walnut's HR Service Center database allowed HR to keep a close eye on how communication stimulated action. [Figure 13-3](#) shows a sample report.

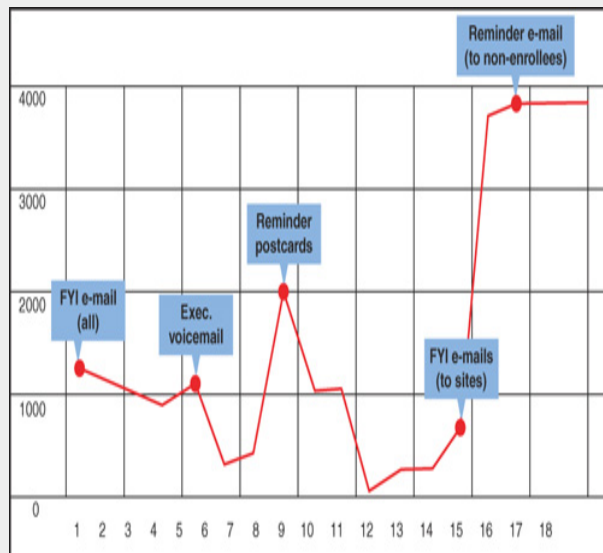


Figure 13-3 Sample communication report

### ***Measure Twice; Cut Once***

As we describe in [Chapter 9, “Measure Effectiveness,”](#) measuring your communication is essential for testing its impact, to demonstrate its value, and also to adjust and improve your communications going forward. You can measure benefits communication in a variety of ways, including spot surveys during and after enrollment, an annual (or biannual) survey, and detailed reporting from your database or vendor systems.

Wondering which questions to ask? Here are a few standard survey questions:

The enrollment package mailed to my home was useful.

Strongly agree   Agree   Disagree   Strongly disagree

I understood the choices available to me.

Strongly agree   Agree   Disagree   Strongly disagree

I felt prepared to make smart decisions about enrollment.

Strongly agree   Agree   Disagree   Strongly disagree

#### WALNUT MEASURES SUCCESS

How did Walnut know that its benefits communication efforts were successful? Both actions and employee feedback indicated that its communication was meeting employees' needs. For example:

82% of employees agreed that they understood their benefits.

70% felt that the communications were useful.

Here are some employee comments:

“This year's communications on benefits have been extremely valuable. They helped me more thoroughly understand the changes.”

“Thank you for providing understandable information in many formats.”

“I appreciate the efforts to help me reach a full understanding of the options available.”

## **CHECKLIST FOR HELPING EMPLOYEES UNDERSTAND THEIR BENEFITS SO THAT THEY KNOW WHAT TO DO**

- ✓ Know what you want to accomplish.
- ✓ Ask employees what they know and need.
- ✓ Make even the most complicated benefits information simple.
- ✓ Keep an eye on the calendar to get the timing right.
- ✓ Don't rely only on e-mail; take out the other tools in your communication toolbox.
- ✓ Emphasize steps employees need to take, and encourage them to act now.
- ✓ Measure to demonstrate success and get ready for next time.

## 14. Compensation

*In this chapter, you learn how to*

- *Communicate clearly about pay*
- *Give employees tools to help them see the value of their compensation*
- *Help prepare managers to talk face-to-face about pay*

### **BEWARE THE BLACK BOX**

Of all the topics organizations need to communicate, you'd think they'd be most effective at communicating about pay. After all, although you hope that employees love their jobs, they work to earn money—to pay their mortgage, put gas in the car, and buy their children shoes. So employees care deeply about how they're compensated.

But here's the tricky part. Compensation is, appropriately, a delicate subject. For many good reasons, Person A may be paid differently than Person B, even though they're doing the same job. So although you can broadly communicate your philosophy and framework for *how* you pay people, *what* you pay them needs to be discussed privately, between an employee and his or her manager.

Because of the need for confidentiality, companies often undercommunicate about compensation. The result is that employees experience compensation as a “black box”—a device whose workings are incomprehensible and inaccessible. The black box becomes like a

frustrating magic trick. Information (such as performance management ratings) goes into the box, a secret process occurs, and what comes out—a salary increase or bonus amount—seems mysterious. This can cause employees to become confused, frustrated, and even unmotivated.

How can you demystify pay so that it engenders positive feelings? Read on.

## **MONEY DOES NOT EQUAL MOTIVATION**

We would be remiss if we didn't make this point: Money alone is not a motivator. We're a fan of Daniel Pink, whose book *Drive*<sup>1</sup> draws on four decades of scientific research to identify three elements of motivation—autonomy, mastery, and purpose—that surpass money as a motivator. He notes that humans have a deep need “to direct our own lives, to learn and create new things, and to do better by ourselves and our world.”

In terms of pay, Pink says most of us just want to know we're being paid equitably both inside and outside our organization. In short, we'd like to think our salary is about what it would be if we left to join a competitor. And we'd like to think that someone with a comparable job inside our company doesn't make a lot more than we do—unless, of course, it's obvious that our colleague merits a lot more money.

We share this information because at the start of any communication challenge, we think it's a good idea to learn a bit more about your topic from outside your company. You'll also want to know how employees in your company feel about pay in order to create communications that will resonate with them.

## THE MAGIC NUMBER IS 5

All the advice we shared with you in Part I of this book applies to communicating about pay, of course, but we especially recommend that you focus on these five strategies:

1. Use simple language
2. Create visuals
3. Help managers talk about pay
4. Personalize, if possible
5. Provide examples to bring numbers to life

### *Use Simple Language*

Have you heard this advice before? Of course you have—in Chapter 5, “Write Simply and Clearly.” But it’s worth repeating, because if we see one consistent problem with compensation communication, it’s just too complicated.

We know what you’re thinking: Communication is complicated because so is compensation these days. It used to be easy when the only component was straight salary. But many companies have added variable pay to the mix, which is tied to company and/or individual performance. Then there are bonuses (also known as short-term incentives). And finally, you may have long-term incentives, which might take the form of stock options or restricted stock.

Have we mentioned everything? Maybe not. Compensation consultants are always coming up with new approaches to paying employees. In any case, we don’t disagree that your overall compensation program can get pretty complicated.

But that doesn't mean your communication has to be complicated, too. In fact, the greatest service you can offer employees is to make communication simple, so that employees can understand how even the most gnarly pay plan works.

*Don't Do This*

For an example of how not to communicate, we bring you this excerpt from a brochure on compensation created for VPs at a major corporation. (The company name and details have been changed to protect the guilty.)

Acme pays for performance by directly linking pay levels to company business performance. To ensure that pay levels are aligned with business performance, an analysis is performed each year comparing Acme to relevant peer companies. In this analysis, Acme's performance on key financial metrics is first compared to the performance of a number of direct competitors. Financial metrics may include such items as sales volume, revenue growth, earnings per share, return on investment, and shareholder returns. These financial metrics in aggregate are used to establish a measure of overall company performance. In addition, total compensation, which is comprised of total cash (Base Salary plus Annual and Premium Bonuses) and long-term awards, is compared against the pay levels of more than 13,000 executives in over 500 large companies. This analysis ensures that pay levels reflect emerging marketplace practices and are competitive relative to the market. The completed analysis shows how Acme compares to the peer companies on both overall performance and total compensation by quartile. Acme's targeted level of pay is in the third quartile, which means that, depending on Acme's performance, pay levels will be better than at least half of the companies in the peer group.



Aaaargh! Believe us, it doesn't have to be this way! Here, for example, is the introduction we wrote for a technology company when it launched a new salary structure:

In this booklet, you'll read about how we manage pay in our company and learn the basics of the new compensation structure. This will supplement the in-person meetings you are having with your manager. The new structure—which features seven salary bands—is being launched this month to all associates.

Why a new compensation structure now? Quite simply, the old one wasn't working very well. A compensation structure should be simple, consistent, and aligned with the business strategy. The old structure, with 32 salary grades, had too many levels, wide disparities within grades, and was applied inconsistently across the businesses. The result was that many of us spent a lot of time talking about pay and experienced frustration trying to figure out how the structure applied to us.

We think the new compensation structure is a big improvement. With seven salary bands, the compensation structure aligns with our business strategy, provides an effective means to pay our people competitively, and recognizes achievements based on individual and company results.

Here's the new structure at a glance:

Level	Role
1	Enterprise leadership
2	Organizational leadership
3	Business/system leadership
4	Business/process driver
5	Functional specialist
6	Administrative/technical
7	Clerical

Aaaah, that's better, isn't it? Even though pay has changed a lot in the years we've been communicating, the fundamentals—being clear and simple—haven't. For instance, here is the cover copy from a compensation brochure Jane produced some 30 years ago:

Here's something you'll like.

A brochure only for company officers that discusses:

## MONEY

Specifically, it covers how you earn it, how you can earn more of it, how you can accumulate it, and how you can protect what you've got.

This straightforward, direct language would encourage potential readers to turn a page or click to get more information as well today as it did in the past. An interesting feature of this brochure was that it summarized features of a special executive compensation program that most of the readers of this brochure were not even eligible for.

Why include this? Although everyone knew about the special executive compensation program, most officers didn't know what it covered. So, instead of talking about it factually, officers would speculate about what must/might be included. Putting a summary in this

brochure gave them the facts, so they didn't need to waste time wondering about it. Perhaps it also provided a bit of motivation for them to get to the next level.

At any rate, the response to the brochure was overwhelmingly positive, based on surveys sent to a sampling of officers after the brochure went out.

#### *What Not to Include in Compensation Communications*

You don't need to include photos or videos of the head of HR or the head of Compensation in your compensation communications. Why? It's kind of like trying to sell a car with videos of the engineers who designed it. What excites them about the vehicle may or may not excite the potential buyer, who doesn't need to know all the exciting terms and functions of the parts under the hood.

You also don't need to include empty language or jargon, such as this:

- “Our people represent our greatest long-term sustainable asset.” In fact, avoid starting sentences with the phrase “Our people represent. . .” It's way too lofty, not conversational, hard to read, and difficult to reconcile with the reality of work today. Someone reading the “Our people. . .” platitudes will do a rewrite for you that goes something like this: “Our people are fabulous, until they're not, and then we get rid of them.”
- “To achieve our goals, we need extraordinarily talented leaders and a world-class rewards program to match.”

If you decide to feature senior managers talking about the goals of the compensation program, include quotes from them in a conversational tone. One of our favorites quotes from the CEO of a financial firm is “If making a lot of money is the only reason you're here, we're probably not the right company for you.” He went on to describe why the caliber of the people you work with,

what you learn, and the work you’ll do should be important enough reasons to race into work each day. It was a great way to put pay in its proper place for that firm.

**Create Visuals to Simplify Complicated Information**

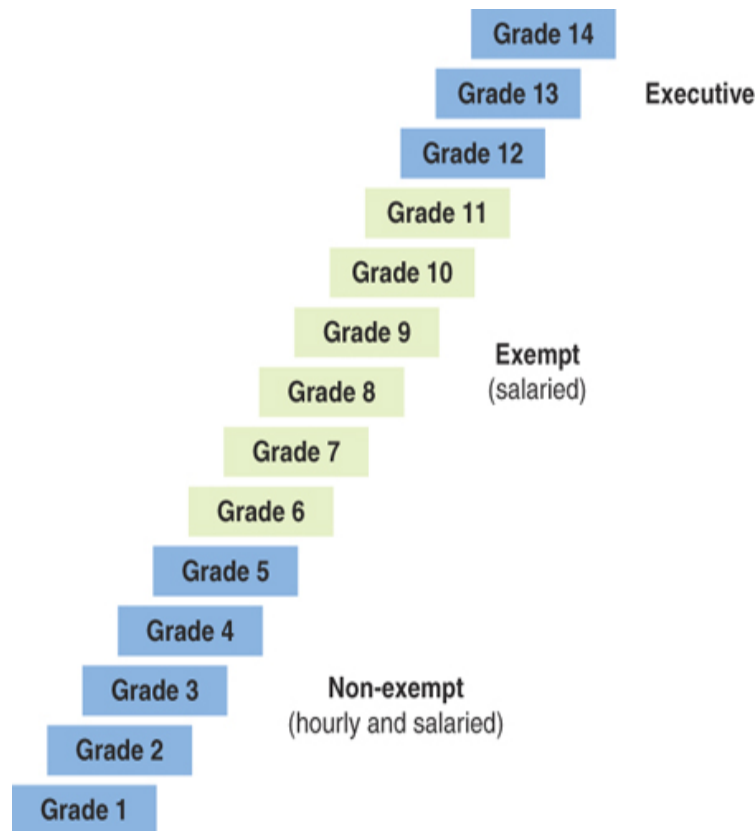
You’ve never needed visuals (see [Chapter 6, “Leverage Visuals”](#)) more than when you set out to communicate compensation. After all, you’re dealing with three attributes that lend themselves to a visual treatment: numbers, relationships (how an aspect of performance affects pay, for instance), and time.

The easiest visual to use is a table. For example, here’s one we created for a compensation guide for managers at a biotech company:

**Overview: Calculating Bonus Compensation**

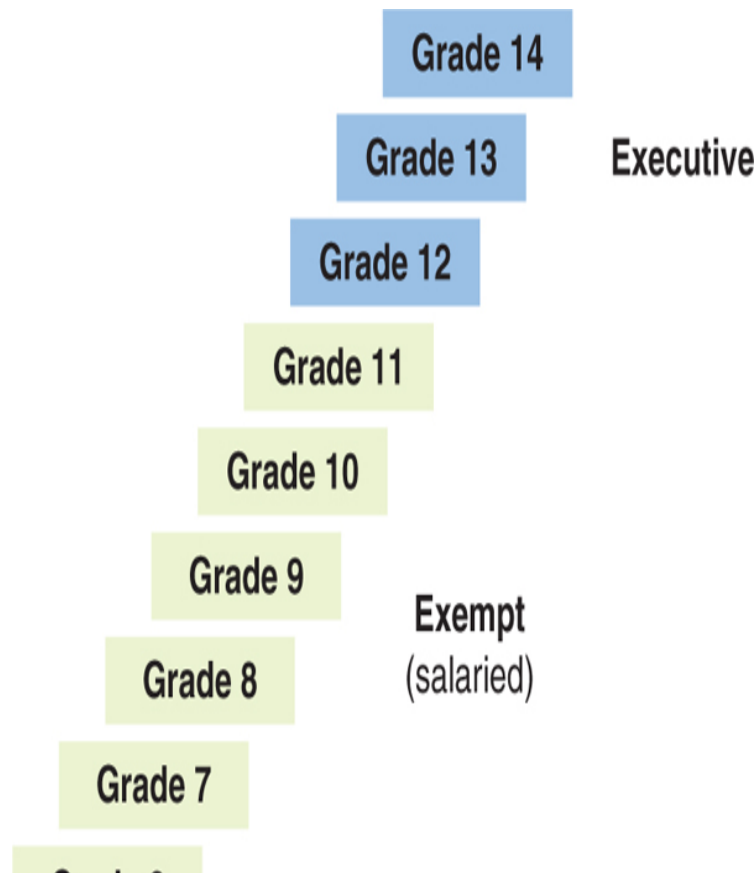
	Aspect 1	Aspect 2	Aspect 3
Overview	The employee’s band and salary determine the <b>bonus potential</b> .	The employee’s final performance rating gives you a guideline for the <b>bonus recommendation</b> .	To tie company performance to individual rewards, the <b>bonus recommendation</b> is multiplied by the <b>corporate performance multiplier (CPM)</b> , which may increase or decrease the employee’s final bonus amount.
How to Calculate	band % × salary = bonus potential	bonus potential % recommendation for rating = bonus recommendation	bonus recommendation × corporate performance multiplier = final bonus amount
More Details	See page 9	See page 11	See page 12

Here are two more examples of how visuals can create clarity about aspects of compensation. Figure 14-1 illustrates a company's new career ladder, showing the job bands or levels that determine the pay range for a set of jobs.



**Figure 14-1 Career ladder**

Figure 14-2 illustrates a change in a pay cycle—when employees will receive an annual bonus.



**Figure 14-2 Pay cycle change**

### ***Help Prepare Managers to Talk About Pay***

Critical information about an employee's pay—such as salary increases and bonus amounts—usually is communicated to that employee in a one-on-one conversation with his or her manager. Especially when compensation is complex, or when the system is changing, it's essential that you prepare managers for success by giving them the context and information they need to speak confidently and persuasively about pay.

Helping managers usually begins with making sure they understand the process. For example, here's a checklist Alison's firm created for a manager's guide to compensation for a global company:

### **What you need to do:**

By September 1 of this year, you'll need to have a year-end conversation with each of your employees to discuss their final rating and compensation. Ideally, salary and bonus information is communicated in an individual face-to-face meeting with an employee.

**Share the following information with *all* employees:**

- ✓ Tell the employee his or her final rating for the previous plan year.
- ✓ Communicate the salary increase amount. If no salary increase was awarded, share the reasons why, and describe what needs to occur for the employee to be considered for future increases.
- ✓ Give specific developmental feedback to help the employee improve, grow, and/or add new skills.
- ✓ Reinforce the employee's goals for the new plan year.

**Share additional information with bonus-eligible employees:**

- ✓ Communicate the bonus amount, and reinforce why the bonus is being granted.
- ✓ Describe how the employee's role and performance contributed to the company's success.
- ✓ Explain how the company and business unit met or exceeded performance indicators and how this impacts all bonuses in the Corporate Performance Multiplier. Detailed information about this is included in the previous section, "What you need to know about bonuses."
- ✓ If no bonus was awarded, share the reasons why, and describe what needs to occur for the employee to be

considered for future bonus awards.

✓ Thank the employee for his or her work in achieving corporate and business unit objectives.

When we helped a client roll out a new sales incentive plan, we learned that typically the client simply announced the new plan each year at the national sales meeting. Company management perceived, and our research confirmed, that the sales staff's understanding of the new plan was highly uneven, which was translating into lost sales for the company, plus lower sales bonuses for employees.

Our approach was to use a variety of communications and tools, both before and after the national sales meeting, to engage sales managers in the process, give them a variety of tools, and provide "just in time" information rather than bombarding them with all the materials for a one-year campaign at one time.

This approach worked wonders. Sales went up significantly, as did the average bonus payout.

Here's an overview of what happened before and after the national sales meeting:



<b>At this time:</b>	<b>Here's what sales managers do or receive:</b>
2 weeks before	Attend a web training session to prepare them to host district-level training breakouts of the sales meeting.
10 days before	Receive kits with additional materials, including speaker's notes with guidance on how to highlight specifics and takeaways on each slide.
1 week before	Take an online self-assessment that tests their knowledge of the sales compensation program and how prepared they are to answer questions about the program.
At the national sales meeting	Hold district-level breakout sessions to review the sales compensation program with their teams.
1 week after	Receive a FAQ document that answers the most commonly asked questions about the sales compensation program.
2 weeks after	Receive a flipbook tabletop training easel. New pages are provided each month so that sales managers can use the tool at meetings to highlight high performers and provide tips on how to maximize bonus earnings.

### ***Personalize if Possible***

About 40 years ago, companies began producing what they called total compensation reports: a personalized communication showing an employee the cumulative value of his or her job. Somewhere in the report you found a grand total that added up the value of your vacation time, sick days, holidays, medical coverage, plus, of course, your pay.

The early reports were not beautiful to look at—and when you saw a lot of white space, you knew that someone, somewhere was probably getting something terrific and you were not. For example, when the page about Supplemental Compensation featured one tiny sentence and the rest was white space, you knew you were, essentially, a bottom feeder.

These early reports were extremely popular and extremely expensive to produce. As technology caught up

with need, the reports became seamless—filled with lots of details and no telltale white space to signal a void in your life.

Today's reports don't even need to be printed. Many organizations provide employees with confidential online access to the same information in the total compensation report—and more. Employees can use modeling tools to make their own assumptions and projections. For saving and investing purposes, these new tools are an important resource to help employees make good decisions and take actions so that they will have the income they would like to have at retirement, or if they were to stop working.

Of course, many companies still need to produce printed total compensation reports for many reasons—for example, if many employees don't have access to online resources. If your organization does produce a printed report, we recommend that you also mail it to employees at home. The report contains the type of information that employees will want to share with their families, because it serves as an important document for financial planning.

Here's an overview of the types of information you can include in a total compensation report:

- Salary plus any incentive pay or awards
- Company investments in 401(k) or similar plans or any matching gifts
- Company investment in the benefits package
- Medical and dental reimbursements for the past year, plus what the company paid and the employee paid for this coverage, plus a summary of coverage (deductible, copay, out-of-pocket maximum)

- A reminder of how the healthcare spending account can save money (if the employee doesn't currently take advantage of it)
- Projected tax savings based on the amount the employee contributes to the healthcare spending account
- An overview of projected financial support from various sources if the employee became disabled or died
- An overview of paid time off and its value
- An overview of any additional services the company provides to help employees get assistance with personal problems, find information on family care, spend more time with their families, invest in others (matching-gifts programs), and invest in themselves (for example, tuition reimbursement). Be sure to show the actual dollar amounts for any applicable programs.
- Show current and projected values for any retirement savings accounts. Include information that will help employees determine if they need to increase their savings, and by how much, to have more at retirement. (And include instructions on how to do just that.) Include estimated social security monthly payments for different possible retirement ages. Give employees information about what percentage of their salaries they'll need during retirement to continue their current standard of living.
- Whenever you present information that may cause an employee to take action, make it easy for him to do just that. Include a link to the appropriate website or a toll-free phone number.

Here's the introduction to a printed total compensation report called "Pay Plus" that Jane produced:

Dear Employee,

Our success starts with people like you. One of the important benefits that all of us share is our total compensation package: salary, incentives and awards, and benefits.

That's what this booklet is all about. It describes your total compensation package in a form that's completely customized for you. For example, you'll see a report on your earnings, including the value of your benefits. You'll find a summary of your benefit choices and some tips on how to get more from the programs offered to you. There's even a section on long-term financial planning. It's designed to help you determine whether your current level of savings will meet your future needs.

You might be wondering why we've invested in this statement. It's because we believe it will help you become more informed about your total compensation and how to use your benefits to meet your life needs and goals. The statement gives you a new tool for making financial decisions and planning for the future. And, it may provide you with a new perspective on your compensation and the ways we can share success.

[signed by the chairman of the company]

How did we measure the effectiveness of this report? We included a one-page survey for employees to complete and return anonymously. The survey included questions such as the following, each followed by a four-point scale moving from Strongly Disagree on the left to Strongly Agree on the right:

- The personal statement improves my understanding of my total compensation.

- The personal statement improves my appreciation of the value of my total compensation.
- Based on my understanding, I am getting as much value out of the total compensation plan as I can.
- Based on my understanding, I plan to reevaluate how I'm using certain benefits in order to get more out of them.
- I intend to increase my current level of savings in order to meet my financial goals.

Then we included one opportunity for comments:

- What's the single most important improvement the company can make in the personal total compensation statement? Any other comments?

Survey results proved overwhelmingly that this report was a good investment.

### ***Provide Examples***

Even if your company doesn't produce a personalized compensation/benefits statement, you can make compensation more tangible for managers and employees. How? By providing examples of how pay works. One easy way to do so is to create semifictional characters and then illustrate what happens to them as a result of different pay events.

For example, we created the character of "Michael" so that managers at a healthcare company would understand how salary increases and bonuses work:

### **Meet Michael**

Michael is a Band 4 employee with an annual salary of \$50,000. He just received a "strong" rating for his

performance last year.

### **Band and salary determine bonus potential**

As a Band 4, Michael's bonus potential is 15% of his annual salary. Since his salary is \$50,000, this means his bonus potential is \$7,500.

### **Final rating determines bonus recommendation**

Since Michael's final rating is "strong," the guideline for his bonus recommendation is between 81% and 90% of his bonus potential, with a midpoint of 86%. At the midpoint, his bonus recommendation would be \$6,450, or 12.9% of his salary.

Since Michael performed well on an important project that helped increase revenue, his manager recommends him for a slightly higher bonus of \$6,600, which is 88% of his bonus potential and 13.2% of his annual salary.

Michael's bonus recommendation is reviewed and approved by his second-level manager in the calibration process.

See how this example helps bring pay to life?

## **CHECKLIST FOR GETTING VALUE FROM YOUR SUBSTANTIAL INVESTMENT IN COMPENSATION**

To make sure your compensation communications succeed, you'll want to do the following:

- ✓ Use simple, clear, conversational language to talk about pay. This isn't brain surgery. It doesn't require technical terms that only a compensation professional could love.

✓ Produce visuals to show how components add up and work together. Graphs create a succinct, easy-to-understand picture.

✓ Create ways for employees to see how the value of everything the company provides really does add up.

✓ Give employees information that helps them make good long-term plans.

✓ Go the extra mile to give managers “just in time” information to help them talk effectively one-on-one or in small groups about pay and incentive plans.

## 15. Performance Management

*In this chapter, you learn how to*

- *Communicate your company's goals so employees can set their performance objectives to help the company succeed*
- *Create understanding about how your performance management system works*
- *Develop communication tools that simplify performance management*
- *Provide help for managers so that they can fulfill their guiding, coaching, and feedback roles*

### IT'S REPORT CARD TIME!

If you were a straight-A student, you probably looked forward to receiving every report card. But some of us were easily distracted by boys or baseball or hairstyles or Hendrix. We did well in some subjects (hello, English!) but struggled through others (geometry should be outlawed). So we dreaded report card time. We had trouble even opening the envelope. We walked home from school the long way. And when it was time to show Dad, we closed our eyes and waited for the lecture about “not realizing your potential” to be over.

Unfortunately, when it's time to meet with their manager about their performance appraisal, employees can suffer a painful flash-back to report card time. After all, performance reviews don't just determine grade point



average; they affect how an employee is paid, whether he gets a promotion, and even whether he keeps his job.

It's no wonder that employees, managers, and even HR professionals view performance management as a challenge. In fact, a poll released at a Conference Board talent-management event in March 2010 found that 72% of responders portrayed performance management as "an endless struggle in which they were neither gaining nor losing ground." Ten percent declared that "the war for talent was winding down in defeat for their enterprise." And a 2004 Watson Wyatt survey found that just 30% of employees believed that their company's performance management systems actually improved their performance.

But wait—there's more bad news. The consequences of poorly executed performance management are dramatic:

- Loss of trust between employee and manager (and management in general)
- Low employee morale and engagement
- Attrition of talented people
- Lack of direction for the organization as a whole
- Poor employee performance and missed company objectives

Fortunately, there's hope. Of course, we believe that the key to performance management is communication. So we show you how to communicate about performance management so that everyone understands the company's direction, so that managers and employees know how the performance management system works, and so that they're set up to succeed at using the system to contribute to company success.

## **WHAT IS PERFORMANCE MANAGEMENT?**

Let's start by sharing our definition of "performance management": a system of defining the employee's job, setting annual objectives that describe what the employee will focus on, and evaluating how well the employee performed. The idea is to create a positive environment that allows people to perform at a consistently high level. It includes the following elements:

- Understanding the company's culture, philosophy, and strategy
- Setting objectives based on company and group goals
- Receiving ongoing coaching and feedback from your manager, along with having regular performance discussions
- Being recognized and compensated according to how well you perform your job and meet your goals
- Learning and improving through training and development

As you can see, an annual performance review—which is just one meeting—does not equal performance management. Performance management is also not the same as "talent management," an HR term that serves as an umbrella for recruiting, staffing, performance management, organizational development, and succession planning. For our purposes, we focus on performance management and how it relates to the individual employee, not teams or financial or business performance.

## WHAT DO EMPLOYEES WANT?

We always like to keep in mind why employees care about performance management. Employees want answers to a universal set of questions:

- Am I doing the right things to help the company and advance my career?
- How am I performing compared to my peers?
- Do I have a future with this company?
- How do I get better at what I do?

## BEGIN WITH COMPANY GOALS

How can employees do their jobs to support company success? How do they set objectives that make a difference to company performance? These are important questions, and the answer begins with making sure employees understand what the company wants to accomplish.

This seems so fundamental that we're surprised that many companies don't take the time to articulate company objectives in a simple, clear way that every employee can understand. You may have a complicated strategic plan that a management consultant helped senior leaders develop. That's great, but that plan is probably too detailed (and maybe too confidential) to share. What you're looking for is something straightforward that expresses what your company is trying to accomplish this year in key categories such as these:

- **Financial.** What are your sales, profitability, and other financial goals?

- **New products or services.** Are you launching new products or expanding brands? Trying to acquire new clients or enter new markets?
- **Initiatives.** What big projects do you need to complete?
- **People.** Have you set overall objectives for how you hire, retain, and develop people?
- **Other issues.** Maybe you have an environmental goal, a community relations goal, or some other area that matters to your company.

#### HOW WE ARTICULATE OUR GOALS

Alison's company (Davis & Company) has developed a simple page that articulates what the firm will try to accomplish in a given year. Figure 15-1 shows the 2010 version.



Figure 15-1 Company objectives

We present this page at a staff meeting early in January and spend time discussing it so that everyone understands what we're trying to accomplish. Then each employee works with his or her manager to set individual goals. We consider ourselves lucky. We're a small company, so it's relatively simple to connect what an employee does to what the company wants to achieve; the degree of separation is not very great.

## CONNECTING THE DOTS IF YOUR COMPANY IS LARGE

If you have a large company, you need to work harder to manage the flow of objectives from the company level down to the individual level. The challenge is to make priorities meaningful for employees by connecting the dots so that employees have a clear line of sight. They need to be able to see the links from organizational goals, to divisional priorities, to group/team focus areas, down to an employee's individual objectives.

At a large financial services firm, senior management had long been successful at setting priorities at a company level. But the company had not brought those goals to life for managers and their teams. So several years ago, HR set out to provide managers with the tools they needed to communicate with their employees about how those priorities connected to and were supported by team and individual goals.

HR gathered information about priorities from each of the business units and created a tool to help leaders and managers share them with employees. The tool was divided into thirds:

On the left, five company objectives were listed.	The middle section listed three to five division, plant, or business unit objectives.	The right section was left blank so that the department manager could discuss which of the company and regional objectives apply to his or her team and then fill in department objectives or even individual objectives.
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To help managers understand what to do, HR invited managers to attend a web workshop (scheduled at different times of day so that managers could choose the time that worked best for them). There they were briefed on the objectives of the effort and setting expectations and were instructed in the use of the objectives tool.

Manager feedback about the process was positive. Ninety-nine percent of managers agreed that they understood the importance of talking to their team about priorities, and 86% agreed that they had a better understanding of how to discuss priorities with their team. Here are some sample comments:

- “Great class! It really helped to understand where the bank as a whole was coming from and how to break down to employee level. I would attend this again.”
- “This workshop was very informative and motivating. I do intend to apply the strategies mentioned in an upcoming meeting. Thank you.”

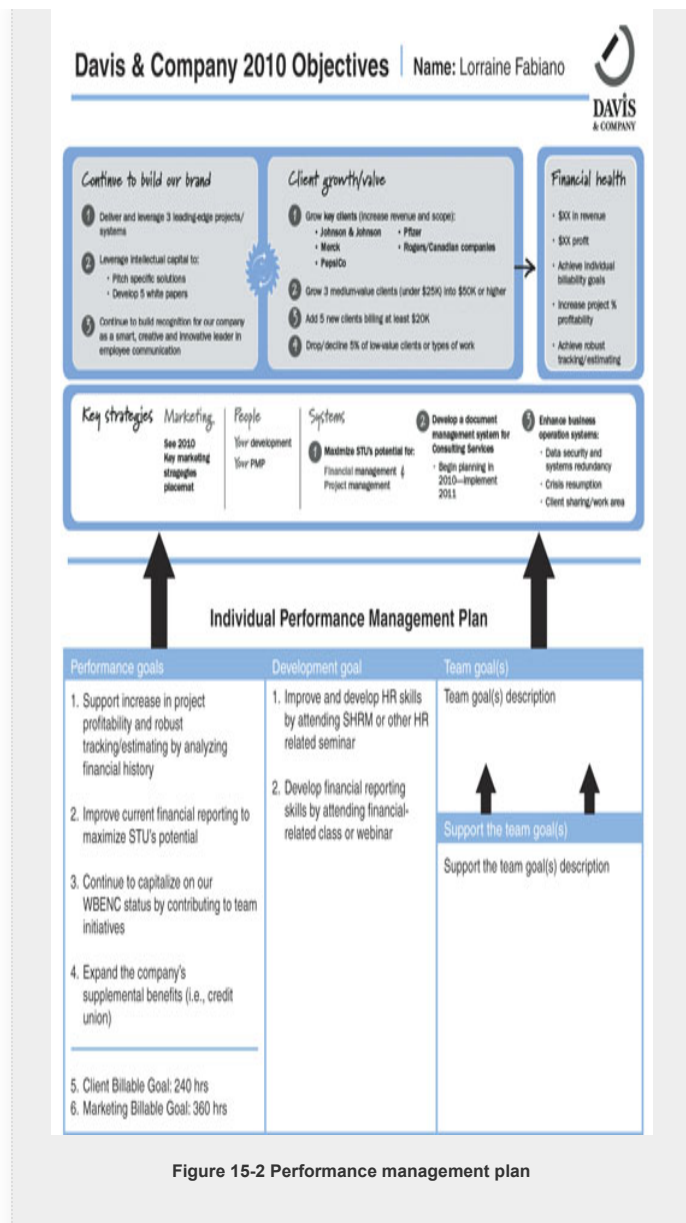
## **DOES EVERYONE UNDERSTAND YOUR PERFORMANCE MANAGEMENT SYSTEM?**

We’re big fans of simple performance management systems, because they’re easy for managers and employees to use. For example, Davis & Company has developed a straightforward goal-setting process that starts with company objectives. Sometimes (but not always) it includes a team goal. Then it asks the manager and employee to develop objectives in two categories:

- Performance goals (what an employee will focus on in his or her job this year to support company success)
- Development goals (one or two ways in which an employee will improve his or her skills)

### **LORRAINE’S PERFORMANCE MANAGEMENT PLAN**

Lorraine Fabiano is our Finance and HR director. (We’re a small company, so she has two roles.) [Figure 15-2](#) shows her individual performance management plan for 2010. (Yes, that’s it; it fits on part of a page.)



## WHAT IF YOUR SYSTEM IS COMPLICATED?

If your performance management system is more complex, you need to work harder to make sure that employees understand how it operates. Don't assume that just because you've had the system for a while that everybody gets it.

A couple of years ago, we worked with a pharmaceutical company to communicate new online tools for

performance management. The idea was that the tools—such as one to record your goals and another for managers to rate your performance—hadn’t changed, just the way you fill them out had. But when we interviewed managers, we learned that even experienced managers weren’t sure they were completing the forms correctly. We used this feedback to develop a guidebook called “Using the Ratings and Appraisal Tool: A Guide for Managers.”

The guide was focused on giving managers step-by-step instructions for using the online tool, but we also subtly included lots of tips that would help managers remember how to do a better job of performance management. For example, the introduction included this advice:

### **Preparing Performance Appraisals**

Your candid and constructive feedback in the Performance Appraisal is one of the key drivers of employee performance. In preparing the appraisals, you should take into account:

- Development and performance coaching conversations you have had with each employee throughout the year
- Your observations of the employee’s performance and relative contribution
- Feedback from others who have observed the employee’s performance and relative contribution
- The employee’s self-assessment

And here’s a typical tip we included:

### **Tip**

You’ll notice that if the employee has submitted a self-assessment, the employee’s comments for each objective



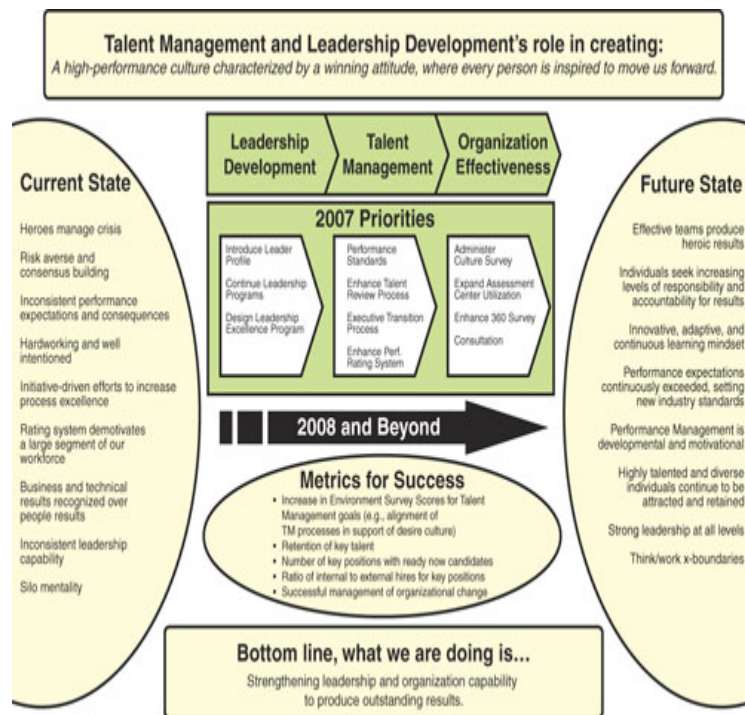
appear in the Self-Assessment Column. If you don't see comments from the employee, check to determine if he or she plans to submit a self-assessment.

## **THE BIG PICTURE**

Such specific instruction is helpful, but it's also important to help managers and employees understand how the entire performance management system works. Particularly important are the intersections between performance management and development (especially if they're separate systems, as is the case at many companies) and performance management and pay. (See [Chapter 14, "Compensation,"](#) for more on communicating about compensation.)

This doesn't mean burdening employees with all the behind-the-scenes details you manage in HR. A few years ago, we worked on a project with an HR team charged with changing the performance management system to support the company's direction. Unfortunately, this team was so fascinated by the intricacies of their system that they felt it was necessary to communicate the entire contents of the system. They included the kitchen sink, plus everything from the refrigerator, the cabinets, and the laundry room.

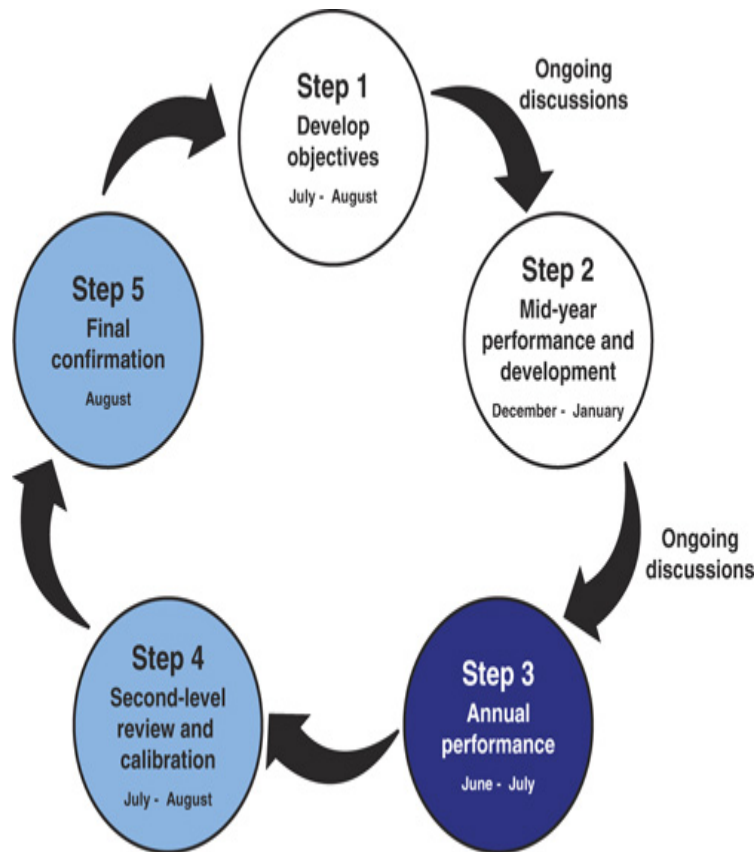
"We need people to see the big picture," said the head of the team. "I think your approach is too simplistic. I've come up with something more comprehensive." It's shown in [Figure 15-3](#).



**Figure 15-3 A complicated talent management and leadership development diagram**

“Nooooo!” (You can hear our scream from way over there, can’t you?) This poor team was sadly misguided. Their hearts were pure, but they were so in love with their work that they wanted to make the system more intricate than it actually was.

Contrast the scary diagram shown in Figure 15-3 with the simple depiction of a performance management process shown in Figure 15-4.



**Figure 15-4 A simple performance management diagram**

Nice, isn't it? This company operates on a fiscal year, so an important component of all its communication about performance management is time. The company constantly reminds employees that its performance cycle follows its business cycle, so it's not on a calendar year basis.

Another company wanted to show the timeline in relation to how the company set goals. [Figure 15-5](#) shows how its system was illustrated.



**Figure 15-5 Performance and development planning and evaluation timeline**

What if you can use only words to communicate your performance management process? Here are some key messages that describe changes to a complex program:

## **Changes to the Performance Management System designed to help each employee reach his or her potential**

### **What is changing:**

Beginning in January, employees will experience changes to Performance Management processes:

- A new system for **Performance Ratings**, as part of the **Performance Management Process**, will affect how employees set goals for the year, how they're appraised on achieving those goals, how they're rated, and how their managers determine year-end bonuses and merit increases.
- These changes are based on a new set of criteria called **Leadership Qualities**, designed to provide a framework for the attributes that every employee needs to achieve in order to help the company succeed.

### **Who is affected:**

Every employee who participates in the Performance Management process and is eligible for a bonus and a

merit increase will experience these changes during the year.

**When changes are occurring:**

Beginning in the first quarter of the year, when employees work with their managers to set their goals for the year.

**Why these changes are being made:**

The company's past success has come from hard work and the ability to anticipate and adapt to a changing marketplace. But the past is no guarantee of future success. That's why over the past few years, the company has looked closely at every aspect of our business. And that effort has paid off. We've found innovative, better, more efficient, more productive ways to do things, while maintaining or improving quality and effectiveness.

One area we've been looking at is the way we attract, retain, develop, and reward our employees. It's clear that people are critical to the company's success. Yet many of our Performance Management systems are many years old. Other systems work well in parts of our organization but are not leveraged across the company globally.

The goal of efforts to improve our Performance Management and Development System is clear: to set up every employee for success. That means clear, consistent expectations for what employees need to do in their jobs. And making sure employees are rewarded and recognized for their smart thinking and hard work. And managing talent so that the right employees are in the right roles across the organization.

**What is *not* changing:**

For most of the organization, the Performance Management Process itself will not change. Employees will still work with their manager to set goals, conduct a self-assessment, receive a performance appraisal and a rating, and be compensated accordingly. What's changing is how employees set goals based on a new appraisal and rating system and how bonuses and merit increases are determined.

## **TEACHING MANAGERS TO FISH**

Almost every performance management system relies heavily on managers to make it work. Managers help employees set goals, they provide ongoing and periodic feedback, they evaluate performance, and they make recommendations on how employees will be paid. So our final piece of advice about communication performance is this: Invest in managers.

That usually means using multiple channels to teach managers to be good at performance management: training (in person or online), web tools, print pieces, even peer networks.

In fact, this is one of those topics that benefits from realizing that every time you communicate with managers, you have the opportunity to provide a little training, too.

For example, when a global company was rolling out a new performance management system that would give managers improved online tools, we recommended using videos of managers from around the world as part of the managers' tool kit on the company intranet. Specifically, we recommended the company identify high-potential, highly respected managers to be videotaped (using inexpensive FLIP cameras) answering questions such as these:

- What's the best advice you ever received from a boss?
- How do you recommend dealing with problem employees?
- How did you turn around an employee's poor performance?

The resulting footage could be shared with managers throughout the company in a variety of ways: webinars, training sessions, and online training.

For another global company we created a comprehensive guide for managers that included these sections:

- President's message
- Overview of Performance Management
- Roles and responsibilities
- A quick-start guide for Performance Management

Step 1: Develop objectives

Step 2: Mid-year performance and development

Step 3: Annual performance

Step 4: Second-level review and calibration

Step 5: Final confirmation

- Frequently Asked Questions

One of the first sections in the guidebook was a description of the manager's role:

Within Performance Management you are responsible for coordinating work across your team, and coaching and assessing your performance. To do this, you need to:

- Help your employee understand the company group, functional and site objectives, and how your team's work aligns with those objectives
- Distribute key objectives for the year among team members
- Support the employee as he sets his career goals and creates a development plan
- Work with each employee to assess her performance at mid-year and year-end and determine her performance rating
- Provide recognition, feedback, and coaching throughout the year to help the employee achieve individual and overall objectives

Here is how we described the importance of mid-year reviews:

Open communication and ongoing feedback and development are essential to effective performance management. The mid-year assessment and development plan is an opportunity to make sure this happens effectively. You and your employee have a shared responsibility to monitor the employee's progress in achieving objectives, including what is being achieved, how it is being achieved, and the overall impact on the business. Identify any potential barriers—and possible solutions—to make sure the employee achieves his objectives and completes his development plan. There should be no surprises during the formal reviews.

#### HELP MANAGERS KNOW WHAT REALLY IMPROVES PERFORMANCE

In an article titled, "An Alternative to Performance Appraisal," in the June 2010 issue of *HR Magazine*, Erik Van Slyke explains why performance management processes often don't get desired results, and he identifies what managers can do to improve performance:



"It's amazing to think that 45 years after the *Harvard Business Review* published 'Split Roles in Performance Appraisal' (Myer, Kay, & French), we still believe performance appraisal works. The study, conducted at GE, found that the company's performance management system not only didn't work, it produced results that were the opposite of what was intended: Criticism has a negative impact on goals and praise had little effect one way or another.

"Countless other scientific studies have arrived at similar conclusions. And more powerfully, research conducted with brain scanning technologies...have shown that these results are directly connected to the way the brain works.

"So what works? What generates higher levels of performance? The most effective and sustainable solution for improving performance is intrinsic motivation. High performance comes when people love what they do. And while managers may seem to have little ability to directly affect intrinsic motivation, they can create an environment that draws out and inspires it."

## CHECKLIST FOR COMMUNICATING PERFORMANCE MANAGEMENT

- ✓ Communicate your company's goals so that employees understand where you're going and what they can do to help.
- ✓ Connect the dots (if your company is large) so that employees have a line of sight between their job and the big picture.
- ✓ Determine if a visual will help you illustrate how your performance management system works.
- ✓ Use plain language to explain even the most complex performance management system.
- ✓ Invest in managers. Make sure they have what they need to coach their employees through the performance management process.
- ✓ Treat every communication opportunity as a training opportunity. Make sure you give managers plenty of tips on how to give performance feedback effectively.

## 16. Saving for Retirement

*In this chapter, you learn how to*

- *Encourage employees to save for tomorrow*
- *Share information that helps employees make good investment decisions*
- *Increase employee participation in savings and stock plans*

### HEY, CAN WE GET SOME HELP OVER HERE?

We're lucky: We love our work. Usually, we trundle along without thinking too much about it, but the other day Alison got a call from a young man pursuing his Ph.D. in communication who wanted to interview her as part of his research.

"Sure!" she said.

One of his questions was this: "What about your work gives you the most satisfaction?"

Easy, she replied. "I love the fact that when communication works well, employees understand an issue, know what it means to them, see clearly what they need to do, and feel like someone cared enough to help them. What could be cooler than that?"

We mention this because when it comes to saving for retirement, employees need our (and your) help. We know (from personal experience) that challenging economic times have made it more difficult for people to

save for and manage their retirement. But we are still dismayed by the high percentage of employees who are in serious trouble. For example, a 2010 study by the Employee Benefit Research Institute found the following:<sup>1</sup>

- Only 16% of workers say they are very confident they have enough money to retire. Forty-six percent are not too confident or not at all confident that they will have enough money to live comfortably when they retire.
- 27% of current employees have less than \$1,000 in savings, and 54% have less than \$25,000.
- Almost two-thirds of Americans at lower income levels will run short of money after 10 years of retirement.

All these facts add to our conviction that one of your most important goals should be to increase employee participation in your company's 401(k), other retirement savings plans, and stock plans. You want to go the extra mile to create effective HR communication that

- Educates employees on the importance of saving for tomorrow
- Increases participation in retirement and stock plan savings
- Shares information that will help employees make good investment choices

Effective communication can mean the difference between a comfortable retirement and a difficult one. Helping employees with investing can mean that they will have money to buy homes, improve the home they have, invest in their children's education, and live comfortably after they stop working. You can actually

help people build a financially secure future. It's an incredibly powerful gift!

So let's get started.

## **YOU'RE READY FOR YOUR SIMPLE FOUR-STEP PROGRAM!**

Here are four techniques that work to increase employee participation in savings or stock or retirement plans:

- 1.** Simply and clearly explain how financial stuff works. (Don't assume that even the most sophisticated employees are financially literate.)
- 2.** Use a how-to, "service journalism" (see [Chapter 5](#), "[Write Simply and Clearly](#)") approach to communicating about retirement by giving employees information they can use.
- 3.** Create video (or print) "stories" of employees describing how they have benefited from the plan. Show them on screens in lobbies and cafeterias or on the company intranet.
- 4.** Personalize if possible. Your retirement plan service provider may offer the option to provide personalized statements in print or online. Take advantage of that option, but also consider supplementing those statements to make a strong point.

## **NOT ALGEBRA, BUT . . .**

In the 1986 movie *Peggy Sue Got Married*, Peggy Sue (played by Kathleen Turner) goes to her high school reunion, faints, and then wakes up back in high school—*except* that she's retained 20 years of memories.

Her knowledge of the future provides many funny lines. One of our favorites is a remark to her math teacher:

“Well, Mr. Snelgrove, I happen to know that in the future I will not have the slightest use for algebra, and I speak from experience.”

We feel precisely the same way (about algebra), but it turns out that Peggy Sue was wrong about one thing: It is helpful to understand math well enough to make smart financial choices.

#### STOCK OPTIONS 101

Not all of us paid attention in math class—and many employees have never been educated about the financial market. So a key communication strategy is to explain patiently and clearly what investment choices are and how they work.

A pharmaceutical company made changes to its long-term incentive program to make it more advantageous to the leaders and managers who were eligible to participate. Alison's team knew from interviewing a sample of these participants that many felt uncomfortable with some of the options. They admitted to us (privately) that they felt they should be knowledgeable about these financial instruments, but quite frankly were not.

So when we communicated the changes, we made sure to cover the basics. For example, here is what we wrote about one aspect of the incentive program:

##### ***About Stock Options***

What they are	The right to purchase a set number of shares of company stock at a fixed price for a specific period of time.
Why they're valuable	An option generates value to you if the market price of stock is higher than the grant price when you're ready to exercise (buy) your options.  (However, if the market price falls below or stays the same as the grant price, the option has no value and would not be exercised.)
Vesting	Stock options vest in increments of one-third of granted options (33/13%) each year for three years after being granted. Once your options vest, you may exercise them at any time up to 10 years from the original date of the grant.
Example	An employee is granted 100 stock options at \$40 per share. Three years later, all the options have vested, and the market price of company stock is \$44. The employee decides to exercise the options, which means that he buys the 100 shares of stock at a price that is \$4 lower than the current market price. That's a profit of \$4 per share, or \$400.

## HOW TO GET SMARTER AND RICHER

As we describe in [Chapter 5](#), one of the most compelling kinds of information is the kind that helps you solve a problem or improve your life. That's why recipes are so appealing, or HGTV, or even just the words "how to."

Since many of us struggle to understand complex financial issues, we especially appreciate gentle "here's how" information provided to help us make good decisions about our investments or retirement program.

For a financial services company, Jane took advantage of the requirement to provide employees with an annual report of their savings incentive plan. She turned that communication into a "marketing" brochure that included these sections in this order:

- Eight reasons to save and invest

- Seven steps to sound investment decisions
- An overview of plan features, transactions, and funds
- How your investments performed
- Investment fund portfolios (showing how each fund was invested)

Understanding that many employees skim over print or online communications, she made sure every headline and subhead did some heavy lifting. She used them to tell a story, too, so if all a reader did was glance at the first two sections of this brochure, here's what he would see:

#### **Eight reasons to save and invest:**

- Double your award
- Cut your tax bill every time you invest
- Earn investment income now; pay taxes later
- Small, regular investments add up
- Choose the investments you prefer
- It's not just for retirement
- It's never too soon
- You *can* take it with you

We think at least one of these subheads would draw in the reader to learn more.

Here again is simple, brief advice on how to invest in yourself:

#### **Seven steps to sound investment decisions:**

1. Understand risk
2. Know your time horizon
3. Understand yourself
4. Study your finances
5. Evaluate the plan funds
6. Diversify
7. Reevaluate your plan periodically

## **HOW TO GIVE ADVICE WHEN YOU CAN'T GIVE ADVICE**

To give employees information that helps them make sound investment decisions, we use language such as “Experts agree . . .” or “Most financial advisors would recommend. . . .” Or we cite actual facts, figures, and historical performance that can help employees make good decisions.

You need to repeat good financial investment advice every time you communicate about stock and savings plans, because for at least some of your readers, this is “just in time” information. They’re new to the company or have decided to participate in the plan for the first time, so you need to repeat the information that will continue to help them make good decisions.

Here’s how we described making investment choices in the summary plan description of a company’s 401(k) plan:

You’ll want to consider your personal financial goals, review fund performance over time, learn about the different funds, and then pick your investments. No one



employed by the company can give you advice about how to invest.

Most people who invest hope to increase the value of their savings over time. Most financial advisors explain to investors the value of diversification: selecting several different funds to invest in.

You can choose from a number of funds, including a stable value fund as well as mutual funds, or you can select one of the [Special] funds, which are asset allocation mutual funds that automatically diversify your investments based on when you anticipate receiving the money in your account at retirement.

On a following two-page spread, the nine available funds were described, moving from low-risk/low-reward to high-risk/high-reward funds. The headings were

Name of Fund:

Goal:

Invests in:

Designed for:

Here's the text for the Stable Value fund:

**Goal:** To preserve your principal investment while earning interest income. The fund will try to maintain a stable \$1 unit price.

**Invests in:** Investment contracts, offered by major insurers and financial institutions, and certain types of fixed-income securities that pay interest at a specified rate.

**Designed for:** Someone who wants a slightly higher yield than money market funds, or someone interested in

price stability to balance other, more aggressive investments.

This text uses simple language, combined with concise summaries that describe what the fund invests in and who it is designed for. The reader gets a complete picture that will help her decide which funds to invest in. She can even figure out how to use one fund to balance an investment in a more high-risk/high-reward fund.

### **“TELL ME HOW YOU GOT TO BE SO RICH”**

Real stories about real employees are one of the most credible and effective ways you can persuade more employees to take advantage of savings or stock plans.

We’ve shared this advice many times throughout this book, and this is one topic where real stories shared by real employees make a huge difference.

For a brochure on retirement savings, Jane featured photographs of and quotes from 21 employees—both male and female, with diverse ages and jobs, from a variety of the company’s locations in the U.S. Even if you read only the photo captions, you got a great overview of plan features and benefits—and incentives to sign up. Here are some examples of how effective real people with real stories can be at increasing employee participation in a savings plan:

“Two aspects of the plan really appeal to me: the tax-deferred status and the many choices of investment funds. I plan to use the money I’m saving to buy a house.”

*Wayne, New York*

“What attracted me was the fact that the company matches my basic award 100% if I save and invest it. It’s

both an incentive and an opportunity to save for the future.”

*Eli, San Antonio*

“The plan provides an interesting way to prepare for retirement that I don’t believe exists in my home country, Japan. The plan makes it effortless to save and get tax savings at the same time.”

*Mayumi, New York*

“The moment you sign up to save and invest, you’re an instant winner since the company matches your basic award. (In Las Vegas, we like instant winners!) With this plan, [company name] shows its support for employees in concrete terms. This is an investment in your future.”

*Carlos, Las Vegas*

“I encourage all my employees to participate actively. It’s a wonderful benefit to help employees save for retirement, because you’re never too young to start thinking about retirement.”

*Geri, San Francisco*

“I’m contributing extra money each paycheck because they take the money out, I don’t see it, and it’s going to a good cause—me. It’s a good way to save. I’m saving for a down payment on a house.”

*Joseph, New York*

“It’s so hard to put money away these days. This plan makes it easy. Plus, it gives me security to know I have the money if I need it in an emergency. I also like the fact that I can change my investments each month.”

*Shelley, Sioux Falls*

## MORE STORIES

For a stock purchase plan, we summarized the entire plan on the cover of a print piece using an illustration of a diverse group of employees. Eight of them made these comments, reading left to right:

- “Buying stocks seems pretty confusing to me.”
- “I just filed my tax return. I’m an expert on confusion. This plan seems pretty simple to me.”
- “I agree. Knowing you can buy stock at a fixed price any time during two years is easy to understand.”
- “I think it’s a good deal—your money earns interest while you’re saving to buy stock.”
- “I’m a Libra. I hate decisions. This plan offers two kinds of stock—which should I buy?”
- “You can decide to buy book value or market value, some of both, or none at all. Best of all, you can change your mind for a full *two* years.”
- “Opinions are fine, but I want *facts* before I decide to invest in stocks. How do I find out more?”
- “It’s verrrrrry simple. Turn the page. Just turn the page.”

We continued to use illustrations on each spread of this brochure. We showed how two employees from the company used the plan in different ways and how both were satisfied with the results after two years.

## **WHEN YOU'RE ANNOUNCING A NEW PLAN, WRITE YOUR OWN STORY**

But what if you don't have employee stories to tell? When you're introducing something new, you can't draw upon people's experiences. That's why, when we introduced a new stock purchase plan for all employees, we created our own story.

Research showed that most employees in this company were scared to invest in the stock market—even in the stock of the company they worked for. People at the lower ends of the salary scale simply did not view themselves as “stockholders”—that was only for wealthy people.

So we created a man who was afraid of a lot of things, and illustrator Edward Sorel brought him to life. “Once I was afraid,” he says in the caption of the first full-page illustration. “Afraid of tall girls. And fuzzy animals. And potted plants. But most of all I was afraid of the stock market. All those numbers got me confused.”

In the next illustration, he asks everyone for help, including his mother, his rich uncle George, and his night school teacher. “I even asked my smart brother-in-law Murray, who doesn't even like me. But nobody could help,” he concludes. “I felt lonely and dumb.”

But then, in the next illustration, he's sitting in a big chair, and he's reading this very brochure from his company! “It explained how I could buy my company's stock real easy,” he says. “While I'm saving my money, I can watch how the stock is doing. If it goes up, I can buy. If it goes down, I can decide not to buy. Best of all, if I don't buy, no one will be mad at me and I can get all my savings back with interest.”

In the next illustration, he says, “I'm a happy guy now!” as he participates in a ticker tape parade on Wall Street.

“Because buying stock is simple, thanks to my company’s stock purchase plan. Sure, there’s still some risk involved if I decided to buy the stock. But that’s the way it is in the stock market. And I’m not afraid of the stock market anymore.”

In the last illustration, he’s about to come around a corner and collide with a tall woman, carrying a potted plant, with a fuzzy dog on a leash.

## **THE BEAUTY AND ART OF ILLUSTRATIONS**

What’s beautiful about using illustrations in describing savings or stock plans is that you can tell a story that summarizes the plan, its features, and how it works in captions. Even if all the reader does is look at the illustrations and read the captions, you’ve conveyed the basics of the plan and how it works.

We’ve often used this technique, and the results show that it works wonderfully. In fact, employees comment in surveys how much they like the fact that they can understand the plan simply by looking at the illustrations and then reading the captions.

## **PERSONALIZE TO MAKE A POINT**

The personalized print statements and online reports that many retirement fund managers provide have been invaluable to help employees understand how they’re doing. But sometimes you need to go further than a simple accounting. The head of HR at a financial services company was concerned that employees in the lowest salary band in the company were not investing their annual award from a combination profit sharing and 401(k) savings plan—they were taking it in cash.

So we developed a personalized communication piece for employees earning less than \$40,000 who were taking

their awards in cash each year. The report showed “what you got” and “what you lost.” For example, an award of \$556 after taxes translated to \$1,448 if the employee agreed to save her award and invest it.

The headings in this four-page printed piece were as follows:

- Don’t Miss Out!
- Wait a Little, Get a Lot
- A Nice Tax Break
- Put Time on Your Side
- Take Charge of Your Future

In the “Put Time on Your Side” section, a bar chart showed what the projected value of the employee’s account (this sample employee earned \$34,500 a year) would be in two years (\$4,681), five years (\$13,756), and at age 65 (\$232,469). The text explained that the numbers assumed a 3% salary increase each year and that investments would earn an average of 8% each year.

The text in that section began, “You may think you can’t afford to save. Think again!” The text concluded, “Don’t get left out—the deadline is fast approaching. . .” Then it told the employees specifically how to act to enroll in the program before the October deadline so that they would save and invest their award the following January. So we also had a little “just in time” communication working for us. The results? Fifty percent of employees did just that—they agreed to save and invest their award.

When we told the head of HR that a 50% response rate was fabulous, he said, “But 50% *didn’t* sign up!” We suggested he talk with his colleagues in direct-mail

marketing firms and then tell us how he felt about the results. He did, and then he bought us a bottle of champagne, which is always an acceptable and welcome way to say thank you.

## **CHECKLIST FOR HELPING EMPLOYEES ACHIEVE THEIR FINANCIAL GOALS**

To make sure your employees save, invest wisely, and take advantage of every opportunity your company offers to invest in tomorrow, you'll want to do the following:

- ✓ Use every opportunity—even legally required communications—to encourage employees to save for retirement.
- ✓ Make it easy for employees to understand your savings and stock plans—through plan summaries presented by real employees or illustration captions.
- ✓ Share real stories of how people have saved and how they've spent their money. These are powerful incentives.
- ✓ Give managers periodic fact sheets with information they can share at staff meetings that will help employees sign up to save.
- ✓ Use personalized statements to sell employees on the value of the plan today and projected value for the future.



## 17. Leaving the Company

*In this chapter, you learn how to*

- *Manage an employee resignation as you deal with your disappointment that the employee is leaving*
- *Fire an employee as gently and respectfully as possible*
- *Communicate during a layoff*
- *Ensure that the employees who remain are kept informed and feel valued*

### **“YOU SAY GOOD-BYE, AND I SAY HELLO”**

And now we come to the end—of your relationship with your employee. We’re devoting this final chapter to communicating departures—from a resignation to a firing to a layoff.

As always, our focus is on how to communicate, not on the legal, financial, and logistical aspects of separation. (Quite a few books have been written about those topics, including *Employee Termination Source Book* by Wendy Bliss and Gene Thornton, available from the Society of Human Resources.)

Here’s a key point to remember: Although it’s natural to focus on the person who’s leaving, it’s critical to spend just as much time and energy communicating with those who remain. After all, you want those employees to come to work tomorrow with a clear head and a positive

attitude. You don't want them to be weighed down because of how a colleague's departure was handled.

In this chapter, we provide communication tips to help you deal with three ways employees leave: resignation, firing for cause, and layoffs (also known as a reduction in force).

### **“GOOD NEWS: I’M RESIGNING”**

It's a sad day when a valued employee hands in her resignation. Even if the departing employee was not a star performer, a resignation brings unwelcome disruption. How will the employee's work get done in the short term? How will you find someone to take her place? What impact will the employee's departure have on the people she worked with?

As a result, it's not uncommon for people to feel angry that the resigning employee is “deserting us.” And it's also not unusual for the employee's manager, HR, leaders, and colleagues to act out—to suddenly be cold, distant, and even mean.

This is not only juvenile, it's also shortsighted. Even though the employee is leaving (for what she believes are good reasons), the relationship continues, especially in the social-networked small world in which we live. A resignation is actually an opportunity—a chance to influence the soon-to-be ex-employee to have a positive attitude about her soon-to-be former employer. If the transition is managed well, the potential exists for the employee to do the following:

- Say positive things about the company's products or services
- Recommend her former company to potential employees as a good place to work

- Become a client
- Return someday to become an employee again, bringing the valuable skills she learned while she was away

So how do you handle a resignation in a positive way? Since these events are usually a surprise, we recommend that you prepare in advance by creating a Guide to Successful Resignations. Provide the guide to managers, either ahead of time (as part of a manager's tool kit) or immediately after an employee tenders her resignation. This guide obviously needs to align with and support your HR policies. Here's a sample of what this manager's guide might include:

Stage	Steps
Receiving the news	<p>Have a one-on-one conversation with the employee:</p> <ul style="list-style-type: none"> <li>• Find out why he or she is leaving.</li> <li>• Determine whether you can possibly retain the employee (such as by making a counter offer).</li> <li>• Discuss the employee's preferred notice period and whether there is flexibility to extend this period (if appropriate for the group's needs).</li> <li>• Agree on how communication with coworkers will be handled. (The employee might have close relationships with a few people whom he or she wants to tell personally.)</li> </ul> <p>Consult with HR about open issues (notice period, counter offer, and so on).</p> <p>If appropriate, have a follow-up meeting with the employee.</p>
Managing the transition	<p>As soon as possible, communicate with other employees in your group about the pending departure:</p> <ul style="list-style-type: none"> <li>• Face-to-face is best, such as during a staff meeting, but if necessary, send an e-mail.</li> <li>• Express regret that the employee is leaving, and offer thanks for his or her contribution.</li> <li>• Articulate the transition plan.</li> </ul> <p>Work with the departing employee to communicate with other key stakeholders: customers, clients, vendors, and so on.</p> <p>Schedule meetings to transition the employee's responsibilities to colleagues.</p>
Saying good-bye	<p>Arrange a send-off appropriate to your company's policies and culture, from a pizza lunch to afternoon cookies to happy hour at a local pub.</p> <p>Shake the employee's hand and thank him or her for all the ways he or she has made a contribution.</p> <p>Wish the employee luck.</p>

## WE REGRET TO INFORM YOU . . .

Sometimes an employee just doesn't work out. Maybe the company or department isn't the right fit for that person. Or the employee doesn't have the right skills to do the job. Or the employee's attitude or approach creates constant problems. Whatever the reason, the employee's manager, with the support of HR, has decided that the situation can't be improved, so it's time to let the person go.

Even though firing the employee is the best decision for the company (and maybe, eventually, for the employee), it's difficult and painful. Still, it's important to handle the firing well, not just for legal reasons (no doubt you've consulted your attorney), but also because

- It's the right thing to do.
- Doing the right thing sends a strong signal to other employees that, even when things don't work out, the company still treats people with dignity and respect.

### COMMUNICATION PRINCIPLES

Our client, the head of HR at a global healthcare company, was facing a number of tough changes in the months to come. Because the CEO had introduced a new business strategy that required that many functions do their work quite differently, the head of HR was anticipating that a number of employees would be unable to handle the change and would be let go. Therefore, the head of HR asked us to work with her team to develop communication principles that would help guide how HR handled these situations. Here's what the team came up with that helped guide their actions throughout the transition:

- Develop simple messages using clear, concise language and a conversational voice.
- Focus on what is changing for the employees.
- Treat affected employees with respect.
- Be direct and straightforward.
- Explain why changes are occurring.
- Deliver information just in time.
- Provide opportunities for dialog.

### ***Quiet Communication***

Communicating a firing should be as calm and quiet as possible:

- When you're ready (with all your documentation and the severance arrangement), have a conversation with the employee, preferably in a neutral location such as a conference room. Some companies require that an HR manager be present, along with the employee's manager. In any case, calmly explain to the employee why he is being fired. This is not the time for long explanations, just a summary of why the relationship is ending. The employee may want to talk or express anger or frustration. It's your job to listen for as long as the employee needs. Although feelings may be running high, try to end on a positive note, wishing the employee well.
- During the meeting, be clear about what happens next. Your policy may require an employee to leave the workplace immediately, or you may give the employee a day or two to get his stuff organized. Let him know how coworkers and others will be informed of his departure.
- After the employee leaves, or as he prepares to leave, communicate with others on his team or in his function. At Alison's company, we prefer a face-to-face meeting so that employees can hear the news straight from the boss. At other companies, especially those with remote employees, e-mail is used to get the news out quickly. Either way, you need to be brief, since you can't go into too many details. But we believe you should make it clear that this person was fired because he didn't work out, not because you were trying to cut costs. It's actually a positive thing when employees understand that your company will fire someone for poor performance: It sends a signal that your expectations are high, and that you won't let someone struggle who can't make a meaningful contribution.

### ***“Let’s Focus on What Happens Next”***

One of the best tactics we’ve seen in the manager/employee discussion where an employee is being fired is when the manager moves quickly to focus on what happens next rather than dwelling on what went wrong.

Here’s what this sounds like:

“Tom, I’m sorry that your job here isn’t working out in a way that’s good for either you or the company, so we’ve decided to end your employment. You’ve been struggling with [name one or two job criteria].

“In this meeting, I’d like to focus on what happens next. You’ll be paid through [date] and you’ll receive xx weeks of severance pay, either in a lump sum or on regular paydays. If you take a lump-sum payment, your insurance coverage would stop immediately, so you may want to continue receiving your regular pay. You’re eligible for outplacement counseling, which means you’ll get help in finding your next job . . . .”

This tactic helps focus any discussion on what happens next rather than an argument about what went wrong, which won’t end happily for anyone involved.

### **THE WORST DAY EVER: LAYOFFS**

It’s sad but true that at many companies, layoffs have become a way of life. According to the consulting firm Accenture, 65% of U.S. companies reduced their number of full-time employees in 2009, and 63% of global companies did so.

But just because layoffs are commonplace doesn’t mean they’re easy. In fact, we find that they get more difficult every time, because they have a negative effect on morale.

We won't debate whether laying off people to cut costs is the right decision (although we will mention that one school of thought says that layoffs cause more productivity harm than financial good). We *will* tell you that there's a right way and a wrong way to communicate layoffs. We'll give you advice on how to do it right.

#### A GOOD LAYOFF

A number of years ago, Alison was moderating focus groups at three manufacturing plants at the defense division of a large corporation. The company had put the division up for sale about 18 months before, and Alison's client (another defense company) had just announced it was acquiring the division. Alison was conducting focus groups as part of the process to develop a communication plan for the transition.

She began her first session with a group of hourly employees who built circuits for aircraft carriers. One of her first questions was this: "I'd like you to tell me about communication that has been effective. What made it work?"

The participants were silent. Sometimes this happens—people get a little shy about talking. But it's usually not the reaction Alison gets to this question, which is pretty straightforward and not very emotional.

She tried again. "I'm just looking for examples of communication you thought worked well. Maybe a meeting with plant management? Or a way you get news about how the plant is doing?"

A woman named Cindy sitting at the far end of the conference table raised her hand. "Yes, Cindy?" Alison said.

"This may sound strange," said Cindy. "But the best communication I ever experienced was during the layoff last year." The other employees nodded.

"The layoff?" Alison said, trying not to seem too surprised. She had heard that the company had downsized its divisional workforce by 20% to reduce costs in anticipation of the sale. But she certainly didn't expect employees to view a layoff communication as positive. "What made that communication so effective?" Employees in the focus group were eager to tell her:

- Management had made all its decisions about who would be laid off ahead of time, so the day the layoffs were announced, every employee knew exactly what would happen to him or her.
- Employees who were being laid off had individual meetings with their manager and HR, and they were given 60 days' notice. (By the way, this was before federal law made such notice mandatory.) They were then invited to stay on at work to help through the transition, but they were given the afternoon off so that they could process the news.
- Surviving employees then met with their supervisors to hear the news, and they were given the afternoon off as well.
- The next morning, the plant manager held a town hall meeting, which he called a "thank-you session." He explained why the layoffs were being made, and then he thanked all employees for their contributions to the plant and to the company.
- The thank-you theme continued for the next 60 days. Some employees stayed until the end, and others left earlier, but every Friday morning the plant



manager bought all employees breakfast to thank them for their hard work and dedication.

"I won't say it wasn't tough," concluded Cindy. "But I appreciate the way they did it. Employees understood why the layoff was happening. We were treated like adults, with respect and courtesy. And the fact that management thanked us—that made all the difference."

### ***Experience Tells Us***

Unfortunately, we've communicated enough layoffs that we've developed a tried-and-true approach for doing so. Here are the key strategies we find work well:

- Use face-to-face communication to deliver decisions that have a personal impact.
- Provide key leaders, including facility and functional leaders, with the support they need to be visible and effective.
- Prepare HR staff and managers to deliver communication.
- Develop print and online vehicles to deliver detailed information and reinforce changes.
- Consistently measure results and adjust your plans.

### ***You Need a Plan***

As a first step, you need a plan. Effective layoffs require split-second timing, because you have many moving parts to manage. So you need to make sure you've mapped out all the things you need to do. The following is the first draft of a plan we created for a company that was making an acquisition. The company planned to announce large-scale layoffs to close a major facility as soon as the deal closed. We used the following timeline as a discussion document to work through issues and develop a more detailed plan:

### ***Before Day One***

**Selected executives/employees may be notified and immediately released.**

*Day One*

Time	Event	People Affected	Issues to Discuss
8:30 a.m.	Managers arrive at work and are invited to manager briefing at 9 a.m.  Employees arrive at work and are invited to town hall meeting to begin at 10:00 a.m.	All employees	What time do managers typically arrive at work?
Morning	Employees who will be released immediately will be notified after town hall meeting.		
9 a.m.	Manager briefing to give managers a heads-up on what employees will learn at town hall meeting	Managers	Who answers the phone on Day One?
10 a.m.	All-hands town hall meeting to announce: <ul style="list-style-type: none"> <li>• Change of ownership</li> <li>• Closing of facility</li> <li>• How employees are affected (the big picture)</li> <li>• Transition process</li> </ul>	All employees	

10:15 a.m.	Functional meetings: <ul style="list-style-type: none"> <li>• Led by managers</li> <li>• Announce transition plan for function</li> <li>• Answer questions</li> <li>• Provide employees with appointment time and location for notification meetings</li> </ul>	Employees by function	<p>Ensure that managers are prepared for tough questions and for security concerns.</p> <p>What is the role of HR in these meetings?</p> <p>How will remote employees participate/be informed?</p>
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11:30 a.m. to 5:30 p.m.	Notification meetings begin for employees who will be given a work-through date	Affected employees	Combination of individual and group meetings?
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#### ***Day Two***

<b>Time</b>	<b>Event</b>	<b>People Affected</b>	<b>Issues to Discuss</b>
8:30 a.m. to 5:30 p.m.	Notification meetings continue for employees with a work-through date	Affected employees	

#### ***Day Three***

<b>Time</b>	<b>Event</b>	<b>People Affected</b>	<b>Issues to Discuss</b>
Morning	Functional managers hold staff meetings with their teams to focus on next steps	Employees by function	
8:30 a.m. to 5:30 p.m.	Notification meetings continue for employees with a work-through date	Affected employees	Goal is to complete most of notification by end of Day Three

#### ***Day Four***

<b>Time</b>	<b>Event</b>	<b>People Affected</b>	<b>Issues to Discuss</b>
8:30 a.m. to 5:30 p.m.	HR Admin Center opens to provide support for transitioning employees		

### *Supporting Leaders Through the Layoff*

Who decides to lay off employees? In almost every case, company leaders—and they're often the ones who decide *who* will be let go. But just because leaders are very involved in planning the layoff doesn't mean they're ready to communicate. That's why we recommend holding a briefing session to do the following:

- Help leaders understand their communication role, and prepare them to fulfill that role.
- Make sure they agree on key messages.
- Give leaders a chance to practice delivering those messages.
- Talk through potential situations that may occur.
- Vent about their emotions concerning the layoff. (After all, leaders feel bad too, and they need to work through how they feel so that they can get past it and focus on employees' needs.)

#### WHEN A REORGANIZATION LEADS TO A LAYOFF

A consumer products company was restructuring a division that had about 10,000 employees to make operations more efficient. As a result, the company planned to lay off several hundred employees. To prepare leaders to communicate the change, we facilitated a half-day briefing session for the top 150 leaders. It was designed to help senior leaders understand and discuss the impact of the changes, as well as improve their communication skills. The session included the following:

- A presentation by the president of the division about why the restructuring was occurring and how it would be managed
- Small-group Q&A sessions with senior management so that leaders could work through questions employees might ask
- A quick session on how people experience change, focusing on the emotions employees were likely to experience
- An opportunity to practice communicating about the restructuring, to prepare leaders for team meetings they would hold during the next several days

**The result:** Leaders indicated that the session was a valuable use of their time. Their feedback indicated that they felt prepared to discuss the changes with their teams and understood the strategy.

### *Managers Need the Most Help*

Although leaders are responsible for communicating the big picture, it's managers who are usually on the front lines of a layoff. Even if managers are not delivering the bad news, they're the ones who have to deal with the aftermath of depressed departing employees and disgruntled survivors.

In our minds, there's no such thing as overpreparing managers for an upcoming layoff. In fact, we find that the more time you can invest in managers, the more invested managers feel in the change—and the more prepared they are to help employees through it.

### *A Case for FAQs*

In Chapter 8, “Make Meetings Meaningful—and Support Managers,” we mention the importance of frequently asked questions as one of the most valuable tools to help managers communicate. When it comes to a layoff, we find that FAQs are a must—particularly for managers, but also for HR and leaders. Creating a FAQ document helps you work through all the issues involved in a layoff and helps you decide how you will handle these issues.

The key to developing an effective FAQ document is to brainstorm every tough question a manager or employee would ask, and then create a straightforward answer for each question. FAQs may then be used for leader and manager briefings, but we don't recommend that they be shared with employees directly. FAQs help prepare managers (who want to feel confident that they know the answer to every possible question), but they overwhelm departing employees. If you want to create information to give employees, develop a summary document that spells out the terms of the separation. This approach is consistent with what we advocate for communicating any policy or benefit: Give employees an easy-to-read and

easy-to-understand print piece that they can share with family and that will help them make good decisions.

#### HUNDREDS OF QUESTIONS, AND THEIR ANSWERS

When we were helping a company manage a layoff last year, we developed a FAQ document that contained hundreds of questions to deal with every possible situation that could arise. Here's just a sampling of the questions that were included:

- Why was I laid off?
- What was the process for deciding who would be laid off?
- What job-related criteria were used in the selection process?
- How many employees are affected?
- When is my last day of employment?
- When is my last day on payroll?
- Am I expected to work until my last day?
- What if I want to leave the company immediately or before my separation date?
- What will my role/responsibilities be until my last day?
- Whom will I report to until the end of my service?
- Am I eligible to apply for a job at one of the company's other locations?
- Will outplacement services be available to me? Now or after my last day?
- Who is the outplacement provider?
- What services does outplacement provide? Will training be offered as part of outplacement?
- Will the company give me a reference?
- If I get a job at another company, can I encourage my coworkers here to come work at my new company?
- When should I file an unemployment claim?
- When can I begin collecting unemployment benefits?
- Will I receive severance? How much will I receive?
- Can I apply for and receive unemployment benefits at the same time I'm receiving severance?
- What will happen to my benefits?
- Will my employee contributions for insurance continue to be deducted from my pay while I'm still on the payroll?
- What happens to unpaid and outstanding health insurance claims (medical, dental, vision)?
- If I am currently not enrolled for company medical, dental, and vision coverage on my separation date, may I enroll after my separation date? Does this apply if I leave earlier?

- What is COBRA? Am I eligible for it?
- What kind of COBRA support will I receive after I sign my severance agreement or after my separation date?

#### ***Give Managers a Chance to Practice***

The most effective way to prepare managers for an upcoming layoff is to hold a training session so managers get a chance to rehearse what they need to do. A key element of this practice is to deal with potential scenarios they might encounter during the course of the layoff period.

For example, the following are some scenarios we created for the company that was closing a facility after an acquisition. Employees were to be given notice and then continue working for 30 to 60 days to support the transition. We created scenarios that managers might encounter during this transition, and we gave them a chance to come up with potential solutions. If they got stuck, the session leader would help them develop strategies for managing these tough situations:

- An employee is disrupting the work environment with repeated outbursts. This individual complains to everyone about losing his job and expresses fears about finding future employment.
- Your team members seem confused about what they need to do. Some spend their time focusing on things that aren't important. Critical tasks aren't being completed.
- You can't get anyone to talk during your team meetings. Everyone has a stony look and won't join the conversation.
- Anytime you ask a particular team member to complete a task, he assures you he'll do it. But you've come to

realize that he never follows through on your requests, and his work isn't getting done.

- The former manager of your group asks you a series of tough questions, and you're unsure of the best way to respond. You're concerned that the answers to some of her questions are tough to hear and won't be well received. In addition, there's one question you don't have an answer for, but you don't want her to think you're not in the loop.

### **CHECKLIST FOR COMMUNICATING AS EMPLOYEES LEAVE THE COMPANY**

- ✓ Create communication plans for employees who are leaving, as well as those who are staying.
- ✓ Share bad news in person. Focus on what will happen next and what transition help employees will receive.
- ✓ Encourage managers and executives to thank departing employees for their contributions, and treat these employees with dignity and respect.
- ✓ Prepare managers to handle transitions effectively through training, practice sessions, and coaching, and then give them "just in time" FAQ documents.
- ✓ Create a communications plan as a chart showing who will learn what, when, and how.
- ✓ Remember that endings are always opportunities for new beginnings. (We wanted our last bit of advice in this book to be cheerful. Thanks for reading. We wish you good luck with all your human resources communications, from recruiting to leaving the company.)



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# **Investing in People, Second Edition**

**Financial Impact of Human Resource  
Initiatives**

**Wayne F. Cascio  
John W. Boudreau**

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*To my parents, Frank and Joan Cascio, who invested so  
much of themselves in me.*

From John Boudreau:

*To my family, who continually inspire me to see the  
wonderful potential in people.*

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## About the Authors

**Wayne Cascio** holds the Robert H. Reynolds Chair in Global Leadership at the University of Colorado Denver. He has authored more than 150 journal articles and book chapters and 24 books. In 1999 he received the Distinguished Career award from the HR Division of the Academy of Management. He received an honorary doctorate from the University of Geneva (Switzerland) in 2004, and in 2008 he was named by the *Journal of Management* as one of the most influential scholars in management in the past 25 years. In 2010 he received the Michael R. Losey Human Resources Research Award from the Society for Human Resource Management. His work is cited regularly in the business press. Dr. Cascio is a Fellow of the National Academy of Human Resources, the Academy of Management, and the American Psychological Association. Currently he serves as a senior editor of the *Journal of World Business*.

**John Boudreau** is Research Director at the Center for Effective Organizations and Professor of Management and Organization in the Marshall School of Business at the University of Southern California. He is recognized worldwide for breakthrough research on the bridge between superior human capital, talent, and sustainable competitive advantage. He is a strategy, human resource management, and talent advisor and educator in organizations ranging from early-stage companies, to government agencies and Fortune 100 organizations, to large multinational companies. Dr. Boudreau has published more than 60 books and articles, and his work has been featured in *Harvard Business Review*, *The Wall Street Journal*, and *Business Week*. He has won scholarly awards from the Academy of Management. Dr. Boudreau is a fellow of the National Academy of Human



Resources and was formerly a professor at Cornell University.

## Preface

The demand for accountability among all business functions has never been greater. Recent events show how vital decisions are about human resources in an increasingly uncertain and interconnected world. A key responsibility of organization leaders, human resource (HR) leaders, and consultants is to articulate the logical connections between progressive HR practices and firm performance, and they need to demonstrate those connections with data. This book provides logic and technology to look inside the “black box” between HR practices and financial/business performance.

Investing in people should be as systematic as investing in any other vital resource, based on logical frameworks and focused on optimization, not simply on reducing costs or mimicking best practices. This argues against the common “peanut-butter” approach to talent investments that spreads the same investments (for example, in training or staffing programs) over the entire organization, in an effort to be fair by being equal. Such approaches engender justifiable skepticism from leaders and employees who are asked to invest in programs or activities because HR—or even the CEO—says that “everyone must do it.” That approach is in stark contrast to other resources, such as customers and technology, where investments are targeted where they have the greatest effect. Why not make greater talent investments where they matter most? This “decision science” approach provides the foundation for the techniques we present here. We emphasize that, ultimately, measurement is valuable when it improves important decisions about talent. That requires not simply more or better measures, but an integrated approach that combines those measures with logic, analytics, and

knowledge processes (what we call the LAMP framework). Chapters are based on logic diagrams that show the links between particular HR programs, employee behaviors, and operational and financial outcomes. Each chapter also includes a discussion about process, describing opportunities and effective ways to communicate results to decision makers.

We draw extensively on our decades of experience assisting senior-level decision makers to better understand and measure the impact of talent decisions, and also on our research on the connections between talent and organizational outcomes. We have been fortunate to work with both practicing leaders and academic researchers. This combination is essential for talent measurement and decisions that achieve both practical relevance and logical rigor.

*Investing in People* draws upon research in psychology, economics, accounting, and finance to provide tools that leaders inside and outside the HR profession can use together to describe the financial results of their investments in people. We focus on HR investments with a rich history of data-based research, including staffing, training, workplace health, employee attitudes, and employee turnover, which also represent some of the most important strategic HR functions.

This book provides specific formulas and calculations that you can use to evaluate the impact of your own talent decisions. To make the formulas easier to use, we developed software to accompany the chapters on the following topics: absenteeism, turnover, health and welfare, attitudes and engagement, work-life issues, external employee sourcing, the economic value of job performance, payoffs from selection, and payoffs from training and development.

The Society for Human Resource Management (SHRM) provided generous support for the development of the software, and you can access this software at the SHRM website (<http://hrcosting.com/hr/>), regardless of whether you are a SHRM member. The software performs the calculations of measures so that readers can focus on the logic, analytics, and processes necessary to improve strategic decisions about talent.

Business leaders, inside and outside of the HR profession, need more rigorous, logical, and principles-based frameworks to understand the connections between human capital and organizational success. We hope that this book serves as a “go-to” resource for those frameworks.

## **PLAN FOR THE BOOK**

Chapter 1, “Making HR Measurement Strategic,” introduces the fundamental principle of this book, that HR measurement is valuable to the extent that it improves vital decisions about talent and how it is organized. This decision-based approach to HR measurement leads to different approaches from the traditional focus on HR services or resource expenditures. It emphasizes that effective HR measures must be embedded within a system that recognizes their role in enhancing decisions and organizational effectiveness. The elements of that framework are the guiding logic for each of the chapters that describe specific techniques and measures in selected HR areas.

Chapter 2, “Analytical Foundations of HR Measurement,” describes four levels of sophistication in HR analytics, along with several analytical concepts that recur throughout this book. These are similar to foundational principles in finance or marketing, such as risk, return, and economies of scale. New to this edition

is a discussion of conjoint analysis, a technique that researchers in a variety of fields use to identify the hidden rules that people use to make tradeoffs between different products or services and the values they place on different features. This chapter provides a primer on fundamental ideas that all organization leaders should understand about good measurement.

Beginning with Chapter 3, “The Hidden Costs of Absenteeism,” we update the material from our first edition and also from Cascio’s *Costing Human Resources* (4th ed., 2000) volume—revised, reconfigured, and presented in the context of the LAMP framework. Chapter 3 shows how to estimate, interpret, and manage absenteeism costs and other effects.

Chapter 4, “The High Cost of Employee Separations,” describes how to calculate the fully loaded costs of employee turnover, and how to incorporate them into a complete framework of turnover effects. We show that turnover rates can easily be misinterpreted, and we show how to avoid that with better logic and measures. We also discuss the hidden costs of layoffs, a factor often ignored when organizations use layoffs to reduce labor costs.

Chapter 5, “Employee Health, Wellness, and Welfare,” presents methods to assess the costs and benefits of employee assistance and worksite health-promotion programs. It also addresses the economics of employee smoking and obesity. In addition, the chapter discusses the value of disease-prevention investments and the role of health, wellness, and welfare programs in an age of rising health costs.

Chapter 6, “Employee Attitudes and Engagement,” begins by distinguishing three important attitudes: job satisfaction, commitment, and engagement. It focuses on the economics of employee engagement, including

research on how engagement and the feeling of working at a “best place to work” connect with customer service and financial results.

Chapter 7, “Financial Effects of Work-Life Programs,” includes new findings on the economics of work-life programs and how to measure them. These techniques are useful as organizations increasingly struggle with fundamental questions about how to optimize their investments in talent to enhance employee work-life fit in an increasingly competitive work environment.

Chapter 8, “Staffing Utility: The Concept and Its Measurement,” introduces utility analysis, an important research framework for understanding how investments in HR programs, such as staffing, training, and compensation, produce financial outcomes, and how to calculate them. New to Chapter 8 is a discussion of supply-chain analysis, an integrative framework whose objective is to optimize investments across the various elements of the staffing process, not simply to maximize payoffs within each element.

Chapter 9, “The Economic Value of Job Performance,” addresses one of the most important financial issues related to talent: the financial value of improved job performance. It provides a framework for understanding where improving performance makes a big difference and where its effects are smaller. We also look at approaches to actually estimate the value of improving performance in particular jobs or roles.

Chapter 10, “The Payoff from Enhanced Selection,” combines the utility analysis framework from Chapter 8 and the economics of job performance from Chapter 9 to calculate the economic value of staffing, including recruitment and selection. The formulas are based on decades of scholarly research and show how statistics such as correlations can be clues to significant

organizational value. The software that accompanies the book simplifies the calculations so that readers can focus on the strategic implications of their findings (available at <http://hrcosting.com/hr/>).

Chapter 11, “Costs and Benefits of HR Development Programs,” addresses one of the most significant organizational enterprises: employee development. Despite the massive investments in this area, across all developed countries, specific payoffs are often unknown; at a broader level, we cite research that shows that investments in training predict future stock prices. In this chapter, you learn how to use the utility analysis and performance value frameworks of Chapters 8 and 9 to estimate payoffs from learning and development within a logical and research-based framework that leaders can actually apply.

Chapter 12, “Talent Investment Analysis: Catalyst for Change,” provides a capstone chapter that integrates the previous material. It’s not enough to have solid logic, analysis, and measurements that show the economic effects of talent investments. Key decision makers must listen and act on them. This chapter describes strategies that we have used to communicate the financial implications of investing in people to employees and leaders outside the HR function. This chapter also describes opportunities to integrate the decision science approach to talent with ongoing organizational processes, such as strategy, budgeting, and performance management.

## 1. Making HR Measurement Strategic

This book will help you better understand how to analyze, measure, and account for investments in people. However, although data and analysis are important to investing in people, they are really just a means to an end. The ultimate purpose of an investment framework is to improve decisions about those investments. Decisions about talent, human capital, and organizational effectiveness are increasingly central to the strategic success of virtually all organizations.

According to 2010 research from the Hay Group, businesses listed in *Fortune* magazine as the world's most admired companies invest in people and see them as assets to be developed, not simply as costs to be cut. Consider how the three most admired companies in 64 industries—firms like UPS, Disney, McDonald's, and Marriott International—managed their people during the Great Recession, compared to their less-admired peers. Those companies were less likely to have laid off any employees (10 percent versus 23 percent, respectively). By even greater margins, they were less likely to have frozen hiring or pay, and by a giant margin (21 points), they were more likely to have invested the money and the effort to brand themselves as employers, not just as marketers to customers. They treat their people as assets, not expenses. Perhaps the most important lesson from the 2010 World's Most Admired companies is that they did not launch their enlightened human capital philosophies when the recession hit; they'd been following them for years. Once a recession starts, it's too late. "Champions know what their most valuable asset is, and they give it the investment it deserves—through good times and bad" (p. 82).<sup>1</sup>



It is surprising how often companies address vital decisions about talent and how it is organized with limited measures or faulty logic. How would your organization measure the return on investments that retain vital talent? Would the future returns be as clear as the tangible short-term costs to be saved by layoffs? Does your organization have a logical and numbers-based approach to understanding the payoff from improved employee health, improvements in how employees are recruited and selected, reductions in turnover and absenteeism, or improvements in how employees are trained and developed? In most organizations, leaders who encounter such questions approach them with far less rigor and analysis than questions about other resources such as money, customers, and technology. Yet measures have immense potential to improve the decisions of HR and non-HR leaders.

This book is based on a fundamental principle: HR measurement adds value by improving vital decisions about talent and how it is organized.

This perspective was articulated by John Boudreau and Peter Ramstad in their book, *Beyond HR*.<sup>2</sup> It means that HR measurements must do more than evaluate the performance of HR programs and practices, or prove that HR can be made tangible. Rather, it requires that HR measures reinforce and teach the logical frameworks that support sound strategic decisions about talent.

In this book, we provide logical frameworks and measurement techniques to enhance decisions in several vital talent domains where decisions often lag behind scientific knowledge, and where mistakes frequently reduce strategic success. Those domains are listed here:

- Absenteeism (Chapter 3)

- Employee turnover (Chapter 4)
- Employee health and welfare (Chapter 5)
- Employee attitudes and engagement (Chapter 6)
- Work-life issues (Chapter 7)
- External employee sourcing (recruitment and selection) (Chapter 8)
- The economic value of employee performance (Chapter 9)
- The value of improved employee selection (Chapter 10)
- The costs and benefits of employee development (Chapter 11)

Each chapter provides a logical framework that describes the vital key variables that affect cost and value, as well as specific measurement techniques and examples, often noting elements that frequently go unexamined or are overlooked in most HR and talent-measurement systems.

The importance of these topics is evident when you consider how well your organization would address the following questions if your CEO were to pose them:

Chapter 2: “I see that there is a high correlation between employee engagement scores and sales revenue across our different regions. Does that mean that if we raise engagement scores, our sales go up?”

Chapter 3: “I know that, on any given day, about 5 percent of our employees are absent. Yet everyone seems to be able to cover for the absent employees, and the work seems to get done. Should we try to reduce this

absence rate, and if we did, what would be the benefit to our organization?”

Chapter 4: “Our total employment costs are higher than those of our competitors, so I need you to lay off 10 percent of our employees. It seems “fair” to reduce headcount by 10 percent in every unit, but we project different growth in different units. What’s the right way to distribute the layoffs?”

Chapter 4: “Our turnover rate among engineers is 10 percent higher than that of our competitors. Why hasn’t HR instituted programs to get it down to the industry levels? What are the costs or benefits of employee turnover?”

Chapter 5: “In a globally competitive environment, we can’t afford to provide high levels of health care and health coverage for our employees. Every company is cutting health coverage, and so must we. There are cheaper health-care and insurance programs that can cut our costs by 15 percent. Why aren’t we offering cheaper health benefits?”

Chapter 6: “I read that companies with high employee satisfaction have high financial returns, so I want you to develop an employee engagement measure and hold our unit managers accountable for raising the average employee engagement in each of their units.”

Chapter 7: “I hear a lot about the increasing demand for work and life fit, but my generation found a way to work the long hours and have a family. Is this generation really that different? Are there really tangible relationships between work-life conflict and organizational productivity? If there are, how would we measure them and track the benefits of work-life programs?”

Chapter 8: “We expect to grow our sales 15 percent per year for the next 5 years. I need you to hire enough sales candidates to increase the size of our sales force by 15 percent a year, and do that without exceeding benchmark costs per hire in our industry. What are those costs?”

Chapter 9: “What is the value of good versus great performance? Is it necessary to have great performance in every job and on every job element? Where should I push employees to improve their performance, and where is it enough that they meet the minimum standard?”

Chapter 10: “Is it worth it to invest in a comprehensive assessment program, to improve the quality of our new hires? If we invest more than our competition, can we expect to get higher returns? Where is the payoff to improved selection likely to be the highest?”

Chapter 11: “I know that we can deliver training much more cheaply if we just outsource our internal training group and rely on off-the-shelf training products to build the skills that we need. We could shut down our corporate university and save millions.”

In every case, the question or request reflects assumptions about the relationship between decisions about human resource (HR) programs and the ultimate costs or benefits of those decisions. Too often, such decisions are made based on very naïve logical frameworks, such as the idea that a proportional increase in sales requires the same proportional increase in the number of employees, or that across-the-board layoffs are logical because they spread the pain<sup>8</sup> equally. In this book, we help you understand that these assumptions are often well meaning but wrong, and we show how better HR measurement can correct them.

Two issues are at work here. First, business leaders inside and outside of the HR profession need more rigorous, logical, and principles-based frameworks for understanding the connections between human capital and organization success. Those frameworks comprise a “decision science” for talent and organization, just as finance and marketing comprise decision sciences for money and customer resources. The second issue is that leaders inside and outside the HR profession are often unaware of existing scientifically supported ways to measure and evaluate the implications of decisions about human resources. An essential pillar of any decision science is a measurement system that improves decisions, through sound scientific principles and logical relationships.

The topics covered in this book represent areas where very important decisions are constantly made about talent and that ultimately drive significant shifts in strategic value. Also, they are areas where fundamental measurement principles have been developed, often through decades of scientific study, but where such principles are rarely used by decision makers. This is not meant to imply that HR and business leaders are not smart and effective executives. However, there are areas where the practice of decisions lags behind state-of-the-art knowledge.

The measurement and decision frameworks in these chapters are also grounded in general principles that support measurement systems in all areas of organizational decision making; such principles include data analysis and research design, the distinction between correlations and causes, the power of break-even analysis, and ways to account for economic effects that occur over time. Those principles are described in Chapter 2, “Analytical Foundations of HR Measurement,” and then used throughout this book.

Next, we show how a decision-science approach to HR measurement leads to very different approaches from the traditional one, and we introduce the frameworks from this decision-based approach that will become the foundation of the rest of this book.

## **HOW A DECISION SCIENCE INFLUENCES HR MEASUREMENT**

When HR measures are carefully aligned with powerful, logical frameworks, human capital measurement systems not only track the effectiveness of HR policies and practices, but they actually teach the logical connections, because organization leaders use the measurement systems to make decisions. This is what occurs in other business disciplines. For example, the power of a consistent, rigorous logic, combined with measures, makes financial tools such as economic value added (EVA) and net present value (NPV) so useful. They elegantly combine both numbers and logic, and help business leaders improve in making decisions about financial resources.

Business leaders and employees routinely are expected to understand the logic that explains how decisions about money and customers connect to organization success. Even those outside the finance profession understand principles of cash flow and return on investment. Even those outside the marketing profession understand principles of market segmentation and product life cycle. In the same way, human capital measurement systems can enhance how well users understand the logic that connects organization success to decisions about their own talent, as well as the talent of those whom they lead or work with. To improve organizational effectiveness, HR processes, such as succession planning, performance management, staffing, and leadership development, must rely much more on improving the competency and

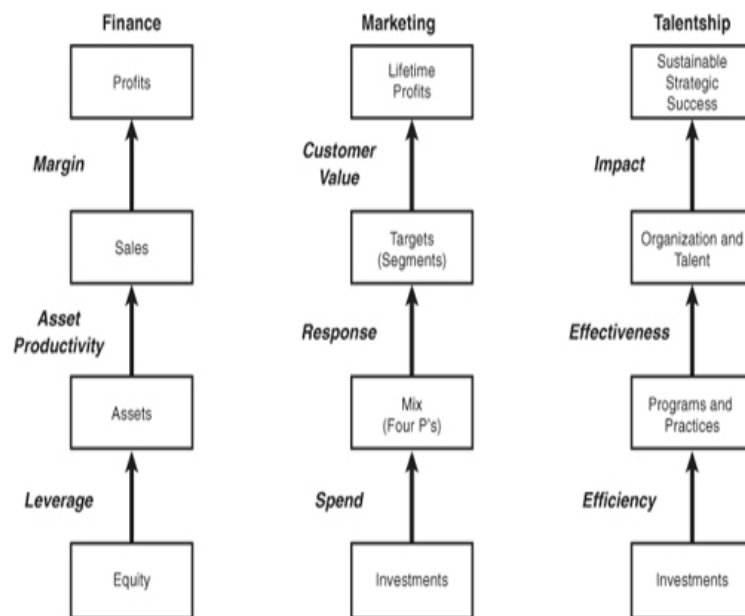
engagement of non-HR leaders than on anything that HR typically controls directly.

Why use the term *science*? Because the most successful professions rely on decision systems that follow scientific principles and have a strong capacity to quickly incorporate new scientific knowledge into practical applications. Disciplines such as finance, marketing, and operations provide leaders with frameworks that show how those resources affect strategic success, and the frameworks themselves reflect findings from universities, research centers, and scholarly journals. Their decision models and their measurement systems are compatible with the scholarly science that supports them. Yet with talent and human resources, the frameworks that leaders in organizations use often bear distressingly little similarity to the scholarly research in human resources and human behavior at work<sup>3</sup> The idea of evidence-based HR management requires creating measurement systems that encourage and teach managers how to think more critically and logically about their decisions, and to make decisions that are informed and consistent with leading research.<sup>4</sup>

A vast array of research focuses on human behavior at work, labor markets, how organizations can better compete with and for talent, and how that talent is organized. Disciplines such as psychology, economics, sociology, organization theory, game theory, and even operations management and human physiology all contain potent research frameworks and findings based on the scientific method. A scientific approach reveals how decisions and decision-based measures can bring the insights of these fields to bear on the practical issues confronting organization leaders and employees. You will learn how to use these research findings as you master the HR measurement techniques described in this book.

## Decision Frameworks

A decision framework provides the logical connections between decisions about a resource (for example, financial capital, customers, or talent) and the strategic success of the organization. This is true in HR, as we show in subsequent chapters that describe such connections in various domains of HR. It is also true in other, more familiar decision sciences such as finance and marketing. It is instructive to compare HR to these other disciplines. Figure 1-1 shows how a decision framework for talent and HR, which Boudreau and Ramstad called “talentship,” has a parallel structure to decision frameworks for finance and marketing.



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**Figure 1-1. Finance, marketing, and talentship decision frameworks.**

Finance is a decision science for the resource of money, marketing is the decision science for the resource of customers, and talentship is the decision science for the



resource of talent. In all three decision sciences, the elements combine to show how one factor interacts with others to produce value. *Efficiency* refers to the relationship between what is spent and the programs and practices that are produced. *Effectiveness* refers to the relationship between the programs or practices and their effects on their target audience. *Impact* refers to the relationship between the effects of the practice on the target audience and the ultimate success of the organization.

To illustrate the logic of such a framework, consider marketing as an example. Investments in marketing produce a product, promotion, price, and placement mix. This is efficiency. Those programs and practices produce responses in certain customer segments. This is effectiveness. Finally, the responses of customer segments create changes in the lifetime profits from those customers. This is impact.

Similarly, with regard to talent decisions, *efficiency* describes the connection between investments in people and the talent-related programs and practices they produce (such as cost per training hour). *Effectiveness* describes the connection between the programs/practices and the changes in the talent quality or organizational characteristics (such as whether trainees increase their skill). *Impact* describes the connection between the changes in talent/organization elements and the strategic success of the organization (such as whether increased skill actually enhances the organizational processes or initiatives that are most vital to strategic success).

The chapters in this book show how to measure not just HR efficiency, but also elements of effectiveness and impact. In addition, each chapter provides a logical framework for the measures, to enhance decision making

and organizational change. Throughout the book, we attend to measures of efficiency, effectiveness, and impact. The current state of the art in HR management is heavily dominated by efficiency measures, so this book will help you see beyond the most obvious efficiency measures and put them in the context of effectiveness and impact.

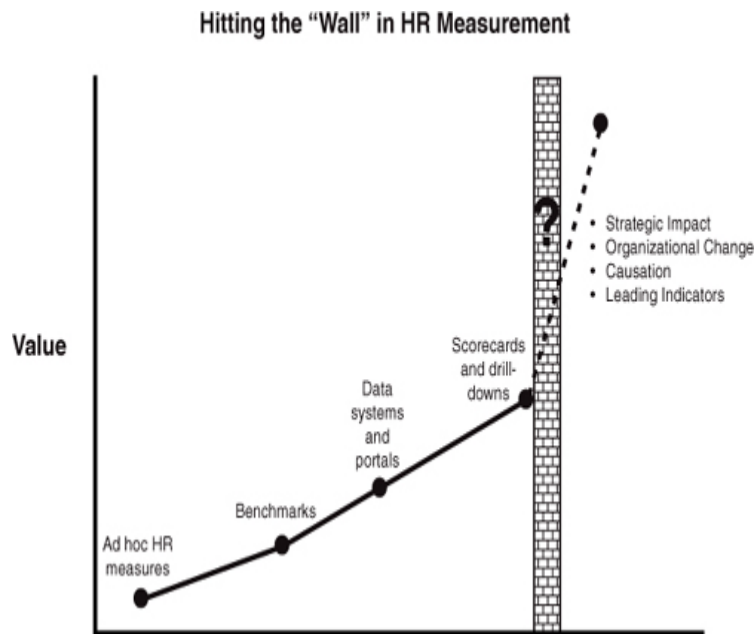
### **Data, Measurement, and Analysis**

In a well-developed decision science, the measures and data are deployed through management systems, used by leaders who understand the principles, and supported by professionals who add insight and expertise. In stark contrast, HR data, information, and measurement face a paradox today. There is increasing sophistication in technology, data availability, and the capacity to report and disseminate HR information, but investments in HR data systems, scorecards, and integrated enterprise resource systems fail to create the strategic insights needed to drive organizational effectiveness. HR measures exist mostly in areas where the accounting systems require information to control labor costs or to monitor functional activity. Efficiency gets a lot of attention, but effectiveness and impact are often unmeasured. In short, many organizations are “hitting a wall” in HR measurement.

## HITTING THE “WALL” IN HR MEASUREMENT<sup>5</sup>

Type “HR measurement” into a search engine, and you will get more than 900,000 results. Scorecards, summits, dashboards, data mines, data warehouses, and audits abound. The array of HR measurement technologies is daunting. The paradox is that even when HR measurement systems are well implemented, organizations typically hit a “wall.” Despite ever more comprehensive databases and ever more sophisticated HR data analysis and reporting, HR measures only rarely drive true strategic change.<sup>6</sup>

Figure 1-2 shows how, over time, the HR profession has become more elegant and sophisticated, yet the trend line doesn’t seem to be leading to the desired result. Victory is typically declared when business leaders are induced or held accountable for HR measures. HR organizations often point proudly to the fact that bonuses for top leaders depend in part on the results of an HR “scorecard.” For example, incentive systems might make bonuses for business-unit managers contingent on reducing turnover, raising average engagement scores, or placing their employees into the required distribution of 70 percent in the middle, 10 percent at the bottom, and 20 percent in the top.



**Figure 1-2. Hitting the "wall" in HR measurement.**

Yet having business leader incentives based on HR measures is not the same as creating organization change. To have impact, HR measures must create a true strategic difference in the organization. Many organizations are frustrated because they seem to be doing all the measurement things "right," but there is a large gap between the expectations for the measurement systems and their true effects. HR measurement systems have much to learn from measurement systems in more mature professions such as finance and marketing. In these professions, measures are only one part of the system for creating organizational change through better decisions.

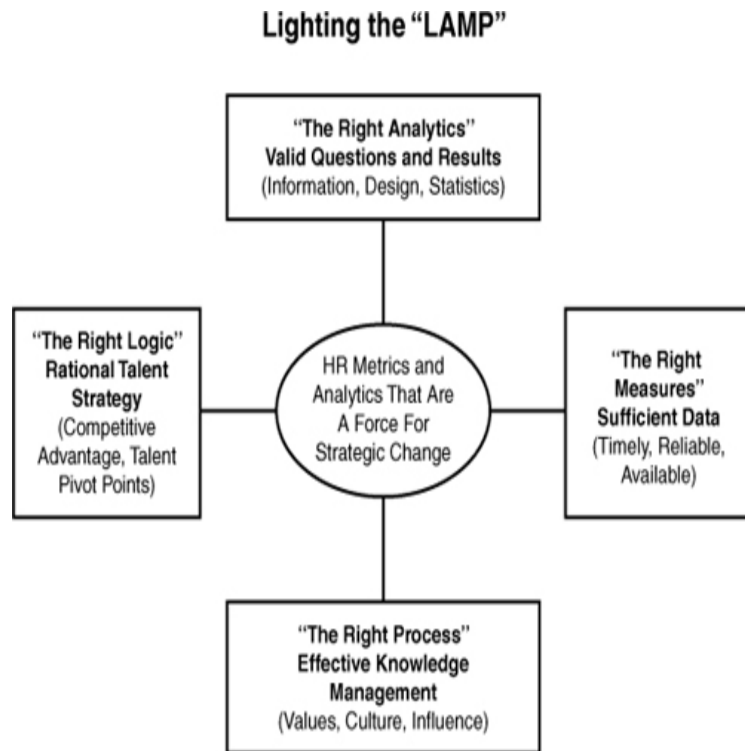
Typically, HR develops measures to justify the investment in the HR function and its services and activities, or to prove a cause-effect connection between HR programs and organizational outcomes. Contrast this with financial measurement. Although it is certainly important to measure how the accounting or finance department operates, the majority of financial measures

are not concerned with how finance and accounting programs and services are delivered. Financial measures typically focus on the outcomes—the quality of decisions about financial resources. Most HR measures today focus on how the HR function is using and deploying its resources and whether those resources are used efficiently. If the HR organization is ultimately to be accountable for improving talent decisions throughout the organization, HR professionals must take a broader and more complete perspective on how measurements can drive strategic change.

Correcting these limitations requires keeping in mind the basic principle expressed at the beginning of this chapter: Human capital metrics are valuable to the extent that they improve decisions about talent and how it is organized. That means that we must embed HR measures within a complete framework for creating organizational change through enhanced decisions. We describe that framework next.

## **THE LAMP FRAMEWORK**

We believe that a paradigm extension toward a talent decision science is key to getting to the other side of the wall. Incremental improvements in the traditional measurement approaches will not address the challenges. HR measurement can move beyond the wall using what we call the LAMP model, shown in [Figure 1-3](#). The letters in LAMP stand for logic, analytics, measures, and process, four critical components of a measurement system that drives strategic change and organizational effectiveness. Measures represent only one component of this system. Although they are essential, without the other three components, the measures and data are destined to remain isolated from the true purpose of HR measurement systems.



**Figure 1-3. Lighting the LAMP.**

The LAMP metaphor refers to a story that reflects today’s HR measurement dilemma:

One evening while strolling, a man encountered an inebriated person diligently searching the sidewalk below a street lamp.

“Did you lose something?” he asked.

“My car keys. I’ve been looking for them for an hour,” the person replied.

The man quickly scanned the area, spotting nothing.

“Are you sure you lost them here?”

“No, I lost them in that dark alley over there.”

“If you lost your keys in the dark alley, why don’t you search over there?”

“Because this is where the light is.”

In many ways, talent and organization measurement systems are like the person looking for the keys where the light is, not where they are most likely to be found. Advancements in information technology often provide technical capabilities that far surpass the ability of the decision science and processes to use them properly. So it is not uncommon to find organizations that have invested significant resources constructing elegant search and presentation technology around measures of efficiency, or measures that largely emanate from the accounting system.

The paradox is that genuine insights about human resources often exist in the areas where there are no standard accounting measures. The significant growth in HR outsourcing, where efficiency is often the primary value proposition and IT technology is the primary tool, has exacerbated these issues.<sup>7</sup> Even imperfect measures aimed at the right areas may be more illuminating than very elegant measures aimed in the wrong places.

Returning to our story about the person looking for keys under the street lamp, it's been said, "Even a weak penlight in the alley where the keys are is better than a very bright streetlight where the keys are not."

**Figure 1-3** shows that HR measurement systems are only as valuable as the decisions they improve and the organizational effectiveness to which they contribute. HR measurement systems create value as a catalyst for strategic change. Let's examine how the four components of the LAMP framework define a more complete measurement system. We present the elements in the following order: logic, measures, analytics, and, finally, process.

## **Logic: What Are the Vital Connections?**

Without proper logic, it is impossible to know where to look for insights. The logic element of any measurement system provides the “story” behind the connections between the numbers and the effects and outcomes. In this book, we provide logical models that help to organize the measurements and show how they inform better decisions.

Most chapters provide “logic models” for this purpose. Examples include the connections between health/wellness and employee turnover, performance, and absenteeism in [Chapter 5, “Employee Health, Wellness, and Welfare.”](#) In [Chapter 4, “The High Cost of Employee Separations,”](#) on employee turnover, we propose a logic model that shows how employee turnover is similar to inventory turnover. This simple analogy shows how to think beyond turnover costs, to consider performance and quality, and to optimize employee shortages and surpluses, not just eliminate them. In [Chapter 8, “Staffing Utility: The Concept and Its Measurement,”](#) we propose a logic model that shows how selecting employees is similar to optimizing a supply chain for talent, to help leaders understand how to optimize all elements of employee acquisition, not simply maximize the validity of tests or the quality of recruitment sources. In [Chapter 9, “The Economic Value of Job Performance,”](#) we propose a logic model that focuses on where differences in employee performance are most pivotal, borrowing from the common engineering idea that improving performance of every product component is not equally valuable.

Another prominent logic model is the “service-value-profit” framework for the customer-facing process. This framework depicts the connections between HR and management practices, which affect employee attitudes, engagement, and turnover, which then affect the



experiences of customers, which affect customer-buying behavior, which affects sales, which affect profits.

Perhaps the most well-known application of this framework was Sears, which showed quantitative relationships among these factors and used them to change the behavior of store managers.<sup>8</sup>

Missing or faulty logic is often the reason well-meaning HR professionals generate measurement systems that are technically sound but make little sense to those who must use them. With well-grounded logic, it is much easier to help leaders outside the HR profession understand and use the measurement systems to enhance their decisions. Moreover, that logic must be constructed so that it is understandable and credible not only to HR professionals, but to the leaders they seek to educate and influence. Connecting HR measures to traditional business models in this way was described as *Retooling HR*, by John Boudreau, in his book of that name.<sup>9</sup>

### **Measures: Getting the Numbers Right**

The measures part of the LAMP model has received the greatest attention in HR. As discussed in subsequent chapters, virtually every area of HR has many different measures. Much time and attention is paid to enhancing the quality of HR measures, based on criteria such as timeliness, completeness, reliability, and consistency. These are certainly important standards, but lacking a context, they can be pursued well beyond their optimum levels, or they can be applied to areas where they have little consequence.

Consider the measurement of employee turnover. Much debate centers on the appropriate formulas to use in estimating turnover and its costs, or the precision and frequency with which employee turnover should be

calculated. Today's turnover-reporting systems can calculate turnover rates for virtually any employee group and business unit. Armed with such systems, managers "slice and dice" the data in a wide variety of ways (ethnicity, skills, performance, and so on), with each manager pursuing his or her own pet theory about turnover and why it matters. Some might be concerned about losing long-tenure employees, others might focus on high-performing employees, and still others might focus on employee turnover where outside demand is greatest. These are all logical ideas, but they are not universally correct. Whether they are useful depends on the context and strategic objectives. Lacking such a context, better turnover measures won't help improve decisions. That's why the logic element of the LAMP model must support good measurement.

Precision is not a panacea. There are many ways to make HR measures more reliable and precise. Focusing only on measurement quality can produce a brighter light shining where the keys are not! Measures require investment, which should be directed where it has the greatest return, not just where improvement is most feasible. Taking another page from the idea of "retooling HR" to reflect traditional business models, organizations routinely pay greater attention to the elements of their materials inventory that have the greatest effect on costs or productivity. Indeed, a well-known principle is the "80-20 rule," which suggests that 80 percent of the important variation in inventory costs or quality is often driven by 20 percent of the inventory items. Thus, although organizations indeed track 100 percent of their inventory items, they measure the vital 20 percent with greater precision, more frequency, and greater accountability for key decision makers.

Why not approach HR measurement in the same way? Factors such as employee turnover, performance,

engagement, learning, and absence are not equally important everywhere. That means measurements like these should focus precisely on what matters. If turnover is a risk due to the loss of key capabilities, turnover rates should be stratified to distinguish employees with such skills from others. If absence has the most effect in call centers with tight schedules, this should be very clear in how we measure absenteeism.

Lacking a common logic about how turnover affects business or strategic success, well-meaning managers draw conclusions that might be misguided or dangerous, such as the assumption that turnover or engagement have similar effects across all jobs. This is why every chapter of this book describes HR measures and how to make them more precise and valid. However, each chapter also embeds them in a logic model that explains how the measures work together.

### **Analytics: Finding Answers in the Data**

Even a very rigorous logic with good measures can flounder if the analysis is incorrect. For example, some theories suggest that employees with positive attitudes convey those attitudes to customers, who, in turn, have more positive experiences and purchase more. Suppose an organization has data showing that customer attitudes and purchases are higher in locations with better employee attitudes. This is called a positive correlation between attitudes and purchases. Organizations have invested significant resources in improving frontline-employee attitudes based precisely on this sort of correlation. However, will a decision to improve employee attitudes lead to improved customer purchases?

The problem is that such investments may be misguided. A correlation between employee attitudes and customer purchases does not prove that the first one causes the

second. Such a correlation also happens when customer attitudes and purchases actually cause employee attitudes. This can happen because stores with more loyal and committed customers are more pleasant places to work. The correlation can also result from a third, unmeasured factor. Perhaps stores in certain locations (such as near a major private university) attract college-student customers who buy more merchandise or services and are more enthusiastic and also happen to have access to college-age students that bring a positive attitude to their work. Store location turns out to cause both store performance and employee satisfaction. The point is that a high correlation between employee attitudes and customer purchases could be due to any or all of these effects. Sound analytics can reveal which way the causal arrow actually is pointing.

Analytics is about drawing the right conclusions from data. It includes statistics and research design, and it then goes beyond them to include skill in identifying and articulating key issues, gathering and using appropriate data within and outside the HR function, setting the appropriate balance between statistical rigor and practical relevance, and building analytical competencies throughout the organization. Analytics transforms HR logic and measures into rigorous, relevant insights.

Analytics often connect the logical framework to the “science” related to talent and organization, which is an important element of a mature decision science. Frequently, the most appropriate and advanced analytics are found in scientific studies that are published in professional journals. In this book, we draw upon that scientific knowledge to build the analytical frameworks in each chapter.

Analytical principles span virtually every area of HR measurement. In Chapter 2, we describe general

analytical principles that form the foundation of good measurement. We also provide a set of economic concepts that form the analytical basis for asking the right questions to connect organizational phenomena such as employee turnover and employee quality to business outcomes. In addition to these general frameworks, each chapter contains analytics relevant specifically to the topic of that chapter.

Advanced analytics are often the domain of specialists in statistics, psychology, economics, and other disciplines. To augment their own analytical capability, HR organizations often draw upon experts in these fields, and upon internal analytical groups in areas such as marketing and consumer research. Although this can be very useful, it is our strong belief that familiarity with analytical principles is increasingly essential for all HR professionals and for those who aspire to use HR data well.

### **Process: Making Insights Motivating and Actionable**

The final element of the LAMP framework is process. Measurement affects decisions and behaviors, and those occur within a complex web of social structures, knowledge frameworks, and organizational cultural norms. Therefore, effective measurement systems must fit within a change-management process that reflects principles of learning and knowledge transfer. HR measures and the logic that supports them are part of an influence process.

The initial step in effective measurement is to get managers to accept that HR analysis is possible and informative. The way to make that happen is not necessarily to present the most sophisticated analysis. The best approach may be to present relatively simple measures and analyses that match the mental models that managers already use. Calculating turnover costs

can reveal millions of dollars that can be saved with turnover reductions, as discussed in Chapter 4. Several leaders outside of HR have told us that a turnover-cost analysis was the first time they realized that talent and organization decisions had tangible effects on the economic and accounting processes they were familiar with.

Of course, measuring only the cost of turnover is insufficient for good decision making. For example, overzealous attempts to cut turnover costs can compromise candidate quality in ways that far outweigh the cost savings. Managers can reduce the number of candidates who must be interviewed by lowering their selection standards. The lower the standards, the more candidates will “pass” the interview, so fewer interviews must be conducted to fill a certain number of vacancies. Lowering standards can create problems that far outweigh the cost savings from doing fewer interviews! Still, the process element of the LAMP framework reminds us that often best way to start a change process may be first to assess turnover costs, to create initial awareness that the same analytical logic used for financial, technological, and marketing investments can apply to human resources. Then the door is open to more sophisticated analyses beyond the costs. Once leaders buy into the idea that human capital decisions have tangible monetary effects, they may be more receptive to greater sophistication, such as considering employee turnover in the same framework as inventory turnover.

Education is also a core element of any change process. The return on investment (ROI) formula from finance is actually a potent tool for educating leaders in the key components of financial decisions. It helps leaders quickly incorporate risk, return, and cost in a simple logical model. In the same way, we believe that HR measurements increasingly will be used to educate

constituents and will become embedded within the organization's learning and knowledge frameworks. For example, Valero Energy tracked the performance of both internal and external sources of applicants on factors such as cost, time, quality, efficiency, and dependability. It provided this information to hiring managers and used it to establish an agreement about what managers were willing to invest to receive a certain level of service from internal or external recruiters. Hiring managers learned about the tradeoffs between investments in recruiting and its performance.<sup>10</sup> We will return to this idea in [Chapters 8, 9, and 10](#).

In the chapters that follow, we suggest where the HR measures we describe can connect to existing organizational frameworks and systems that offer the opportunity to get attention and to enhance decisions. For example, organizational budgeting systems reflect escalating health-care costs. The cost measures discussed in [Chapter 5](#), offer added insight and precision for such discussions. By embedding these basic ideas and measures into the existing health-care cost discussion, HR leaders can gain the needed credibility to extend the discussion to include the logical connections between employee health and other outcomes, such as learning, performance, and profits. What began as a budget exercise becomes a more nuanced discussion about the optimal investments in employee health and how those investments pay off.

As another example, leaders routinely assess performance and set goals for their subordinates. Measuring the value of enhanced performance can make those decisions more precise, focusing investments on the pivot points where performance makes the biggest difference. [Chapter 9](#) describes methods and logic for measuring the monetary impact of improved performance.

You will see the LAMP framework emerge in many of the chapters in this book, to help you organize not only the measures, but also your approach to making those measures matter.

## **CONCLUSION**

HR measures must improve important decisions about talent and how it is organized. This chapter has shown how this simple premise leads to a very different approach to HR measurement than is typically followed today, and how it produces several decision-science-based frameworks to help guide HR measurement activities toward greater strategic impact. We have introduced not only the general principle that decision-based measurement is vital to strategic impact, but also the LAMP framework, as a useful logical system for understanding how measurements drive decisions, organization effectiveness, and strategic success. LAMP also provides a diagnostic framework that can be used to examine existing measurement systems for their potential to create these results. We return to the LAMP framework frequently in this book.

We also return frequently to the ideas of measuring efficiency, effectiveness, and impact, the three anchor points of the talentship decision framework of Boudreau and Ramstad. Throughout the book, you will see the power and effectiveness of measures in each of these areas, but also the importance of avoiding becoming fixated on any one of them. As in the well-developed disciplines of finance and marketing, it is important to focus on synergy between the different elements of the measurement and decision frameworks, not to fixate exclusively on any single component of them.

We show how to think of your HR measurement systems as teaching rather than telling. We also describe the



opportunities you will have to take discussions that might normally be driven exclusively by accounting logic and HR cost cutting, and elevate them with more complete frameworks that are better grounded in the science behind human behavior at work. The challenge will be to embed those frameworks in the key decision processes that already exist in organizations.

## **SOFTWARE TO ACCOMPANY CHAPTERS 3–11**

To enhance the accuracy of calculations for the exercises that appear at the end of each chapter and make them easier to use, we have developed web-based software to accompany material in Chapters 3–11. The software covers the following topics:

- Employee absenteeism
- Turnover
- Health and welfare
- Attitudes and engagement
- Work-life issues
- External employee sourcing
- The economic value of job performance
- Payoffs from selection
- Payoffs from training (HR development)

Developed with support from the Society for Human Resource Management (SHRM), you can access this software from the SHRM website (<http://hrcosting.com/hr/>) anywhere in the world, regardless of whether you are a member of SHRM. Of particular note to multinational enterprises, the

calculations can be performed using any currency, and currency conversions are accomplished easily. You can save, print, or download your calculations and carry forward all existing data to subsequent sessions. Our hope is that, by reducing the effort necessary to perform the actual calculation of measures, readers will spend more time focusing on the logic, analytics, and processes necessary to improve strategic decisions about talent.

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## **2. Analytical Foundations of HR Measurement**

The preceding chapter noted the importance of analytics within a broader frame work for a decision-based approach to human capital measurement. As you will see in the chapters that follow, each type of HR measurement has its own particular elements of analytics, those features of data analysis and design that ensure that the findings are legitimate and generalizable. However, it's also true that nearly every element of human resource management (HRM) relies on one or more supporting analytical concepts. These concepts are often the elements that scientists have identified as essential to drawing strong conclusions, or they reflect the tenets of economic analysis that ensure that the inferences that we draw from measures properly account for important economic factors such as inflation and risk.

As you read through the various chapters of this book, each of which focuses on a different aspect of HR measurement, you will repeatedly encounter many of these analytical concepts. In the interests of efficiency, we present some of the most common ones here so that you can refer back to this chapter as often as necessary to find a single location for their description and definition. They have in common general guidelines for interpreting data-based information. We present them in two broad groups: concepts in statistics and research design, and concepts in economics and finance. Within each category, we address issues in rough order from general to specific. Let's begin by considering why measures expressed in economic terms tend to get the attention of business leaders.

## **TRADITIONAL VERSUS CONTEMPORARY HR MEASURES**

HRM activities—those associated with the attraction, selection, retention, development, and utilization of people in organizations—commonly are evaluated by using measures of individual behaviors, traits, or reactions, or by using statistical summaries of those measures. The former include measures of the reactions of various groups (top management, customers, applicants, or trainees), what individuals have learned, or how their behavior has changed on the job. Statistical summaries of individual measures include various ratios (for example, accident frequency or severity), percentages (for example, labor turnover), measures of central tendency and variability (for example, mean and standard deviation of performance measures, such as bank-teller shortages and surpluses), and measures of correlation (for example, validity coefficients for staffing programs, or measures of association between employee satisfaction and turnover).

Measuring individual behaviors, traits, or reactions and summarizing them statistically is the hallmark of most HR measurements, which are often largely drawn from psychology. More and more, however, the need to evaluate HRM activities in economic terms is becoming apparent. In the current climate of intense competition to attract and retain talent domestically and globally, operating executives justifiably demand estimates of the expected costs and benefits of HR programs, expressed in economic terms. They demand measures that are strategically relevant to their organizations and that rely on a defined logic to enhance decisions that affect important organizational outcomes. Reporting employee turnover levels for every position in an organization may seem to business leaders to be an administrative exercise for the HR department. However, they can often readily

see the importance of analyzing and understanding the business and economic consequences of turnover among high performers (“A” players) who are difficult to replace, in a business unit that is pivotal to strategic success (for example, R&D in a pharmaceutical organization). Developing such measures certainly requires attention to calculating turnover appropriately and to the statistical formulas that summarize it. However, it also requires an interdisciplinary approach that includes information from accounting, finance, economics, and behavioral science. Measures developed in this way can help senior executives assess the extent to which HR programs are consistent with and contribute to the strategic direction of an organization.

#### **Four Levels of Sophistication in HR Analytics**

HR analytics is fact-based decision making. In the sections that follow, we describe four levels of sophistication used by Google’s People Analytics Group: counting, clever counting, insight, and influence.<sup>1</sup> Each higher level requires mastery of the lower levels.

**1 Counting:** All relevant data about the workforce are tracked, organized, and accessible. Getting this basic step right can be difficult. HR technology solutions—both off the shelf and internally built—can be clunky. The challenges of continually updating the database and ensuring that all end users, from line managers to HR generalists, are getting the data they need are unceasing. Google’s current solution is a hybrid external vendor/internal customization model. It allows users to display headcount, attrition, promotion, and other data through customizable dashboards that have the ability to filter the data and display it according to hierarchy, employee location, and cost center, for example.

**2 Clever counting:** Extrapolating from descriptive data yields new insights. For example, consider workforce planning. Using basic data on promotions, attrition, headcount by level, and anticipated organizational growth rate makes it possible to project the “shape” of your organization (the percentage of employees at each level) at the end of a year, at the end of two years, or after three-plus years. With the proper formulas in place, users can input anticipated future attrition/promotion and organizational growth rates to model different scenarios. By assigning salaries to employees at each level, one can see the financial impact of having an organizational shape that looks like a typical pyramid (with fewer employees at each level as one moves up the organization) or a more uniform distribution across levels, which would occur if the organization is not hiring but employees continue to receive promotions.

**3 Insight:** What drivers of the trends do you find through clever counting? The preceding example of modeling organizational shape is most useful if we can understand what’s driving each component of the model. For example, we may find that the organization’s projected shape in five years is top heavy. Why? Close investigation might show that promotion rates are too high, combined with attrition that is higher at lower levels than it is at higher levels. This process of inquiry provides the insight needed to understand the results of more sophisticated analyses.

**4 Influence:** The results of counting, clever counting, and insight can help make a difference. At this level, the relevant question is, how can we shape outcomes rather than just measure them? Insight from the organizational shape models described can lead to change if you partner with the right people in your organization. The overall objective is to ensure that managers have a shared understanding of the goals (for example, sustaining a

pyramidal organizational structure) and the levers they can pull to achieve those goals. For example, if analysis shows that the current or projected future shape of the organization is top heavy, the levers include these:

- Decrease yearly promotion rates
- Launch attrition-prevention programs if insight has revealed that highest-performing employees are most likely to terminate
- Backfill vacant positions at lower levels

The four steps to analytical sophistication do not apply only to workforce planning. Instead, they apply to any data collection and analysis activity, such as employee opinion surveys, employee selection research, or employee diversity analyses. Your goal should always be to get to the last step: influence.

Next, we describe some fundamental concepts from statistics and research design that help ensure that the kind of data gathered, and the calculations used to summarize the data, are best suited to the questions the data should answer. They are general interpretive concepts.



## **FUNDAMENTAL ANALYTICAL CONCEPTS FROM STATISTICS AND RESEARCH DESIGN**

We make no attempt here to present basic statistical or research methods. Many excellent textbooks do that much more effectively than we can in the space available. Instead, we assume that the reader is generally familiar with these issues; our purpose here is to offer guidelines for interpretation and to point out some important cautions in those interpretations. In the following sections, we address three key concepts: generalizations from sample data, correlation and causality, and experimental controls for extraneous factors.

### **Generalizing from Sample Data**

As a general rule, organizational research is based on samples rather than on populations of observations. A population consists of all the people (or, more broadly, units) about whom or which a study is meant to generalize, such as employees with fewer than two years of experience, customers who patronize a particular store, or trucks in a company's fleet. A sample represents a subset of people (or units) who actually participate in a study. In almost all cases, it is not practical or feasible to study an entire population. Instead, researchers draw samples.

If we are to draw reliable (that is, stable and consistent) and valid (that is, accurate) conclusions concerning the population, it is imperative that the sample be "like" the population—a representative sample. When the sample is like the population, we can be fairly confident that the results we find based on the sample also hold for the population. In other words, we can generalize from the sample to the population.<sup>2</sup>

One way to generate a representative sample is to use random sampling. A random sample is achieved when,

through random selection, each member of a population is equally likely to be chosen as part of the sample. A table of random numbers, found in many statistics textbooks, can be used to generate a random sample. Here is how to use such a table. Choose any starting place arbitrarily. Look at the number—say, 004. Assuming that you have a list of names, such as applicants, count down the list to the fourth name. Choose it. Then look at the next number in the table, count down through the population, and choose that person, until you have obtained the total number of observations you need.

Sometimes a population is made up of members of different groups or categories, such as males and females, or purchasers of a product and nonpurchasers. Assume that, among 500 new hires in a given year, 60 percent are female. If we want to draw conclusions about the population of all new hires in a given year, based on our sample, the sample itself must be representative of these important subgroups (or strata) within the population. If the population is composed of 60 percent females and 40 percent males, we need to ensure that the sample is similar on this dimension.

One way to obtain such a sample is to use stratified random sampling. Doing so allows us to take into account the different subgroups of people in the population and helps guarantee that the sample represents the population on specific characteristics. Begin by dividing the population into subsamples or strata. In our example, the strata are based on gender. Then randomly select 60 percent of the sample observations from this stratum (for example, using the procedure described earlier) and the remaining 40 percent from the other stratum (males). Doing so ensures that the characteristic of gender in the sample represents the population.<sup>3</sup>

Many other types of sampling procedures might be used,<sup>4</sup> but the important point is that it is not possible to generalize reliably and validly from a sample to a population unless the sample itself is representative. Unfortunately, much research that is done in HR and management is based on case studies, samples of convenience, and even anecdotal evidence. Under those circumstances, it is not possible to generalize to a broader population of interest, and it is important to be skeptical of studies that try to do so.

### **Drawing Conclusions about Correlation and Causality**

Perhaps one of the most pervasive human tendencies is to assume incorrectly that just because two things increase and decrease together, one must cause the other. The degree of relationship between any two variables (in the employment context, predictor and criterion) is simply the extent to which they vary together (covary) in a systematic fashion. The magnitude or degree to which they are related linearly is indicated by some measure of correlation, the most popular of which is the Pearson product-moment correlation coefficient,  $r$ . As a measure of relationship,  $r$  varies between  $-1.00$  and  $+1.00$ . When  $r$  is  $1.00$ , the two sets of scores ( $x$  and  $y$ ) are related perfectly and systematically to each other. Knowing a person's status on variable  $x$  allows us to predict without error his or her standing on variable  $y$ .

In the case of an  $r$  of  $+1.00$ , high (low) predictor scores are matched perfectly by high (low) criterion scores. For example, performance review scores may relate perfectly to recommendations for salary increases. When  $r$  is  $-1.00$ , however, the relationship is inverse, and high (low) predictor scores are accompanied by low (high) criterion scores. For example, consider that as driving speed increases, fuel efficiency decreases. In both cases, positive and negative relationships,  $r$  indicates the extent

to which the two sets of scores are ordered similarly. Given the complexity of variables operating in business settings, correlations of 1.00 exist only in theory. If no relationship exists between the two variables,  $r$  is 0.0, and knowing a person's standing on  $x$  tells us nothing about his or her standing on  $y$ . If  $r$  is moderate (positive or negative), we can predict  $y$  from  $x$  with a certain degree of accuracy.

Although correlation is a useful procedure for assessing the degree of relationship between two variables, by itself it does not allow us to predict one set of scores (criterion scores) from another set of scores (predictor scores). The statistical technique by which this is accomplished is known as regression analysis, and correlation is fundamental to its implementation.<sup>5</sup>

Sometimes people interpret a correlation coefficient as the percentage of variability in  $y$  that can be explained by  $x$ . This is not correct. Actually, the square of  $r$  indicates the percentage of variance in  $y$  (the criterion) that can be explained, or accounted for, given knowledge of  $x$  (the predictor). Assuming a correlation of  $r = .40$ , then  $r^2 = .16$ . This indicates that 16 percent of the variance in the criterion may be determined (or explained), given knowledge of the predictor. The statistic  $r^2$  is known as the coefficient of determination.

A special problem with correlational research is that it is often misinterpreted. People often assume that because two variables are correlated, some sort of causal relationship must exist between the two variables. This is false. *Correlation does not imply causation!* A correlation simply means that the two variables are related in some way. For example, consider the following scenario. An HR researcher observes a correlation between voluntary employee turnover and the financial performance of a firm (for example, as measured by

return on assets) of  $-.20$ . Does this mean that high voluntary turnover causes poor financial performance of a firm? Perhaps. However, it is equally likely that the poor financial performance of a firm causes voluntary turnover, as some employees scramble to desert a sinking ship. In fact, such a reciprocal relationship between employee turnover and firm performance has now been demonstrated empirically.<sup>6</sup>

At a broader level, it is equally plausible that some other variable (for example, low unemployment) is causing employees to quit, or that a combination of variables (low unemployment in country A at the same time as a global economic recession) is causing high voluntary turnover in that country and low overall financial performance in a firm that derives much of its income from other countries. The point is that observing a correlation between two variables just means they are related to each other; it does not mean that one causes the other.

In fact, there are three necessary conditions to support a conclusion that  $x$  causes  $y$ .<sup>7</sup> The first is that  $y$  did not occur until after  $x$ . The second requirement is that  $x$  and  $y$  are actually shown to be related. The third (and most difficult) requirement is that other explanations of the relationship between  $x$  and  $y$  can be eliminated as plausible rival hypotheses.

Statistical methods alone generally cannot establish that one variable caused another. One technique that comes close, however, is structural equation modeling (SEM), sometimes referred to as LISREL (the name of one of the more popular software packages). SEM is a family of statistical models that seeks to explain the relationships among multiple variables. It examines the structure of interrelationships, expressed in a series of equations, similar to a series of multiple regression equations.

These equations depict all of the relationships among constructs (the dependent and independent variables) involved in the analysis.

Although different methods can be used to test SEM models, all such models share three characteristics:

1. Estimation of multiple and interrelated dependence relationships
2. An ability to represent unobserved concepts in these relationships and to correct for measurement error in the estimation process
3. Defining a model to explain the entire set of relationships<sup>8</sup>

SEM alone cannot establish causality. What it does provide are statistical results of the hypothesized relationships in the researcher's model. The researcher can then infer from the results what alternative models are most consistent with theory. The most convincing claims of causal relationships, however, usually are based on experimental research.

### **Eliminating Alternative Explanations Through Experiments and Quasi-Experiments**

The experimental method is a research method that allows a researcher to establish a cause-and-effect relationship through manipulation of one or more variables and to control the situation. An experimental design is a plan, an outline for conceptualizing the relations among the variables of a research study. It also implies how to control the research situation and how to analyze the data.<sup>9</sup>

For example, researchers can collect “before” measures on a job—before employees attend training—and collect “after” measures at the conclusion of training (and when

employees are back on the job at some time after training). Researchers use experimental designs so that they can make causal inferences. That is, by ruling out alternative plausible explanations for observed changes in the outcome of interest, we want to be able to say that training caused the changes. Many preconditions must be met for a study to be experimental in nature. Here we merely outline the minimum requirements needed for an experiment.

The basic assumption is that a researcher controls as many factors as possible to establish a cause-and-effect relationship among the variables being studied. Suppose, for example, that a firm wants to know whether online training is superior to classroom training. To conduct an experiment, researchers manipulate one variable (known as the independent variable—in this case, type of training) and observe its effect on an outcome of interest (a dependent variable—for example, test scores at the conclusion of training). One group will receive classroom training, one group online training, and a third group no training. The last group is known as a “control” group because its purpose is to serve as a baseline from which to compare the performance of the other two groups. The groups that receive training are known as “experimental” or “treatment” groups because they each receive some treatment or level of the independent variable. That is, they each receive the same number of hours of training, either online or classroom. At the conclusion of the training, we will give a standardized test to the members of the control and experimental groups and compare the results. Scores on the test are the dependent variable in this study.

Earlier we said that experimentation involves control. This means that we have to control who is in the study. We want to have a sample that is representative of the broader population of actual and potential trainees. We

want to control who is in each group (for example, by assigning participants randomly to one of the three conditions: online, classroom, or no training). We also want to have some control over what participants do while in the study (design of the training to ensure that the online and classroom versions cover identical concepts and materials). If we observe changes in post-training test scores across conditions, and all other factors are held constant (to the extent it is possible to do this), we can conclude that the independent variable (type of training) caused changes in the dependent variable (test scores derived after training is concluded). If, after completing this study with the proper controls, we find that those in one group (online, classroom, or no training) clearly outperform the others, we have evidence to support a cause-and-effect relationship among the variables.

Many factors can serve as threats to valid inferences, such as outside events, experience on the job, or social desirability effects in the research situation.<sup>10</sup>

Is it appropriate to accept wholeheartedly a conclusion from only one study? In most cases, the answer is no. This is because researchers may think they have controlled everything that might affect observed outcomes, but perhaps they missed something that does affect the results. That something else may have been the actual cause of the observed changes! A more basic reason for not trusting completely the results of a single study is that a single study cannot tell us everything about a theory.<sup>11</sup> Science is not static, and theories generated through science change. For that reason, there are methods, called meta-analysis, that mathematically combine the findings from many studies to determine whether the patterns across studies support certain conclusions. The power of combining multiple studies



provides more reliable conclusions, and this is occurring in many areas of behavioral science.<sup>12</sup>

Researchers approaching organizational issues often believe that conducting a carefully controlled experiment is the ultimate answer to discovering the important answers in data. In fact, there is an important limitation of experiments and the data they provide. Often they fail to focus on the real goals of an organization. For example, experimental results may indicate that job performance after treatment A is superior to performance after treatments B or C. The really important question, however, may not be whether treatment A is more effective, but rather what levels of performance we can expect from almost all trainees at an acceptable cost, and the extent to which improved performance through training “fits” the broader strategic thrust of an organization.<sup>13</sup> Therefore, even well-designed experiments must carefully consider the context and logic of the situation, to ask the right questions in the first place.

### **Quasi-Experimental Designs**

In field settings, major obstacles often interfere with conducting true experiments. True experiments require the manipulation of at least one independent variable, the random assignment of participants to groups, and the random assignment of treatments to groups.<sup>14</sup> However, some less complete (that is, quasi-experimental) designs still can provide useful data even though a true experiment is not possible. Shadish, Cook, and Campbell offer a number of quasi-experimental designs with the following rationale:<sup>15</sup>

The central purpose of an experiment is to eliminate alternative hypotheses that also might explain results. If a quasi-experimental design can help eliminate some of these rival hypotheses, it may be worth the effort.

Because full experimental control is lacking in quasi-experiments, it is important to know which specific variables are uncontrolled in a particular design. Investigators should, of course, design the very best experiment possible, given their circumstances; where “full” control is not possible, however, they should use the most rigorous design that is possible. For example, suppose you were interested in studying the relationship between layoffs and the subsequent financial performance of firms. Pfeffer recently commented on this very issue:

It’s difficult to study the causal effect of layoffs—you can’t do double-blind, placebo-controlled studies as you can for drugs by randomly assigning some companies to shed workers and others not, with people unaware of what “treatment” they are receiving. Companies that downsize are undoubtedly different in many ways (the quality of their management, for one) from those that don’t. But you can attempt to control for differences in industry, size, financial condition, and past performance, and then look at a large number of studies to see if they reach the same conclusion.<sup>16</sup>

As a detailed example, consider one type of quasi-experimental design.<sup>17</sup>

This design, which is particularly appropriate for cyclical training programs, is known as the recurrent institutional cycle design. For example, a large sales organization presented a management development program, known as the State Manager Program, every two months to small groups (12–15) of middle managers (state managers). The one-week program focused on all aspects of retail sales (new product development, production, distribution, marketing, merchandising, and so on). The program was scheduled so that all state

managers (approximately 110) could be trained over an 18-month period.

This is precisely the type of situation for which the recurrent institutional cycle design is appropriate—a large number of persons will be trained, but not all at the same time. Different cohorts are involved. This design is actually a combination of two (or more) before-and-after studies that occur at different points in time. Group I receives a pretest at Time 1, then training, and then a post-test at Time 2. At the same chronological time (Time 2), Group II receives a pretest, training, and then a post-test at Time 3. At Time 2, therefore, an experimental and a control group have, in effect, been created. One can obtain even more information (and with quasi-experimental designs, it is always wise to collect as much data as possible or to demonstrate the effect of training in several different ways) if it is possible to measure Group I again at Time 3 and to give Group II a pretest at Time 1. This controls the effects of history. Moreover, Time 3 data for Groups I and II and the post-tests for all groups trained subsequently provide information on how the training program is interacting with other organizational events to produce changes in the criterion measure.

Several cross-sectional comparisons are possible with the “cycle” design:

Group I post-test scores at Time 2 can be compared with Group II post-test scores at Time 2.

Gains made in training for Group I (Time 2 post-test scores) can be compared with gains in training for Group II (Time 3 post-test scores).

Group II post-test scores at Time 3 can be compared with Group I post-test scores at Time 3 (that is, gains in

training versus gains [or no gains] during the no-training period).

To interpret this pattern of outcomes, all three contrasts should have adequate statistical power (that is, at least an 80 percent chance of finding an effect significant, if, in fact, the effect exists).<sup>18</sup> A chance elevation of Group II, for example, might lead to gross misinterpretations. Hence, use the design only with reliable measures and large samples.<sup>19</sup>

This design controls history and test-retest effects, but not differences in selection. One way to control for possible differences in selection, however, is to split one of the groups (assuming it is large enough) into two equivalent samples, one measured both before and after training and the other measured only after training, as shown in Table 2-1.

	Time 2	Time 3	Time 4
Group II <sub>a</sub>	Measure	Train	Measure
Group II <sub>b</sub>		Train	Measure

**Table 2-1. Example of an Institutional Cycle Design**

Comparison of post-test scores in two carefully equated groups (Groups IIa and IIb) is more precise than a similar comparison of post-test scores from two unequated groups (Groups I and II).

A final deficiency in the “cycle” design is the lack of adequate control for the effects of maturation. This is not a serious limitation if the training program is teaching specialized skills or competencies, but it is a plausible rival hypothesis when the objective of the training program is to change attitudes. Changes in attitudes conceivably could be the result of maturational processes such as changes in job and life experiences or growing

older. To control for this effect, give a comparable group of managers (whose age and job experience coincide with those of one of the trained groups at the time of testing) a “post-test-only” measure. To infer that training had a positive effect, post-test scores of the trained groups should be significantly greater than those of the untrained group receiving the “post-test-only” measure.

Campbell and Stanley aptly expressed the logic of all this patching and adding:<sup>20</sup>

One starts out with an inadequate design and then adds specific features to control for one or another of the recurrent sources of invalidity. The result is often an inelegant accumulation of precautionary checks, which lacks the intrinsic symmetry of the “true” experimental designs, but nonetheless approaches experimentation.

Remember, a causal inference from any quasi-experiment must meet the basic requirements for all causal relationships: that cause must precede effect, that cause must covary with effect, and that alternative explanations for the causal relationship are implausible.<sup>21</sup> Patching and adding may help satisfy these requirements.

## **FUNDAMENTAL ANALYTICAL CONCEPTS FROM ECONOMICS AND FINANCE**

The analytical concepts previously discussed come largely from psychology and related individual-focused social sciences. However, the fields of economics and finance also provide useful general analytical concepts for measuring HRM programs and consequences. Here, the focus is often on properly acknowledging the implicit sacrifices implied in choices, the behavior of markets, and the nature of risk.

We consider concepts in the following seven areas:

- Fixed, variable, and opportunity costs/savings
- The time value of money
- The estimated value of employee time using total pay
- Cost-benefit and cost-effectiveness analyses
- Utility as a weighted sum of utility attributes
- Conjoint analysis
- Sensitivity and break-even analysis

### **Fixed, Variable, and Opportunity Costs/Savings**

We can distinguish fixed, variable, and opportunity costs, as well as reductions in those costs, which we call “savings.” Fixed costs or savings refer to those that remain constant, whose total does not change in proportion to the activity of interest. For example, if an organization is paying rent or mortgage interest on a training facility, the cost does not change with the volume of training activity. If all training is moved to online delivery and the training center is sold, the fixed savings equal the rent or interest that is now avoided.

Variable costs or savings are those that change in direct proportion to changes in some particular activity level.<sup>22</sup> The food and beverage cost of a training program is variable with regard to the number of training participants. If a less expensive food vendor replaces a more expensive one, the variable savings represent the difference between the costs of the more expensive and the less expensive vendors.

Finally, opportunity costs reflect the “opportunities foregone” that might have been realized had the resources allocated to the program been directed toward other organizational ends.<sup>23</sup> This is often conceived of as the sacrifice of the value of the next-best alternative use of the resources. For example, if we choose to have employees travel to a training program, the opportunity cost might be the value they would produce if they were back at their regular locations working on their regular jobs. Opportunity savings are the next-best uses of resources that we obtain if we alter the opportunity relationships. For example, if we provide employees with laptop computers or handheld devices that allow them to use e-mail to resolve issues at work while they are attending the offsite training program, the opportunity savings represent the difference between the value that would have been sacrificed without the devices and the reduced sacrifice with the devices.

### **The Time Value of Money: Compounding, Discounting, and Present Value<sup>24</sup>**

In general, the time value of money refers to the fact that a dollar in hand today is worth more than a dollar promised sometime in the future. That is because a dollar in hand today can be invested to earn interest. If you were to invest that dollar today at a given interest rate, it would grow over time from its present value (PV) to some future value (FV). The amount you would have depends, therefore, on how long you hold your investment and on the interest rate you earn. Let us consider a simple example.

If you invest \$100 and earn 10 percent on your money per year, you will have \$110 at the end of the first year. It is composed of your original principal, \$100, plus \$10 in interest that you earn. Hence, \$110 is the FV of \$100 invested for one year at 10 percent. In general, if you

invest for one period at an interest rate of  $r$ , your investment will grow to  $(1 + r)$  per dollar invested.

Suppose you decide to leave your \$100 investment alone for another year after the first? Assuming that the interest rate (10 percent) does not change, you will earn  $\$100 \times .10 = \$10$  in interest during the second year, so you will have a total of  $\$100 + \$10 = \$110$ . This \$110 has four parts. The first is the \$100 original principal. The second is the \$10 in interest you earned after the first year, and the third is another \$10 you earn in the second year, for a total of \$120. The last dollar you earn (the fourth part) is interest you earn in the second year on the interest paid in the first year ( $\$10 \times .10 = \$1$ ).

This process of leaving your money and any accumulated interest in an investment for more than one period, thereby reinvesting the interest, is called compounding, or earning interest on interest. We call the result compound interest. At a general level, the FV of \$1 invested for  $t$  periods at a rate of  $r$  per period is as follows:

**2-1.**

$$FV = \$1 \times (1 + r)^t$$

FVs depend critically on the assumed interest rate, especially for long-lived investments. Equation 2-1 is actually quite general and allows us to answer some other questions related to growth. For example, suppose your company currently has 10,000 employees. Senior management estimates that the number of employees will grow by 3 percent per year. How many employees will work for your company in five years? In this example, we begin with 10,000 people rather than dollars, and we don't think of the growth rate as an interest rate, but the calculation is exactly the same:

$$10,000 \times (1.03)^5 = 10,000 \times 1.1593 = 11,593 \text{ employees}$$



There will be about 1,593 net new hires over the coming five years.

### **Present Value and Discounting**

We just saw that the FV of \$1 invested for one year at 10 percent is \$1.10. Suppose we ask a slightly different question: How much do we have to invest today at 10 percent to get \$1 in one year? We know the FV is \$1, but what is its PV? Whatever we invest today will be 1.1 times bigger at the end of the year. Because we need \$1 at the end of the year:

$$PV \times 1.1 = \$1$$

Solving for the PV yields  $\$1/1.1 = \$0.909$ . This PV is the answer to the question, “What amount invested today will grow to \$1 in one year if the interest rate is 10 percent?” PV is therefore just the reverse of FV. Instead of compounding the money forward into the future, we discount it back to the present.

Now suppose that you set a goal to have \$1,000 in two years. If you can earn 7 percent each year, how much do you have to invest to have \$1,000 in two years? In other words, what is the PV of \$1,000 in two years if the relevant rate is 7 percent? To answer this question, let us express the problem as this:

$$\$1,000 = PV \times 1.07 \times 1.07$$

$$\$1,000 = PV \times (1.07)^2$$

$$\$1,000 = PV \times 1.1449$$

Solving for PV:

$$PV = \$1,000/1.1449 = \$873.44$$

At a more general level, the PV of \$1 to be received  $t$  periods into the future at a discount rate of  $r$  is as follows:

**2-2.**

$$PV = \$1 \times [1 / (1 + r)^t] = \$1 / (1 + r)^t$$

The quantity in brackets,  $1/(1 + r)^t$ , is used to discount a future cash flow. Hence, it is often called a discount factor. Likewise, the rate used in the calculation is often called the discount rate. Finally, calculating the PV of a future cash flow to determine its worth today is commonly called discounted cash flow (DCF) valuation. If we apply the DCF valuation to estimate the PV of future cash flows from an investment, it is possible to estimate the net present value (NPV) of that investment as the difference between the PV of the future cash flows and the cost of the investment. Indeed, the capital-budgeting process can be viewed as a search for investments with NPVs that are positive.<sup>25</sup>

When calculating the NPV of an investment project, we tend to assume not only that a company's cost of capital is known, but also that it remains constant over the life of a project. In practice, a company's cost of capital may be difficult to estimate, and the selection of an appropriate discount rate for use in investment appraisal is also far from straightforward. The cost of capital is also likely to change over the life of a project because it is influenced by the dynamic economic environment within which all business is conducted. If these changes can be forecast, however, the NPV method can accommodate them without difficulty.<sup>26</sup>

Now back to PV calculations. PVs decline as the length of time until payment grows. Look out far enough, and PVs will be close to zero. Also, for a given length of time, the higher the discount rate is, the lower the PV. In other

words, PVs and discount rates are inversely related. Increasing the discount rate decreases the PV, and vice versa.

If we let  $FV_t$  stand for the FV after  $t$  periods, the relationship between FV and PV can be written simply as one of the following:

**2-3.**

$$\begin{aligned}PV \times (1 + r)^t &= FV_t \\PV &= FV_t / (1 + r)^t = FV_t \times [1 / (1 + r)^t]\end{aligned}$$

The last result is called the basic PV equation. There are a number of variations of it, but this simple equation underlies many of the most important ideas in corporate finance.<sup>27</sup>

Sometimes one needs to determine what discount rate is implicit in an investment. We can do this by looking at the basic PV equation:

$$PV = FV_t / (1 + r)^t$$

There are only four parts to this equation: the present value (PV), the future value ( $FV_t$ ), the discount rate ( $r$ ), and the life of the investment ( $t$ ). Given any three of these, we can always find the fourth. Now let's shift gears and consider the value of employees' time.

## **Estimating the Value of Employee Time Using Total Pay**

Many calculations in HR measurement involve an assessment of the value of employees' time (for example, those involving exit interviews, attendance at training classes, managing problems caused by absenteeism, or the time taken to screen job applications). One way to account for that time, in financial terms, is in terms of total pay to the employee. The idea is to use the value of what employees earn as a proxy for the value of their time. This is very common, so we provide some guidelines here. However, at the end, we also caution that the assumption that total pay equals the value of employee time is not generally valid.

Should "total pay" include only the average annual salary of employees in a job class? In other words, what should be the valuation base? If it includes only salary, the resulting cost estimates will underestimate the full cost of employees' time, because it fails to include the cost of employee benefits and overhead. Overhead costs include such items as rent, energy costs, and equipment. More generally, overhead costs are those general expenses incurred during the normal course of operating a business. At times, these costs may be called general and administrative or payroll burden. They may be calculated as a percentage of actual payroll costs (salaries plus benefits).<sup>28</sup>

To provide a more realistic estimate of the cost of employee time, therefore, many recommend calculating it as the mean salary of the employees in question (for example, technical, sales, managerial) times a full labor-cost multiplier.<sup>29</sup> The full labor-cost multiplier incorporates benefits and overhead costs.

To illustrate, suppose that in estimating the costs of staff time to conduct exit interviews, we assume that an HR specialist is paid \$27 per hour, and that it takes 15 minutes to prepare and 45 minutes to conduct each interview, for a total of 1 hour of his or her time. If the HR specialist conducts 100 exit interviews in a year, the total cost of his or time is, therefore, \$2,700. However, after checking with the accounting and payroll departments, suppose we learn that the firm pays an additional 40 percent of salary in the form of employee benefits and that overhead costs add an additional 35 percent. The full labor-cost multiplier is, therefore, 1.75, and the cost per exit interview is  $\$27 \times 1.75 = \$47.25$ . Over a 1-year period and 100 exit interviews, the total cost of the HR specialist's time is, therefore, \$4,725—a difference of \$2,025 from the \$2,700 that included only salary costs.

Note that total pay, using whatever calculation, is generally not synonymous with the fixed, variable, or opportunity costs of employee time. It is a convenient proxy but must be used with great caution. In most situations, the costs of employee time (wages, benefits, overhead costs to maintain the employees' employment or productivity) simply don't change as a result of their allocation of time. They are paid no matter what they do, as long as it is a legitimate part of their jobs. If we require employees to spend an hour interviewing candidates, their total pay for the hour is no different than if we had not required that time. Moreover, they would still be paid even if they weren't conducting interviews. The more correct concept is the opportunity cost of the lost value that employees would have been creating if they had not been using their time for interviewing. That is obviously not necessarily equal to the cost of their wages, benefits, and overhead. That said, it is so difficult to estimate the opportunity cost of employees' time that it is very common for accounting processes just to

recommend multiplying the time by the value of total pay. The important thing to realize is the limits of such calculations, even if they provide a useful proxy.

### **Cost-Benefit and Cost-Effectiveness Analyses**

Cost-benefit analysis expresses both the benefits and the costs of a decision in monetary terms. One of the most popular forms of cost-benefit analysis is return on investment (ROI) analysis.

Traditionally associated with hard assets, ROI relates program profits to invested capital. It does so in terms of a ratio in which the numerator expresses some measure of profit related to a project, and the denominator represents the initial investment in a program. More specifically, ROI includes the following:<sup>30</sup>

1. The inflow of returns produced by an investment
2. The offsetting outflows of resources required to make the investment
3. How the inflows and outflows occur in each future time period
4. How much what occurs in future time periods should be “discounted” to reflect greater risk and price inflation

ROI has both advantages and disadvantages. Its major advantage is that it is simple and widely accepted. It blends in one number all the major ingredients of profitability, and it can be compared with other investment opportunities. On the other hand, it suffers from two major disadvantages. First, although the logic of ROI analysis appears straightforward, there is much subjectivity in the previous items 1, 3, and 4. Second, typical ROI calculations focus on one HR investment at a time and fail to consider how those investments work together as a portfolio. Training may produce value

beyond its cost, but would that value be even higher if it were combined with proper investments in individual incentives related to the training outcomes?<sup>31</sup>

Consider a simple example of the ROI calculation over a single time period. Suppose your company develops a battery of pre-employment assessments for customer service representatives that includes measures of aptitude, relevant personality characteristics, and emotional intelligence. Payments to outside consultants total \$100,000 during the first year of operation. The measured savings, relative to baseline measures in prior years, total \$30,000 in reduced absenteeism, \$55,000 in reduced payments for stress-related medical conditions, and \$70,000 in reduced turnover among customer service representatives. The total expected benefits are, therefore, \$155,000.

ROI = Total expected benefit/program investment

ROI = \$155,000 / \$100,000 = 55 percent

Cost-effectiveness analysis is similar to cost-benefit analysis, but whereas the costs are still measured in monetary terms, outcomes are measured in “natural” units other than money. Cost-effectiveness analysis identifies the cost of producing a unit of effect (for example, in a corporate-safety program, the cost per accident avoided). As an example, consider the results of a three-year study of the cost-effectiveness of three types of worksite health-promotion programs for reducing risk factors associated with cardiovascular disease (hypertension, obesity, cigarette smoking, and lack of regular physical exercise) at three manufacturing plants, compared to a fourth site that provided health-education classes only.<sup>32</sup>

The plants were similar in size and in the demographic characteristics of their employees. Plants were allocated

randomly to one of four worksite health-promotion models. Site A provided health education only. Site B provided a fitness facility; site C provided health education plus follow-up that included a menu of different intervention strategies; and site D provided health education, follow-up, and social organization of health promotion within the plant.

Over the three-year period of the study, the annual, direct cost per employee was \$17.68 for site A, \$39.28 for site B, \$30.96 for site C, and \$38.57 for site D (in 1992 dollars). The reduction in risks ranged from 32% at site B to 45% at site D for high-level reduction or relapse prevention, and from 36% (site B) to 51% (site D) for moderate reduction. These differences were statistically significant.

At site B, the greater amount of money spent on the fitness facility produced less risk reduction (–3%) than the comparison program (site A). The additional cost per employee per year (beyond those incurred at site A) for each percent of risks reduced or relapses prevented was –\$7.20 at site B (fitness facility), \$1.48 for site C (health education plus follow-up), and \$2.09 at site D (health education, follow-up, and social organization of health promotion at the plant). At sites C and D, the percent of effectiveness at reducing risks/preventing relapse was about 1.3% to 1.5% per dollar spent per employee per year, and the total cost for each percent of risk reduced or relapse prevented was less than \$1 per employee per year (66¢ and 76¢ at sites C and D, respectively).

In summary, both cost-benefit and cost-effectiveness analyses can be useful tools for evaluating benefits, relative to the costs of programs or investments. Whereas cost-benefit analysis expresses benefits in monetary terms and can accommodate multiple time periods and discount rates, cost-effectiveness analysis



expresses benefits in terms of the cost incurred to produce a given level of an effect. Cost-benefit analysis enables us to compare the absolute value of the returns from very different programs or decisions, because they are all calculated in the same units of money. Cost-effectiveness, on the other hand, makes such comparisons somewhat more difficult because the outcomes of the different decisions may be calculated in very different units. How do you decide between a program that promises a cost of \$1,000 per avoided accident versus a program that promises \$300 per unit increase of employee satisfaction? Cost-effectiveness can prove quite useful for comparing programs or decisions that all have the same outcome (for example, which accident-reduction program to choose).

It's a dilemma when one must decide among programs that produce very different outcomes (such as accident reduction versus employee satisfaction) and when all outcomes of programs cannot necessarily be expressed in monetary terms. However, many decisions require such comparisons. One answer is to calculate "utilities" (from the word *use*) that attempt to capture systematically the subjective value that decision makers place on different outcomes, when the outcomes are compared directly to each other.

### **Utility as a Weighted Sum of Utility Attributes**

Utility analysis is a tool for making decisions. It is the determination of institutional gain or loss anticipated from various courses of action, after taking into account both costs and benefits. For example, in the context of HRM, the decision might be which type of training to offer or which selection procedure to implement. When faced with a choice among alternative options, management should choose the option that maximizes the expected utility for the organization across all possible outcomes.<sup>33</sup>

In general, there are two types of decisions: those for which the outcomes of available options are known for sure (decisions under certainty), and those for which the outcomes are uncertain and occur with known or uncertain probabilities (decisions under uncertainty). Most theories about judgment and decision-making processes have focused on decisions under uncertainty, because they are more common.<sup>34</sup>

One such theory is subjective expected utility theory, and it holds that choices are derived from only two parameters:

- The subjective value, or utility, of an option's outcomes
- The estimated probability of the outcomes

By multiplying the utilities with the associated probabilities and summing over all consequences, it is possible to calculate an expected utility. The option with the highest expected utility is then chosen.

A rational model of decision making that has been used as a guide to study actual decision behavior and as a prescription to help individuals make better decisions is known as multi-attribute utility theory (MAUT). MAUT is a type of subjective expected utility theory that has been particularly influential in attempts to improve individual and organizational decision making. Here is a brief conceptual overview of how it works.

Using MAUT, decision makers carefully analyze each decision option (alternative program or course of action under consideration) for its important attributes (things that matter to decision makers). For example, one might characterize a job in terms of attributes such as salary, chances for promotion, and location. Decision weights are assigned to attributes according to their importance to decision makers. Each available option is then

assessed according to a utility scale for its expected value on all attributes. After multiplying the utility-scale values by the decision weights and summing the products, the option with the highest value is selected.<sup>35</sup> Total utility values for each option are therefore computed by means of a payoff function, which specifies how the attribute levels are to be combined into an overall utility value.

To illustrate, suppose that a new MBA receives two job offers. She decides that the three most important characteristics of these jobs that will influence her decision are salary, chances for promotion, and location. She assigns the following weights to each: salary (.35), chances for promotion (.40), and location (.25). Using a 1–5 utility scale of the expected value of each job offer on each attribute, where 1 = low expected value and 5 = high expected value, suppose she assigns ratings to the two job offers as shown in Table 2-2.

	Salary	Promotion	Location	Payoff (Weight × Value)
Weight	.35	.40	.25	
Job A values	3	4	2	3.15
Job B values	4	3	4	3.60

**Table 2-2. Multi-Attribute Utility Table Showing Job Attributes and Their Weights, the Values Assigned to Each Attribute, and the Payoff Associated with Each Alternative Decision**

Based on this calculation of multi-attribute utility, the new MBA should accept job B because it maximizes her expected utility across all possible outcomes. MAUT models can encompass a variety of decision options, numerous and diverse sets of attributes reflecting many different constituents, and very complex payoff functions, but they generally share the characteristics shown in the simple example in the preceding table.<sup>36</sup>

## Conjoint Analysis

Conjoint analysis (CA) is another technique that researchers in a variety of fields use to study judgment and decision making.<sup>37</sup> Its purpose is to identify the hidden rules that people use to make tradeoffs between different products or services, and the values they place on different features. Consider choices among employee benefits, for example. If a company understands precisely how employees make decisions and what they value in the various benefits offered, then it becomes possible to identify the optimum level of benefits that balance value to employees against cost to the company.

CA researchers generally present decision tasks to respondents, who provide their preferences for products or concepts with different attributes (for example, expected product reliability or color) and different levels of those attributes (for example, high/medium/low or red/blue/green, respectively). Ratings or rankings then serve as the dependent variable and attribute levels serve as independent variables in the general equation:

**2-4.**

$$Y = \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \epsilon$$

Here,  $\beta$  represents the relative importance of an attribute and  $n$  equals the number of attributes. Note how Equation 2-4 resembles an analysis of variance or standard regression equation. Indeed, in its simplest form, CA is similar to an ANOVA, where attribute levels are dummy or contrast coded.<sup>38</sup> Like other multivariate methods used to investigate dependence relationships, CA derives a linear function of attribute levels that minimizes error between actual and estimated values. Researchers can use several software packages (such as SAS or Sawtooth) to estimate this function.

Whereas many multivariate methods require all independent variables to have the same (for example, linear) relationship with the dependent variable, CA allows each one to have a different relationship (for example, linear, quadratic, or stepwise), thereby making it extremely flexible when investigating complex decision-making issues.<sup>39</sup>

We noted earlier that CA researchers specify levels for each attribute (that is, independent variable) and then present respondents with scenarios having attributes with different combinations of these levels. Because levels are known, researchers need only to collect respondent ratings to use as the dependent variable. In so doing, they can estimate or “decompose” the importance that respondents assign to each attribute. Hence, researchers can learn how important different attributes are to respondents by forcing them to make tradeoffs in real time.<sup>40</sup>

### **Sensitivity and Break-Even Analysis**

Both of these techniques are attempts to deal with the fact that utility values are estimates made under uncertainty. Hence, actual utility values may vary from estimated values, and it is helpful to decision makers to be able to estimate the effects of such variability. One way to do that is through sensitivity analysis.

In sensitivity analysis, each of the utility parameters is varied from its low value to its high value while holding other parameter values constant. One then examines the utility estimates that result from each combination of parameter values to determine which parameter’s variability has the greatest effect on the estimate of overall utility.

In the context of evaluating HR programs, sensitivity analyses almost always indicate that utility parameters that reflect changes in the quality of employees caused by improved selection, as well as increases in the number (quantity) of employees affected, have substantial effects on resulting utility values.<sup>41</sup> Utility parameters that reflect changes in the quality of employees include improvements in the validity of the selection procedure, the average score on the predictor, and dollar-based increases in the variability of performance.

Although sensitivity analyses are valuable in assessing the effects of changes in individual parameters, they provide no information about the effects of simultaneous changes in more than one utility parameter. Break-even analysis overcomes that difficulty.

Instead of estimating the level of expected utility, suppose that decision makers focus instead on the break-even value that is critical to making a decision. In other words, what is the smallest value of any given parameter that will generate a positive utility (payoff)? For example, suppose we know that a training program conducted for 500 participants raises technical knowledge by 10 percent or more for 90 percent of the participants. Everyone agrees that the value of the 10 percent increase is greater than \$1,000 per trainee. The total gain is, therefore, at least  $(500 \times .90 = 450 \times \$1,000)$  \$450,000. Assuming that the cost of the training program is \$600 per trainee, the total cost is therefore \$300,000  $(500 \times \$600)$ . Researchers and managers could spend lots of time debating the actual economic value of the increase in knowledge, but, in fact, it does not matter because even the minimum agreed-upon value (\$1,000) is enough to recoup the costs of the program. More precisely, when the costs of a program are matched exactly by equivalent benefits—no more, no less—the

program “breaks even.” This is the origin of the term *break-even analysis*.<sup>42</sup>

The major advantages of break-even analysis suggest a mechanism for concisely summarizing the potential impact of uncertainty in one or more utility parameters.<sup>43</sup> It shifts emphasis away from estimating a utility value toward making a decision using imperfect information. It pinpoints areas where controversy is important to decision making (that is, where there is doubt about whether the break-even value is exceeded), versus where controversy has little impact (because there is little risk of observing utility values below break-even). In summary, break-even analysis provides a simple expedient that allows utility models to assist in decision making even when some utility parameters are unknown or are uncertain.

## **CONCLUSION**

As noted at the outset, the purpose of this chapter is to present some general analytical concepts that we will revisit throughout this book. The issues that we discussed comprised two broad areas:

- Some fundamental analytical concepts from statistics and research design
- Some fundamental analytical concepts from economics and finance

In the first category, we considered the following concepts: cautions in generalizing from sample data, correlation and causality, and experiments and quasi-experiments. In the second category, we considered some economic and financial concepts in seven broad areas: fixed, variable, and opportunity costs/savings; the time value of money; estimates of the value of employee time using total pay; cost-benefit and cost-effectiveness

analyses; utility as a weighted sum of utility attributes; conjoint analysis; and sensitivity and break-even analysis. All of these concepts are important to HR measurement, and understanding them will help you to develop reliable, valid metrics. It will be up to you, of course, to determine whether those metrics fit the strategic direction of your organization.

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### **3. The Hidden Costs of Absenteeism**

Call centers (whether in one physical location or a remote configuration of workers from home) are finely tuned operations whose economic outcomes often depend on very precise optimization of staff levels against anticipated call volume.<sup>1</sup> Other similar operations include retail stores and restaurants. When an employee is unexpectedly absent in a call center, it may mean that calls are missed, that other workers must adjust and will do their jobs less effectively, or that a buffer of extra workers must be employed or kept on call to offset the effects of absence. What is it worth to reduce such absences? What costs can be avoided, and what is the likely effect of organizational investments designed to reduce the need or the motivation of employees to be absent?

A first reaction might be, “We should cut absences to zero, because employees should be expected to show up when they are scheduled.” However, as discussed in this chapter, the causes of absence are highly varied, so cutting absence requires a logical approach to understanding why it happens. In fact, an increasing number of jobs have no absenteeism, because they have no real work schedule! They are project based and thus are accountable only for the ultimate results of their work. In such jobs, employees can work whatever schedule they want, as long as they produce the needed results on time. For many jobs, however, adhering to the work schedule is an important contribution to successful operations.

Sometimes it is cost-effective just to tolerate the absence level and allow work to be missed or employees to adjust.

In other situations, it is very cost-effective to invest in ways to reduce absence. It depends on the situation.

Particularly when employees are absent because they are taking unfair advantage of company policies (such as claiming more sick leave than is appropriate), it is tempting to conclude that such absence must be reduced even if it takes a significant investment. It seems “unfair” to tolerate it. Upon further reflection, however, it’s clear that absence is like any other risk factor in business. How we address it should be based on a logical and rational decision about costs and benefits. We need a logical understanding of the consequences of absence to make those decisions. We provide that logic in this chapter.

## **WHAT IS EMPLOYEE ABSENTEEISM?**

Let us begin our treatment by defining the term *absenteeism*. *Absenteeism* is any failure to report for or remain at work as scheduled, regardless of reason. The use of the words *as scheduled* is significant, for this automatically excludes vacation, personal leave, jury-duty leave, and the like. A great deal of confusion can be avoided simply by recognizing that if an employee is not on the job as scheduled, he or she is absent, regardless of cause. We focus here on unscheduled absence because it tends to be the most disruptive and costly of the situations when an employee is not at work. The employee is not available to perform his or her job as expected. This often means that the work is done less efficiently by another employee or is not done at all. Scheduled or authorized absences (such as vacations and holidays) are more predictable. This chapter describes in detail the potentially costly consequences of absence.

Although the definition of *absenteeism* might leave little room for interpretation, the concept itself is undergoing a profound change, largely as a result of the time-flexible

work that characterizes more and more jobs in our economy. A hallmark of such work is that workers are measured not by the time they spend, but by the results they achieve. Consider, for example, the job of a computer programmer whose sole job is to write or evaluate computer code. The programmer is judged by whether the program runs efficiently and whether it does what it is supposed to do reliably. It doesn't matter when the programmer works (9 to 5 or midnight to dawn) or where the programmer works (at the office or at home).

If the work schedule doesn't matter and workers operate virtually, does the concept of absenteeism still have meaning? In the U. S., the number of people who work from remote locations at least once a month rose 39 percent from 2006 to 2008, to an estimated 17.2 million.<sup>2</sup> If workers never "report" for work, and if they are allowed to vary their work time, and are accountable only in terms of results, the concept of absenteeism ceases to be relevant. Many teleworkers fit this category. Many others do not, however, for they are expected to be available during a core time to participate in activities such as chats with coworkers or the boss, conference calls, or webcasts.

In short, absenteeism may still be a relevant concept in a world of telework. Measurement must evolve from traditional absence, where people are colocated, to the concept of being present in a virtual world. If a teleworker is surfing the web during a conference call, is he or she "absent"?

In fact, many of the effects of traditional absenteeism are still relevant, even if traditional accounting systems would not capture them. Before attempting to assess the costs of employee absenteeism, therefore, it is important to identify where absenteeism is a relevant concept.

Of course, absenteeism remains relevant for the millions of workers who are scheduled to report to a central location, such as a factory, an office, a retail store, or a call center. In fact, as noted earlier, even those who can work from home in a call center, such as Jet Blue's airline reservations agents, have to be at home and on the phone at certain times to make the scheduling work. More broadly, the growing importance of location-specific or time-specific customer service operations, such as the millions of employees who are engaged in repairs (of cars, appliances, or plumbing systems) or delivery (of pizzas, newspapers, or mail), makes employee absence a very real and potent issue for many organizations.

At the outset, let us be clear about what this chapter is and is not. It is not a detailed literature review of the causes of absenteeism, such as local unemployment, the characteristics of jobs,<sup>3</sup> gender, age, depression, smoking, heavy drinking, drug abuse, or lack of exercise.<sup>4</sup> Nor is it a thorough treatment of the noneconomic consequences of absenteeism, such as the effects on the individual absentee, coworkers, managers, the organization, the union, or the family. Instead, the primary focus in this chapter is on the economic consequences of absenteeism and on methods for managing absenteeism and sick-leave abuse in work settings where those concepts remain relevant and meaningful.



## **THE LOGIC OF ABSENTEEISM: HOW ABSENTEEISM CREATES COSTS**

The logic of absenteeism begins by identifying its causes and consequences. To provide some perspective on the issue, we begin our next section by citing some overall direct costs and data that show the incidence of employee absenteeism in the United States and Europe. Then we focus more specifically on causes and consequences, and we present a high-level logic diagram that may serve as a “mental map” for decision makers to help them understand the logic of employee absenteeism.

### **Direct Costs and the Incidence of Employee Absenteeism**

How much does unscheduled employee absenteeism cost? According to a 2008 Mercer survey of 465 companies, if one excludes planned absences (vacations, holidays), the total direct and indirect costs consume 9 percent of payroll.<sup>5</sup> Direct costs include actual benefits paid to employees (such as sick leave and short- and long-term disability), while indirect costs reflect reduced productivity (delays, reduced morale of coworkers, and lower productivity of replacement employees).

Thus, a 1,000-employee company that averages \$50,000 in salary per employee would have an annual payroll of \$50 million. Nine percent of that is \$4.5 million, or about \$4,500 per employee when direct and indirect costs are both considered.

In the United Kingdom, 2008 absences were also costly, as the following figures demonstrate:<sup>6</sup>

- Across all companies, £13.2 billion (\$19.8 billion) was paid out to staff who were absent and to other employees to cover for absent staff.

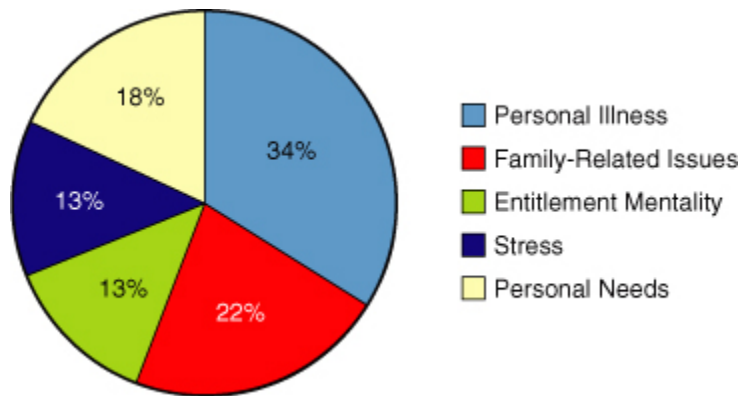
- The average cost of sickness was £517 per employee (\$775).
- Each worker took an average of 6.7 days in sickness each year.
- Figures for average days off were higher in the public sector (9) than in the private sector (5.8).
- The total days lost due to absenteeism each year in the United Kingdom are 172 million, of which 21 million are thought to be nongenuine (used to extend weekends, holidays, or for special events such as birthdays and football games). These cost employers an additional £1.6 billion (\$2.4 billion).

In 2009, the average employee in the United States missed 1.7 percent of scheduled work time, or an average of 3.3 unscheduled absences per year.<sup>7</sup>

### **Causes**

In the United Kingdom, the reasons given for absence are widespread but generally fall into one of three categories: illness, time off to deal with home and family responsibilities, and medical appointments.<sup>8</sup>

In the United States, the leading cause of absenteeism is personal illness (35 percent), while 65 percent of absences are due to other reasons.<sup>9</sup> In the private sector, however, fully 40 percent of employees do not receive sick pay.<sup>10</sup> Figure 3-1 details the five most common causes cited by employees for being absent.



Source of data: "2007 CCH Unscheduled Absence Survey," *Human Resources Management Ideas & Trends* 664 (October 10, 2007).

**Figure 3-1. Why are workers absent?**

### **Consequences**

The decision to invest in reducing absence requires that one consider the payoff. What consequences of absence will be avoided? We've noted that absence occurs only in jobs where employees are required to be at work, or available to be contacted remotely, at specified times. So the consequences of absence directly relate to the fact that an employee is unavailable to work as scheduled. Absence is more "pivotal" (changes in absence affect economic and strategic success more) when the situation has these characteristics:

- Others have to perform the work of the absent employee.
- A process must be stopped because of the absence of an employee.
- Activities must occur at a certain time and are delayed or missed because an employee is absent.

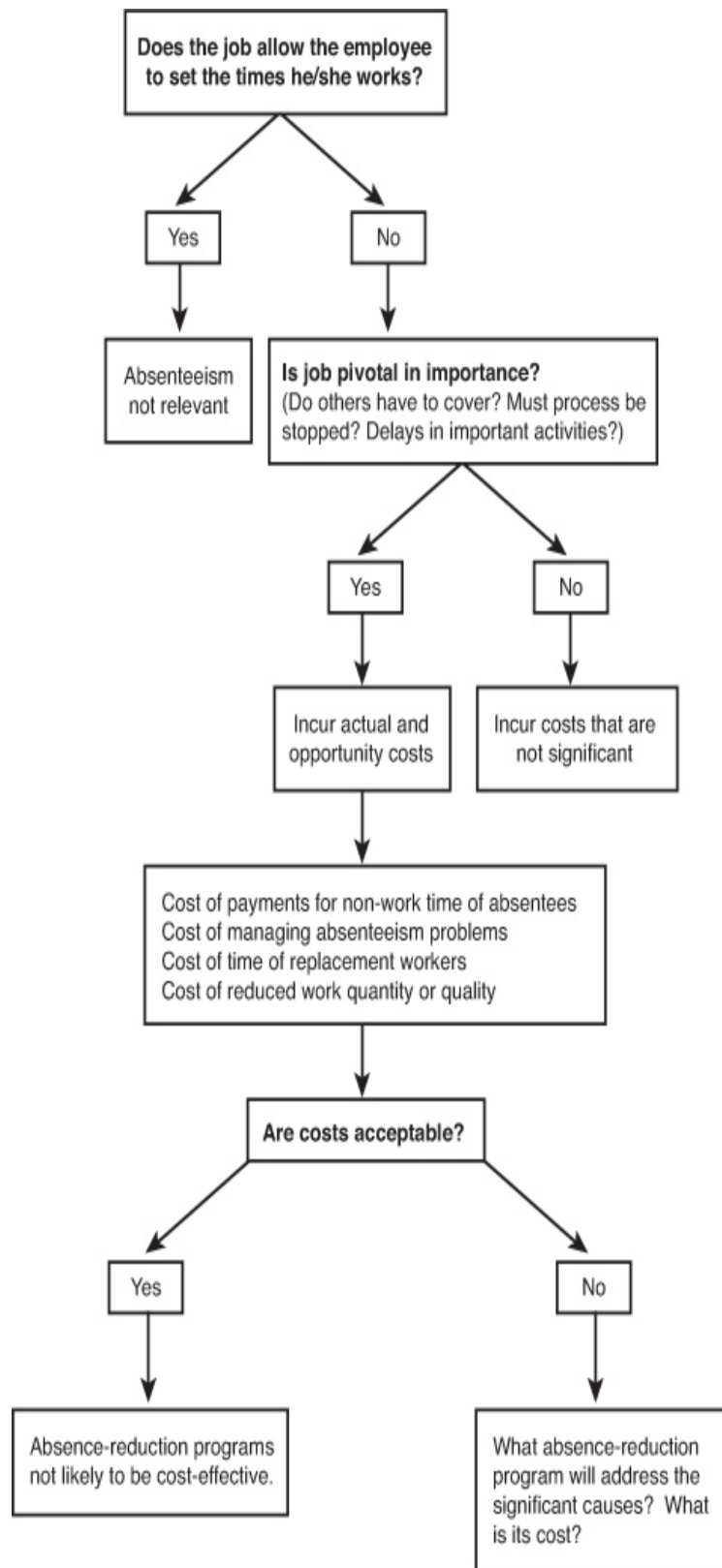
## Categories of Costs

At a general level, four categories of costs are associated with employee absenteeism. We elaborate on each of these categories more fully in the sections that follow. For the moment, let us describe these categories as follows:

- Costs associated with absentees themselves (employee benefits and, if they are paid, wages)
- Costs associated with managing absenteeism problems (costs associated with supervisors' time spent dealing with operational issues caused by the failure of one or more employees to come to work)
- The costs of substitute employees (for example, costs of overtime to other employees or costs of temporary help)
- The costs of reduced quantity or quality of work outputs (for example, costs of machine downtime, reduced productivity of replacement workers, increased scrap and reworks, poor customer service)

In computing these costs, especially the costs of managing absenteeism problems and revenues foregone, researchers commonly use the fully loaded cost of wages and benefits as a proxy for the value of employees' time. However, as we cautioned in [Chapter 2, "Analytical Foundations of HR Measurement,"](#) although this is very common, keep in mind that it is only an approximation; the assumption that total pay equals the value of employee time is not generally valid.

[Figure 3-2](#) presents an illustration of the ideas we have examined thus far.



**Figure 3-2. The logic of employee absenteeism:  
how absenteeism creates costs.**

## **ANALYTICS AND MEASURES FOR EMPLOYEE ABSENTEEISM**

In the context of absenteeism, *analytics* refers to formulas (for instance, those for absence rate, total pay, and supervisory time) and to comparisons to industry averages and adjustments for seasonality. Analytics also includes various methodologies used to identify the causes of absenteeism and to estimate variation in absenteeism across different segments of employees or situations. Such methodologies might comprise surveys, interviews with employees and supervisors, and regression analyses.

Measures, on the other hand, focus on specific numbers (for example, finding employee pay and benefit numbers, time sampling to determine the lost time associated with managing absenteeism problems, using the pay and benefits of supervisors as a proxy for the value of their time). Keep these important distinctions in mind as you work through the approach to costing employee absenteeism that is presented next, even though we offer both measures and analytics together here because they are so closely intertwined.

### **Estimating the Cost of Employee Absenteeism**

At the outset, it is important to note an important irony: Even in organizations or business units where the concept of absence is relevant, the incidence and, therefore, cost of employee absenteeism is likely to vary considerably across departments or business units. It is considerably higher in organizations or units with low morale, as opposed to those with high morale.<sup>11</sup> It also varies across times of the year. With respect to seasonal variations in absenteeism rates, for example, surveys by the Bureau of National Affairs (BNA) in the United States have shown over many years that the incidence of employee absenteeism is generally higher in the winter months than it is in the summer months.<sup>12</sup> The costs of absenteeism are therefore likely to covary with seasonal trends, yet it is paradoxical that such costs are typically reported only as averages.

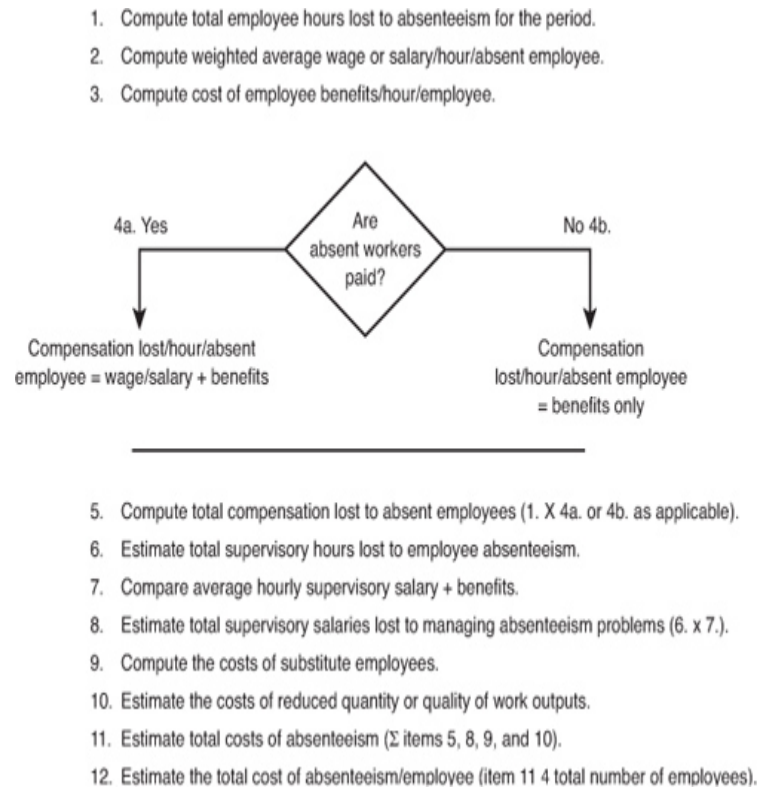
With respect to the cost of employee absenteeism, the following procedure estimates that cost for a one-year period, although the procedure can be used just as easily to estimate these costs over shorter or longer periods as necessary.<sup>13</sup>

Much of the information required should not be too time-consuming to gather if an organization regularly computes labor-cost data and traditional absence statistics. For example, absenteeism rate is generally based on workdays or work hours, as follows:

Absenteeism rate = [Absence days / Average work force size] × working days, or

Absenteeism rate = [Hours missed / Average work force size] × working hours

In either case, getting the right data involves discussions with both staff and management representatives. Figure 3-3 shows the overall approach.



**Figure 3-3. Overall approach to computing employee absenteeism.**

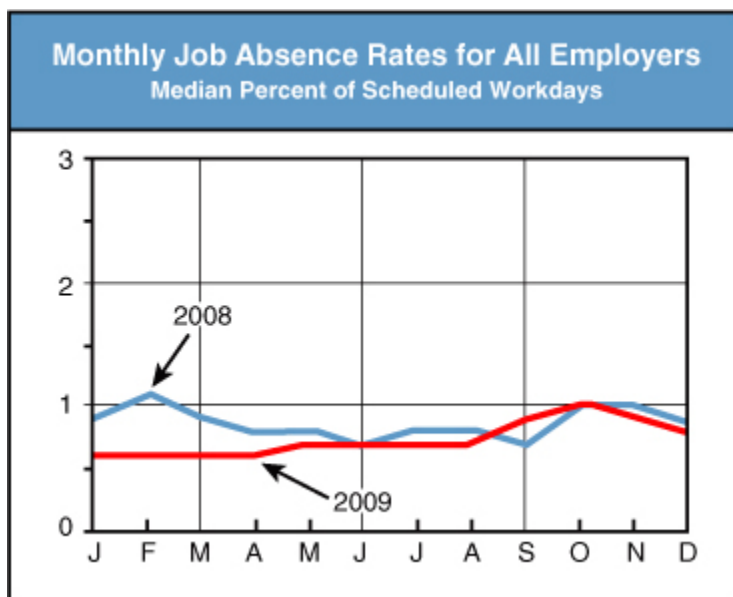
To illustrate this approach, we provide examples to accompany each step. The examples use the hypothetical firm Presto Electric, a medium-sized manufacturer of electrical components employing 3,000 people.



#### Step 1: Total Hours Lost to Absence

Determine the organization's total employee-hours lost to absenteeism for the period for all employees—blue collar, clerical, and management and professional—for whom the concept of absenteeism is relevant and for those whose jobs are pivotal to the overall success of the organization. Include both whole-day and part-day absences, and time lost for all reasons except organizationally sanctioned time off, such as vacations, holidays, or official “bad weather” days. For example, absences for the following reasons should be included: illness, accidents, funerals, emergencies, and doctor appointments (whether excused or unexcused).

As a basis for comparisons, [Figure 3-4](#) illustrates monthly job absence rates as reported by the BNA. Note the higher absence rates in the fourth quarter, as opposed to the previous three, at least for 2009. Keep in mind also that these data reflect absence patterns during the Great Recession and may not be typical of other time periods.



Source: BNA's job absence and turnover report, 4th quarter 2009.  
Reproduced with permission from the Bureau of National Affairs, *Human*

**Figure 3-4. Typical monthly job absence rates.**

In our example, assume that Presto Electric's employee records show 88,200 total employee-hours lost to absenteeism for all reasons except vacations and holidays during the last year. This figure represents an absence rate of 1.5 percent of scheduled work time, about average in nonrecessionary times. Begin by distinguishing hours scheduled from hours paid. Most firms pay for 2,080 hours per year per employee (40 hours per week  $\times$  52 weeks). However, employees generally receive paid vacations and holidays, too, time for which they are not scheduled to be at work. If we assume two weeks vacation time per employee (40 hours  $\times$  2), plus 5 holidays (40 hours), annual hours of scheduled work time per employee are  $2,080 - 80 - 40 = 1,960$ .

The total scheduled work time for Presto Electric's 3,000 employees is therefore  $3,000 \times 1,960 = 5,880,000$ . Given a 1.5 percent rate of annual absenteeism, total scheduled work hours lost annually to employee absenteeism are 88,200.

**Step 2: Compensation for Absent Employees' Time**

If your organization uses computerized absence reporting, then simply compute the average hourly wage/salary paid to absent employees. If not, compute the weighted average hourly wage/salary for the various occupational groups that claimed absenteeism during the period. If absent workers are not paid, skip this step and go directly to step 3.

For Presto Electric, assume that about 60 percent of all absentees are blue collar, 30 percent are clerical, and 10 percent are management and professional. For purposes of illustration, we will also assume that all employees are

paid for sick days taken under the organization's employee-benefits program. Estimate the average hourly wage rate per absentee by applying the appropriate percentages to the average hourly wage rate for each major occupational group. Table 3-1 does just that.

Occupational Group	Average Percent of Total Absenteeism	Average Hourly Wage	Weighted Average Hourly Wage
Blue collar	0.60	\$26.20	\$15.72
Clerical	0.30	18.90	5.67
Management and professional	0.10	42.30	4.24
Total			\$25.63

**Table 3-1. Determining the Average Hourly Wage Rate per Absentee**

**Step 3: Benefits for Absent Employees' Time**

Estimate the cost of employee benefits per hour per employee. The cost of employee benefits (profit sharing, pensions, health and life insurance, paid vacations and holidays, and so on) currently accounts for about 39 percent of total compensation.<sup>14</sup> One procedure for computing the cost of employee benefits per hour per employee is to divide the total cost of benefits per employee per week by the number of hours worked per week.

First, compute Presto's weekly cost of benefits per employee. Assume that the average annual salary per employee is \$25.63 per hour  $\times$  2,080 (hours paid for per year), or \$53,310.40. Let us further assume the following:

Average annual salary  $\times$  39 percent = Average cost of benefits per employee per year

$$\$53,310.40 \times 0.39 = \$20,791.06$$

Average cost of benefits per year per employee / 52 weeks per year = Average weekly cost of benefits per employee

$$\$20,791.06 / 52 = \$399.83$$

Average weekly cost of benefits per employee / hours worked per week = Cost of benefits per hour per employee

$$\$399.83 / 40 = \$10.00 \text{ (rounded)}$$

**Step 4: Total Compensation for Absent Employees' Time**

Compute the total compensation lost per hour per absent employee. This figure is determined simply by adding the weighted average hourly wage / salary per employee (item 2 in Figure 3-3) to the cost of employee benefits per hour per employee (item 3 in Figure 3-3). Thus:

$$\$25.63 + \$10.00 = \$35.63$$

Of course, if absent workers are not paid, item 4 in Figure 3-3 is the same as item 3.

**Step 5: Total Compensation Cost for All Absent Employees**

Compute the total compensation lost to absent employees. Total compensation lost, aggregated over all employee-hours lost, is determined simply by multiplying item 1 by item 4.a or 4.b, whichever is applicable. In our example:

$$88,200 \times \$35.63 = \$3,142,566.00$$

#### **Step 6: Supervisory Time Spent on Absence Management**

Estimate the total number of supervisory hours lost to employee absenteeism for the period. Survey data indicates that supervisors who deal with absenteeism problems spend an average of 3.4 hours a week managing absences.<sup>15</sup> That is approximately 41 minutes per day ( $3.4 / 5$  days per week = 0.68 hours per day;  $0.68 \times 60$  minutes = 40.8 minutes per day). Management issues include addressing production problems, locating and instructing replacement employees, checking on the performance of replacements, and counseling and disciplining absentees.

Organizations that want to develop their own in-house estimates might begin by interviewing a representative sample of supervisors using a semi-structured interview format to help them refine their estimates. Areas to probe include the effects of typically high-absence days (Mondays, Fridays, days before and after holidays, days after payday). Although interviews are quite common, diary keeping may actually be more effective. Time sampling for diary-keeping purposes is particularly important, for, as we noted earlier, absenteeism may vary over time. These are by no means the only methods available, and others might also prove useful. Keep in mind that it is true of estimates in general that the more experience companies accumulate in making the estimates, the more accurate the estimates become.<sup>16</sup>

Methodologically, it is difficult to develop an accurate estimate of the amount of time per day that supervisors spend, on average, dealing with problems of absenteeism. That time is most likely not constant from day to day or from one month to the next. In fact, the time per day, on average, that supervisors spend managing absenteeism problems is likely to vary considerably across departments or business units.

Careful consideration of these issues when costing employee absenteeism will yield measurably more accurate results.

After you have estimated the average number of supervisory hours spent per day dealing with employee absenteeism problems, compute the total number of supervisory hours lost to the organization by multiplying three figures:

1. Estimated average number of hours lost per supervisor per day
2. Total number of supervisors who deal with problems of absenteeism
3. The number of working days for the period (including all shifts and weekend work)

In our example, assume that Presto Electric's data in these three areas is as follows:

1. Estimated number of supervisory hours lost per day: 0.68 hours
2. Total number of supervisors who deal with absence problems: 100
3. Total number of working days for the year: 245

Based on these data, the total number of supervisory hours lost to employee absenteeism is as follows:

$$0.68 \times 100 \times 245 = 16,660$$

#### Step 7: Pay Level for Supervisors

Compute the average hourly wage rate for supervisors, including benefits. Be sure to include only the salaries of supervisors who normally deal with problems of employee absenteeism. Typically, first-line supervisors in the production and clerical areas bear the brunt of absenteeism problems. Estimate Presto Electric's cost for this figure as follows:

Average hourly supervisory salary	\$31.79
Cost of benefits per hour (39 percent of hourly salary)	+ 12.40
Total compensation per hour per supervisor	\$44.19

#### Step 8: Total Supervisor Paid Time Spent on Absence

Compute total supervisory salaries lost to problems of managing absenteeism. This figure is derived simply by multiplying total supervisory hours lost on employee absenteeism (step 6) by the average hourly supervisory wage (step 7), as follows:

$$16,660 \times 44.19 = \$736,205.40$$

#### Step 9: Costs of Substitute Employees

If an organization chooses to replace workers who are absent, the key considerations are how many substitute employees it will hire and at what cost.

Sometimes the total cost is a combination of these two elements, as when some additional workers are hired to replace absentees (say, from an agency that supplies temporary workers) and other, regular workers are asked to work overtime to fill in for the absentees. Alternatively, a very large organization, such as an automobile-assembly plant, might actually retain a regular labor pool that it can draw on to fill in for absent workers. At Presto Electric, let's assume that the firm incurs total costs of \$385,000 per year for substitute employees.

#### **Step 10: Costs of Reduced Quantity or Quality of Work Outputs**

When fully productive, regularly scheduled employees are absent, chances are good either that their work is not done or, if it is, that there is a reduction in the quantity or quality of the work. The key considerations in this case are how much of a reduction there is in the quantity or quality of work and how much it costs. In terms of a reduction in productivity, survey data indicate that replacement workers are less productive and require the equivalent of 1.25 people to achieve the same amount of work as the absent employee.<sup>17</sup>

With respect to costs, they might include items such as the following:

- Machine downtime
- Increases in defects, scrap, and reworks
- Production losses

Consider an example. Suppose a small organization that is operating at full capacity has 100 salespeople in the field calling on accounts and soliciting orders every day. If the typical salesperson generates, on average, \$1,000 worth of orders per day, and 10 salespeople are absent on a given day, the business lost to the organization (revenue foregone) due to employee absenteeism on that single day is \$10,000.

The standard level of quality or quantity of work might also be compromised through the reduced productivity and performance of less experienced replacement workers, as when customers are served poorly by employees who are stretched trying to “cover” for their absent coworkers, and potential new business is lost as a result of operating “under capacity.”<sup>18</sup>



As in step 6, some of these estimates will be difficult because many of the components are not reported routinely in accounting or HR information systems. Initially, therefore, determination of the cost elements to be included in this category, plus estimates of their magnitude, should be based on discussions with a number of supervisors and managers. Over time, as the organization accumulates experience in costing absenteeism, it can make a more precise identification and computation of the costs to be included in this category. At Presto Electric, assume that productivity losses and inefficient materials usage as a result of absenteeism caused an estimated financial loss of \$400,000 for the year.

**Step 11: Total Absenteeism Costs**

Compute the total estimated cost of employee absenteeism. Having computed or estimated all the necessary cost items, we now can determine the total annual cost of employee absenteeism to Presto Electric. Just add the individual costs pertaining to wages and salaries, benefits, supervisory salaries, substitute employees, and the costs of reduced quantity and quality (items 5, 8, 9, and 10). As Table 3-2 demonstrates, this cost is more than \$4.5 million per year.

1. Total employee-hours lost to absenteeism for the period	88,200
2. Weighted average wage/salary per hour per absent employee	\$25.63
3. Cost of employee benefits per hour per absent employee	\$10.00
4. Total compensation lost per hour per absent employee a. If absent workers are paid (wage/salary plus benefits) b. If absent workers are not paid (benefits only)	\$35.63
5. Total compensation lost to absent employees (Total employee-hours lost $\times$ 4.a or 4.b, whichever applies)	\$3,142,566.00
6. Total supervisory hours lost on employee absenteeism	16,660
7. Average hourly supervisory wage, including benefits	\$44.19
8. Total supervisory salaries lost to managing problems of absenteeism (Hours lost $\times$ Average hourly supervisory wage; Item 6 $\times$ Item 7)	\$736,205.40
9. Costs of substitute employees	\$385,000.00
10. Costs of reduced quantity and quality of work	\$400,000.00
11. Total estimated cost of absenteeism (items 5, 8, 9, 10)	\$4,663,771.40
12. Total estimated cost of absenteeism per employee (Total estimated costs / Total number of employees)	\$1,554.59

**Table 3-2. Total Estimated Cost of Employee Absenteeism (Presto Electric)**

**Step 12: Total Costs per Employee per Year**

Compute the total estimated cost of absenteeism per employee per year. In some cases, this figure (derived by dividing the total estimated cost by the total number of employees) may be more meaningful than the total cost estimate because it is easier to grasp. In the case of our hypothetical firm, Presto Electric, this figure was \$1,554.59 per year for each of the 3,000 employees on the payroll.

### **Process: Interpreting Absenteeism Costs**

As noted in Chapter 2, the purpose of the process component of the logic, analytics, measurements, and process (LAMP) model is to make the insights gained as a result of costing employee absenteeism actionable. The first step in doing that is to interpret absenteeism costs in a meaningful manner. To do so, begin by evaluating them—at least initially—against some predetermined cost standard or financial measure of performance, such as an industry-wide average. This is basically the same rationale organizations use when conducting pay surveys to determine whether their salaries and benefits are competitive.

While the Bureau of National Affairs and the U. S. Bureau of Labor Statistics publish absence rates and lost worktime rates (hours absent as a percent of hours worked) by industry, information on the cost of absenteeism is not published as regularly as are pay surveys. Very little information is available to help determine whether the economic cost of employee absenteeism is a significant problem. The costs of absenteeism to individual organizations occasionally do appear in the literature, but these estimates are typically case studies of individual firms or survey data from a broad cross-section of firms and industries rather than survey data from specific industries.

Is it worth the effort to analyze the costs of absenteeism to the overall organization and, more specifically, to strategically critical business units or departments where the concept of absenteeism is relevant? The answer is yes, for at least two compelling reasons. First, such an analysis calls management's attention to the severity of the problem. Translating behavior into economic terms enables managers to grasp the burdens employee absenteeism imposes, particularly in strategically critical

business units that are suffering from severe absence problems. A six- or seven-figure cost is often the spark needed for management to make a concerted effort to combat the problem. Second, an analysis of the problem creates a baseline for evaluating the effectiveness of absence-control programs. Comparing the quarterly, semiannual, and annual costs of absenteeism across strategically critical business units or departments provides a measure of the success, or lack of success, of attempts to reduce the problem.

If we return to the logical elements of absence cost, we can consider the process you can use to relate those costs to ongoing budget and strategy issues in an organization:

- **Cost of payments for nonwork time of absentees:** At the outset, recognize that all lost time is connected. This includes absences due to injuries, accidents, short-term disabilities, and absences that are just a few days in duration. To connect absence to tangible process issues for business leaders, look for evidence that levels of paid time off are higher than standard, or benchmarks. Managers and other leaders often signal their interest in reducing the costs paid for nonwork time by noting that sick leave or unscheduled vacation days are higher than they expect. This is an opportunity to take the logic noted earlier and suggest how much sick leave or unscheduled vacation days might change if absence changed.

- **Cost of payments for time of those who manage absence:** The process signals here will be when supervisors note that they are spending a great deal of time on “nonproductive workforce-management” issues. Are statements like these common when supervisors are setting goals with their managers or during their own performance reviews? Do supervisors and managers often suggest that they could be more effective if they

spent less time managing around absent employees? What would they be doing if they did not have to manage employee absence? Answers to these questions allow you to connect absence reductions to tangible changes in supervisor behavior.

- **Cost of time of replacement workers:** Signals that this is an important cost element emerge when business units see their total labor costs or headcount levels higher than other similar units or benchmarks. Leaders may complain that they often don't have enough work for all of their employees, but that they must keep the extra employees around to fill in. From a process standpoint, you can use the logic we have described to engage in a discussion about just how much pay for lost time would be reduced if some of the extra employees could be deployed elsewhere or even removed from the workforce.

- **Cost of reduced work quantity or quality:** The signals here will likely not be found in headcount numbers or labor-cost numbers. Instead, the process for unearthing this evidence will require looking at the performance numbers for operations themselves. Managers and executives might note very specific connections between the fact that when a particular worker fails to be at work, specific things don't get done, customers don't get served, or teams have to operate with less than full contributions. When exempt employees have unplanned absences, the 2008 Mercer study on the costs of absenteeism revealed that they make up just 44 percent of their work.<sup>19</sup> You can consider these examples and use the logic presented earlier to determine how much of the problem is due to absence and how much investing in absence reduction might change them.

In the next section, we present a case study that moves beyond the calculation of absenteeism costs to illustrate

how awareness of those costs led a health-care clinic to address a critical operations issue.

### **CASE STUDY: FROM HIGH ABSENTEEISM COSTS TO AN ACTIONABLE STRATEGY**

A large, multispecialty health-care clinic was experiencing high absence rates among employees with direct patient-care responsibilities. In terms of costs, the absenteeism problem was impacting the satisfaction of patients with the care they received (and influencing their perceptions of quality). No wonder: Fully 25 percent of patient-care work went undone, and 67 percent of non-patient-care work went undone. Remaining workers suffered from burnout and strained relationships with their supervisors. Of course, employee absenteeism was only one of several possible causes of these problems. Focusing only on reducing absenteeism, per se, might not address important, underlying employee-relations issues.

With the help of a consultant, the clinic sought to identify the root causes of employee absenteeism for the segment of the workforce that had direct patient-care responsibilities. It found that a majority of the absentees were parents who had young children. In many cases, those parents were unable to find emergency or sick-child care, and this caused last-minute staffing shortages due to unscheduled absences. Moreover, the Family Medical and Leave Act permits employees to use their own sick time to care for ill children (and requires employers to grant employees up to 12 weeks of unpaid annual leave).<sup>20</sup>

Based on this information, management of the clinic made the decision to provide sick-child care and backup child-care facilities both for patients when using the clinic and for employees to use in emergencies. Doing so

yielded payoffs in attraction and in retention of members of this critical segment of the clinic's workforce. One year later, the unscheduled absence rate for employees using the backup child-care facility was 70 percent less than that of employees who were eligible but did not use the facility.<sup>21</sup>

This finding was certainly good news in terms of the overall employee absence rate, but it suggests the need for further diagnostic information to uncover reasons why employees who were eligible to use the sick-child and backup child-care facilities chose not to do so. That is the nature of HR research: Addressing one problem (in this case, excessive employee absenteeism) helps to identify additional ones that require management attention.

## **OTHER WAYS TO REDUCE ABSENCE**

In the final part of this chapter, we present two other approaches to managing absenteeism and sick-leave abuse that may prove useful, depending on the diagnosis of root causes. These include positive incentives and paid time-off policies. We hasten to add, however, that organization-wide absenteeism-control methods (for example, rewards for good attendance, progressive discipline for absenteeism, daily attendance records) may be somewhat successful, but they might not be effective in dealing with specific individuals or work groups that have excessively high absenteeism rates. Special methods (such as flexible work schedules, job redesign, and improved safety measures) may be necessary for them. Careful analysis of detailed absenteeism-research data can facilitate the identification of these problems and suggest possible remedies.<sup>22</sup>

### **Controlling Absenteeism Through Positive Incentives**

This approach focuses exclusively on rewards—that is, it provides incentives for employees to come to work. This “positive-incentive absence-control program” was evaluated over a five-year period: one year before and one year after a three-year incentive program.<sup>23</sup>

A 3,000-employee nonprofit hospital provided the setting for the study. The experimental group contained 164 employees who received the positive-incentive program, and the control group contained 136 employees who did not receive the program. According to the terms of the hospital’s sick leave program, employees could take up to 96 hours—12 days per year—with pay. Under the positive-incentive program, employees could convert up to 24 hours of unused sick leave into additional pay or vacation. To determine the amount of incentive, the number of hours absent was subtracted from 24. For example, 24 minus 8 hours absent equals 16 hours of additional pay or vacation. The hospital informed eligible employees both verbally and in writing.

During the year before the installation of the positive-incentive program, absence levels for the experimental and control groups did not differ significantly. During the three years in which the program was operative, the experimental group consistently was absent less frequently, and this difference persisted during the year following the termination of the incentives. The following variables were not related to absence: age, marital status, education, job grade, tenure, and number of hours absent two or three years previously. Two variables were related to absence, although not as strongly as the incentive program itself: gender (women were absent more than men, a trend that appears even in the most recent data on absenteeism by gender<sup>24</sup>) and number of hours absent during the previous year.



Had the incentive program been expanded to include all 3,000 hospital employees, net savings were estimated at \$112,000 (in 2010 dollars). This is an underestimate, however, because indirect costs were not included. Indirect costs include such things as the following:

- Overtime pay
- Increased supervisory time for managing absenteeism problems
- Costs of replacement workers
- Intentional overstaffing to compensate for anticipated absences

*Cautions:* A positive-incentive program may have no effect on employees who view sick leave as an earned “right” that should be used whether one is sick or not. Moreover, encouraging attendance when a person has a legitimate reason for being absent—for example, hospital employees with contagious illnesses—may be dysfunctional.

In and of itself, absence may simply represent one of many possible symptoms of job dissatisfaction. Attendance incentives may result in “symptom substitution,” whereby declining absence is accompanied by increased tardiness and idling, decreased productivity, and even turnover. If this is the case, an organization needs to consider more comprehensive interventions that are based, for example, on the results of multiple research methods such as employee focus groups, targeted attitude surveys, and thorough analysis and discussion of the implications of the findings from these methods.

Despite the potential limitations, the study warranted the following conclusions (all monetary figures are

expressed in 2010 dollars):

- Absenteeism declined an average of 11.5 hours per employee (32 percent) during the incentive period.
- Net costs to the organization (direct costs only) are based on wage costs of \$29.35 per hour (composed of \$22.58 in direct wages plus 30 percent more in benefits).
- Savings were \$55,362 per year (11.5 hours × Average hourly wage [\$29.35] × 164 employees).
- Direct costs to the hospital included 2,194 bonus hours, at an average hourly wage of \$22.58 per hour = \$49,540.
- Net savings were therefore \$5,822 per year, for an 11.75 percent return on investment (\$5,822 / \$49,540).

#### **Paid Time Off (PTO)**

This approach to controlling absenteeism and the abuse of sick leave is based on the concept of consolidated annual leave. Sick days, vacation time, and holidays are consolidated into one “bank” to be drawn out at the employee’s discretion. The number of paid time off (PTO) days that employees receive varies across employers. For example, at Pinnacol Assurance, employees receive 20 days of PTO at the start of employment, 25 after five years, and 30 after nine years.<sup>25</sup>

Employees manage their own sick and vacation time and are free to take a day off without having to offer an explanation. If an employee uses up all of this time before the end of the year and needs a day off, that time is unpaid. What about unused sick time? “Buy-back programs” allow employees to convert unused time to vacation or to accrue time and be paid for a portion of it.

Employers that have instituted this kind of policy feel that it is a “win-win” situation for employees and managers. It eliminates the need for employees to lie (that is, abuse sick leave), and it takes managers out of the role of enforcers. Employees typically view sick leave days as a right—that is, “use them or lose them.” PTO policies provide an incentive to employees not to take off unnecessary time, because excessive absence is still cause for dismissal. PTO is certainly a popular benefit. According to the Society for Human Resource Management’s 2009 employee benefits report, 42 percent of respondents said their employers had such a plan. Employers rate them as the most effective of all absence-control programs.<sup>26</sup>

### **Summary Comments on Absence-Control Policies**

A comprehensive review of research findings in this area revealed that absence-control systems can neutralize some forms of absence behavior and catalyze others.<sup>27</sup> Although the positive-incentive program described earlier was effective in reducing absenteeism over a three-year period, one study showed that absence-control policies could actually encourage absence.<sup>28</sup> In the firm studied, employees had to accumulate 90 days of unused sick leave before they could take advantage of paid sick leave (for one- to two-day absences). The policy suppressed absences only until employees reached the paid threshold, at which time they took sick leave ferociously.

Other studies have shown that punishments, or stricter enforcement of penalties for one type of absence, tend to instigate other forms of missing work.<sup>29</sup> This is not to suggest, however, that absence-control policies should be lenient. Unionized settings, where sick-leave policies are typically more generous, are clearly prone to higher absenteeism.<sup>30</sup> Such policies convey a relaxed norm about absenteeism, and research evidence clearly

indicates that those norms can promote absence taking.<sup>31</sup>

### **Applying the Tools to Low Productivity Due to Illness: “Presenteeism”**

Slack productivity from ailing workers is sometimes called presenteeism.<sup>32</sup> Like absenteeism, presenteeism is a form of withdrawal behavior. It often results from employees showing up but working at subpar levels due to chronic ailments,<sup>33</sup> and it is more sensitive to working-time arrangements than absenteeism is. Permanent full-time work, mismatches between desired and actual working hours, shift work, and overlong working weeks increase presenteeism, holding other worker characteristics constant.<sup>34</sup> Major reasons for presenteeism include a sense of obligation to coworkers, too much work, and impending deadlines.<sup>35</sup>

This is not a new category of costs, but rather an illustration of our fourth cost category: the costs of reduced quantity or quality of work. In a recent study, for example, researchers analyzed more than 1.1 million medical and pharmacy claims along with detailed responses from the Health and Work Performance Questionnaire in a multiyear study. It included ten corporations that employed more than 150,000 workers.<sup>36</sup> The study found that, on average, every \$1 of medical and pharmacy costs is matched to \$2.30 of health-related productivity costs—and that figure is much greater for some conditions. When health-related productivity costs are measured along with medical and pharmacy costs, the top chronic health conditions driving these overall health costs are depression, obesity, arthritis, back or neck pain, and anxiety.

Surprisingly, presenteeism may actually be a much costlier problem than its productivity-reducing counterpart, absenteeism. Unlike absenteeism, however, presenteeism isn't always apparent. Absenteeism is obvious when someone does not show up for work, but presenteeism is far less obvious when illness or a medical condition is hindering someone's work. Researchers are just beginning to address presenteeism and to estimate its economic effects.

- **Logic:** Research on presenteeism focuses on chronic or episodic ailments such as seasonal allergies, asthma, migraines, back pain, arthritis, gastrointestinal disorders, and depression.<sup>37</sup> Progressive diseases, such as heart disease and cancer, tend to occur later and life and generate the majority of direct health-related costs for companies. In contrast, the illnesses people take with them to work account for far lower direct costs, but they imply a greater loss in productivity because they are so prevalent, so often go untreated, and typically occur during peak working years. Those indirect costs have largely been invisible to employers.<sup>38</sup>

- **Analytics:** To be sure, methodological problems plague current research in this area. Different research methods have yielded quite different estimates of the on-the-job productivity loss—from less than 20 percent of a company's total health-related costs to more than 60 percent.<sup>39</sup> Beyond that, how does one quantify the relative effects of individual ailments on productivity for workers who suffer from more than one problem? The effects of such interactions have not been addressed. Nor has the effect on team performance been studied in cases when one member has a chronic health condition that precludes him or her from contributing fully to the team's mission.

- **Measures:** A key question to address is the link between self-reported presenteeism and actual productivity loss. Some of the strongest evidence of such a link comes from several studies involving credit card call center employees at Bank One, which is now part of J. P. Morgan Chase.<sup>40</sup>

There are a number of objective measures of a service representative's productivity, including the amount of time spent on each call, the amount of time between calls (when the employee is doing paperwork), and the amount of time the person is logged off the system. The study focused on employees with known illnesses (identified from earlier disability claims) and lower productivity scores. One such study, a good example of analytics in action, involved 630 service representatives at a Bank One call center in Illinois. Allergy-related presenteeism was measured with such objective data as the amount of time workers spent on each call. During the peak ragweed pollen season, the allergy sufferers' productivity fell 7 percent below that of coworkers without allergies. Outside of allergy season, the productivity of the two groups was approximately equal.

- **Process:** The next step, of course, is to use this information to work with decision makers to identify where investments to reduce the costs of presenteeism offer the greatest opportunities to advance organizational objectives. One way to improve productivity is by educating workers about the nature of the conditions that afflict them and about appropriate medications to treat those conditions. Companies such as Comerica Bank, Dow Chemical, and J. P. Morgan Chase are among those that have put programs in place to help employees avoid or treat some seemingly smaller health conditions, or at least to keep productive in spite of them.<sup>41</sup> To ensure employee privacy, for example, Comerica Bank used a third party to survey its employees

and found that about 40 percent of them suffered from irritable bowel syndrome (IBS), which can involve abdominal discomfort, bloating, or diarrhea. Extrapolating from that, the company estimated its annual cost of lost productivity to be at least \$9 million a year (in 2010 dollars). Comerica now provides written materials for its employees about IBS and has sponsored physician seminars to educate workers on how to recognize and deal with it through their living habits, diet, and possible medications.

Education is one thing, but getting workers to take the drugs that their doctors prescribe or recommend is another. The Bank One study found that nearly one quarter of allergy sufferers did not take any kind of allergy medication. The same study also concluded that covering the cost of nonsedating antihistamines for allergy sufferers (roughly \$21 a week for prescription medications, less for generics) was more than offset by the resulting gains in productivity (roughly \$42 a week, based on call center employees' wages and benefits, which averaged \$603 a week in 2010 dollars).<sup>42</sup>

These results raise a tantalizing question: Might a company's pharmacy costs actually be an investment in workforce productivity? Certainly, companies should monitor and control corporate health-care expenditures. It is possible, however, that by increasing company payments for medications to treat chronic diseases, companies might actually realize a net gain in workforce productivity and eliminate the opportunity costs of failing to address the presenteeism issue directly. One obvious example of this is the flu shot. Numerous studies have shown that the cost of offering free flu shots is far outweighed by the savings realized through reductions in both absenteeism and presenteeism.<sup>43</sup> Another simple approach to reducing presenteeism is to offer paid time off, as discussed earlier. Implementing even a modest

program of sick leave may well offset the reduced productivity associated with chronic presenteeism.

## **EXERCISES**

Software that calculates answers to one or more of the following exercises can be found at <http://hrcosting.com/hr/>.

1. Consolidated Industries, an 1,800-employee firm, is faced with a serious—and growing—absenteeism problem. Last year, total employee-hours lost to absenteeism came to 119,808. Of the total employees absent, 65 percent were blue collar (average wage of \$25.15 per hour), 25 percent were clerical (average wage of \$19.80 per hour), and the remainder were management and professional (average salary \$37.60 per hour). On average, the firm spends 38 percent more of each employee's salary on benefits and, as company policy, pays workers even if they are absent.

The 45 supervisors (average salary of \$29.35 per hour) involved in employee absenteeism problems estimate that they lose 40 minutes per day for each of the 245 days per work year just dealing with the extra problems imposed by those who fail to show up for work. Finally, the company estimates that it loses \$729,500 in additional overtime premiums, in extra help that must be hired, and in lost productivity from the more highly skilled absentees. As HR director for Consolidated Industries, your job is to estimate the cost of employee absenteeism so that management can better understand the dimensions of the problem.

2. Inter-Capital Limited is a 500-employee firm faced with a 3.7 percent annual absenteeism rate over the 1,960 hours that each employee is scheduled to work. About 15 percent of absentees are blue collar (average wage \$26.96 per hour), 55 percent are clerical employees



(average wage \$20.25 per hour), and the remainder are management and professional workers (average salary \$44.50 per hour). About 40 percent more of each employee's salary is spent on benefits, but employees are not paid if they are absent from work. In the last six months, supervisors (average salary of \$29.75 per hour) estimate that managing absenteeism problems costs them about an hour a day for each of the 245 days per work year. It's a serious problem that must be dealt with, since about 20 supervisors are directly involved with absenteeism. On top of that, the firm spends approximately \$590,000 more on costs incidental to absenteeism. Temporary help and lost productivity can really cut into profits. Just how much is absenteeism costing Inter-Capital Limited per year per employee? (Use the software available at <http://hrcosting.com/hr/>.)

3. As a management consultant, you have been retained to develop two alternative programs for reducing employee absenteeism at Consolidated Industries (see question 1). Write a proposal that addresses the issue in specific terms. Exactly what should the firm do? (To do this, make whatever assumptions seem reasonable.)

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## 4. The High Cost of Employee Separations

Employee separations (often called turnover) occur when an employee permanently leaves an organization. Google developed a formula that predicts the probability that each employee will leave. *The Wall Street Journal* reported that Google's formula helps the company "get inside people's heads even before they know they might leave," says Laszlo Bock, who runs human resources for the company.<sup>1</sup> If we know someone may leave, should we try to stop him or her? The U.S. Bureau of Labor Statistics reports monthly job opening and labor turnover rates. Figure 4-1 shows the monthly results from years 2000–2010. These monthly rates translate into annual rates that were as high as 31 percent in 2001 and as low as 19 percent in 2009, following the global economic downturn. This figure varies widely by industry, with manufacturing figures ranging from 15 percent in 2001 to only 9 percent in 2009, and accommodations and food services from 63 percent in 2001 to 39 percent in 2009.<sup>2</sup>

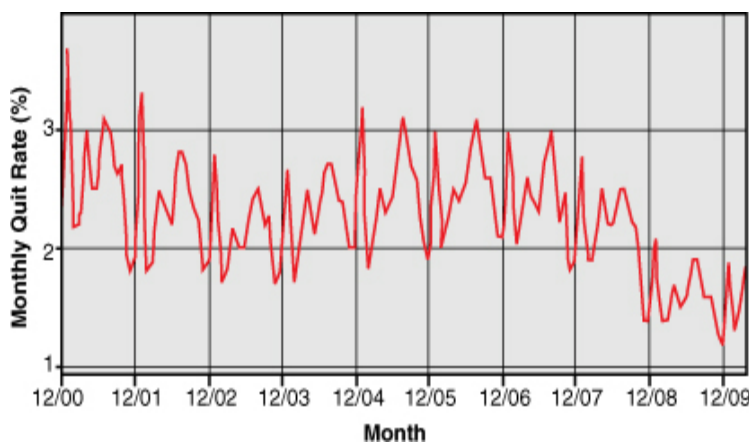


Figure 4-1. U.S. private sector quit rates for years 2000–2009.

To appreciate what that means for an individual firm, consider that, in the fiscal year ending January 2010, Wal-Mart reported employing 2.1 million associates worldwide.<sup>3</sup> The average annual quit rate for the retail trade industry in 2009 was 25 percent (down from 40 percent in 2006).<sup>4</sup> Each year, therefore, Wal-Mart must recruit, hire, and train about 525,000 new employees just to replace those who left.

Is this level of turnover good or bad for Wal-Mart? It is a safe bet that just processing and managing this level of employee turnover costs millions of dollars per year, but then Wal-Mart's annual after-tax profits were \$14 billion in 2009.<sup>5</sup> So the cost of turnover for Wal-Mart is a big number but not a large percentage of its profits. Although Wal-Mart could likely save millions of dollars a year by reducing turnover, what would be the investment necessary to do that? Also, if turnover was reduced by hiring employees who have fewer alternative employment options (and thus are less likely to leave), might that also mean getting employees who are less qualified or who have lower performance? Long-term employees also amass increased obligations in terms of pension and health-care coverage, so it is possible that Wal-Mart saves money in these areas if its workforce has shorter tenure.

On the other hand, perhaps the short tenure of the workforce reduces learning and customer service skills that would enhance Wal-Mart's performance. These are complex questions that are often overlooked when organizations adopt simple decision rules, such as "reduce all turnover to below the industry average." In this chapter, we provide frameworks to address such questions, and thus improve the ways organizations manage this important aspect of their talent resource.

## **THE LOGIC OF EMPLOYEE TURNOVER: SEPARATIONS, ACQUISITIONS, COST, AND INVENTORY**

Employee turnover is often measured by how many employees leave an organization. A more precise definition is that turnover includes replacing the departed employee (hence the idea of “turning over” one employee for another). We distinguish employee separations from the employee acquisitions that replace the separated employees. Employee separations and acquisitions are “external movements,” meaning that they involve moving across the organization’s external boundary. (We discuss movements inside the organization later.)

External movements define situations that include pure growth (acquisitions only), pure reduction (separations only), and all combinations of growth and reduction, including steady state, with the number of acquisitions equaling the number of separations.<sup>6</sup> Employee turnover (where each separation is replaced by an acquisition) is one common and important combination, but the frameworks discussed here are helpful when managing any combination of external employee movements. We find it also very helpful to distinguish employee separations from employee acquisitions, although the term *turnover* usually refers to separations that are replaced.

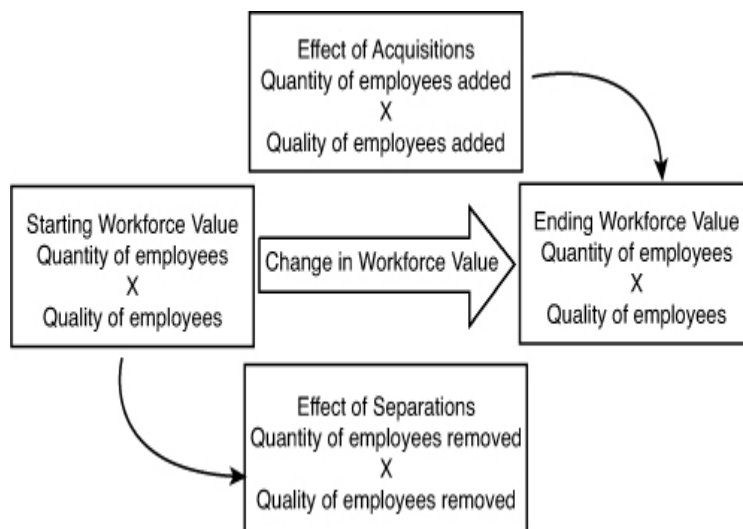
Decisions affecting employee movement reflect three basic parameters:

- The quantity of movers
- The quality of movers (that is, the strategic value of their performance)
- The costs incurred to produce the movement (that is, the costs of acquisitions or separations)



Decisions affecting the acquisition of new employees (that is, selection decisions) require considering the quantity, quality, and cost of those acquisitions. Likewise, decisions affecting the separation of employees (that is, layoffs, retirements, and employee turnover) require considering the quantity, quality, and cost to produce the separations.

The important points to remember are that the results of decisions that affect acquisitions or separations are expressed through quantity, quality, and cost. Second, the consequences of these decisions often depend on the interaction between the effects of acquisitions and separations. Figure 4-2 shows these ideas graphically.



**Figure 4-2. Logic of employee turnover.**

In each period, two processes can change workforce value: Employees are added and employees separate. As time goes on, these same two processes continue, with the beginning workforce value in the new time period being the ending workforce value from the last time period. This diagram is useful to reframe how organization leaders approach employee separations, hiring, shortages, and surpluses. The diagram shows that if leaders consider only turnover rates and costs, they are focusing only on the two boxes shown at the bottom of

Figure 4-2. When their only consideration is filling requisitions quickly, they are focusing on the quantity of employees added: only the top box.

The figure is intentionally similar to traditional raw materials or unfinished goods inventory diagrams that allow leaders easily to see that their decisions about workforce inventories are at least as important as their decisions about any other kind of inventory. They can also see the dangers of focusing only on one box, and they can see what additional factors they should consider if they want to optimize workforce quality, cost, shortages, and surpluses. This diagram makes it easier for leaders to see how things like turnover, time to fill, and hiring costs are integrated.

The word *turnover* actually originated with inventory management. In a retail store, inventory “turns over” when it is depleted (sold, stolen, spoiled, and so on) and replaced. The rate of inventory depletion is the turnover rate. Inventory management doesn’t just focus solely on whether depletion rates are at benchmark levels or could be reduced. Indeed, if depletion is due to profitable sales, the organization may actually want to increase it.

Instead, inventory optimization integrates the depletion rate into broader questions concerning the optimum level of inventory, optimum costs of replenishing and depleting inventory, and how frequently shortages and surpluses occur. In the same way, employee turnover is best thought of as part of a system that includes the costs and patterns of employee acquisitions, the value and quality of the workforce, and the costs and investments that affect all of them. Boudreau and Berger developed mathematical formulas to express the overall payoff (utility) or net benefits of workforce acquisitions and separations.<sup>7</sup> In *Retooling HR*, Boudreau shows that the logic of Figure 4-2, combined with the use of inventory-

optimization techniques, can retool turnover management beyond turnover reduction, to optimizing employee surpluses and shortages.<sup>8</sup> We return to this idea in [Chapter 10, “The Payoff from Enhanced Selection.”](#)

This chapter focuses on identifying and quantifying the transaction costs associated with external employee separations and the transaction costs of the acquisitions to replace those who left (including the activities to acquire them and train them).

Two popular ways of classifying employee turnover are voluntary versus involuntary and functional versus dysfunctional. We discuss these distinctions next. Then, consistent with the LAMP framework that we introduced in [Chapter 1, “Making HR Measurement Strategic,”](#) we discuss the analytics, measurement, and processes involved in computing, interpreting, and communicating the actual costs of employee turnover.

## **Voluntary Versus Involuntary Turnover**

Turnover may be voluntary on the part of the employee (for example, resignation) or involuntary (for example, requested resignation, permanent layoff, retirement, or death). Voluntary reasons for leaving—such as another job that offers more responsibility, a return to school full time, or improved salary and benefits—are more controllable than involuntary reasons, such as employee death, chronic illness, or spouse transfer. Most organizations focus on the incidence of voluntary employee turnover precisely because it is more controllable than involuntary turnover. They are also interested in calculating the costs of voluntary turnover, because when these costs are known, an organization can begin to focus attention on reducing them, particularly where such costs have significant strategic effects.

## Functional Versus Dysfunctional Turnover

A common logical distinction focuses on whether voluntary turnover is functional or dysfunctional for the organization. Employee turnover has been defined as functional if the employee's departure produces increased value for the organization. It is dysfunctional if the employee's departure produces reduced value for the organization. Often this is interpreted to mean that high performers who are difficult to replace represent dysfunctional turnovers, and low performers who are easy to replace represent functional turnovers.<sup>9</sup> Figure 4-2 provides a more precise definition. Turnover is functional when the resulting difference in workforce value is positive and high enough to offset the costs of transacting the turnover. Turnover is dysfunctional when the resulting difference in workforce value is negative or the positive change in workforce value doesn't offset the costs. The difficulty of replacement is not inconsistent with this idea, but it is a lot less precise. Does "difficult to replace" mean that replacements will be of lower value than the person who left, or that they will be of higher value but very costly?

Performance, of course, has many aspects associated with it. Some mistakes in selection are unavoidable, and to the extent that employee turnover is concentrated among those whose abilities and temperaments do not fit the organization's needs, that is functional for the organization and good for the long-term prospects of individuals, too. Other employees may have burned out, reached a plateau of substandard performance, or developed such negative attitudes toward the organization that their continued presence is likely to have harmful effects on the motivation and productivity of their coworkers. Here, again, turnover can be beneficial, assuming, of course, that replacements add more value than those they replaced.

On the flip side, the loss of hard-working, value-adding contributors is usually not good for the organization. Such high performers often have a deep reservoir of firm-specific knowledge and unique and valuable personal characteristics, such as technical and interpersonal skills. It is unlikely that a new employee would have all of these characteristics, and very likely that he or she would take a long time to develop them. Thus, voluntary turnover among these individuals, and the need to replace them with others, is likely to reduce the value of the workforce and produce costs associated with their separation and replacement. Voluntary turnover is even more dysfunctional, however, when it occurs in talent pools that are pivotal to an organization's strategic success.

### **PIVOTAL TALENT POOLS WITH HIGH RATES OF VOLUNTARY TURNOVER**

Just as companies divide customers into segments, they can divide talent pools into segments that are pivotal versus nonpivotal. Pivotal talent pools are those where a small change makes a big difference to strategy and value. Instead of asking "What talent is important?" the question becomes "Where do changes in the quantity or quality of talent make the biggest difference in strategically important outcomes?" For example, where salespeople have a lot of discretion in their dealings with customers, and those dealings have big effects on sales, the difference in performance between an average and a superior salesperson is large. Replacements also likely will be lower performers because the skills needed to execute sales are learned on the job; as a result, workforce value sees a substantial reduction when a high performer leaves and is replaced by a new recruit.

On the other hand, in some jobs, performance differences are smaller, such as in a retail food service

job where there are pictures rather than numbers on the cash register and where meals are generally sold by numbers instead of by individualized orders. Here the value produced by high performers is much more similar to the value of average performers. The job is also designed so that replacement workers can learn it quickly and perform at an acceptable level. So in this job, voluntary turnover among high performers, who are replaced by average performers, does not produce such a large change in workforce value. If the costs of processing departures and acquisitions are low, it may be best not to invest in reducing such turnover.

Even in fast-food retail, deeply understanding the costs and benefits of employee turnover can be enlightening. David Fairhurst, vice president and Chief People Officer for McDonald's restaurants in Northern Europe, was voted in 2009 the most influential HR practitioner by *HR Magazine* in the United Kingdom. Fairhurst invited a university study examining the performance of 400 McDonald's restaurants in the United Kingdom. The study found that customer satisfaction levels were 20 percent higher in outlets that employed kitchen staff and managers over age 60 (the oldest was an 83-year-old woman employed in Southampton).<sup>10</sup>

Fairhurst later noted that "sixty percent of McDonald's 75,000-strong workforce are under 21, while just 1,000 are aged over 60 .... Some 140 people are recruited every day but only 1.0 to 1.5 percent of those are over 60."<sup>11</sup> So turnover among the older employees is much more significant than turnover among the younger ones.

We noted earlier that many analysts and companies refine an overall measure of employee turnover by classifying it as controllable or voluntary (employees leave by choice), or uncontrollable or involuntary (for example, retirement, death, dismissal, layoff). After

pivotal pools of talent have been identified, it becomes important to measure their voluntary employee-turnover rates, to assess the cost of that voluntary turnover, to understand why employees are leaving, and to take steps to reduce voluntary and controllable turnover. Turnover rates in pivotal talent pools need not be high to be extremely costly. Ameriprise Financial provides its leaders with various “cuts” of turnover data by presenting them with a map that shows where the high performers are least engaged and, thus, most likely to leave.<sup>12</sup> Departures of high performers receive more attention than departures of middle or low performers, and those with low engagement get more attention because of their greater likelihood of leaving (see [Chapter 6, “Employee Attitudes and Engagement”](#)).

## **VOLUNTARY TURNOVER, INVOLUNTARY TURNOVER, FOR-CAUSE DISMISSALS, AND LAYOFFS**

This section shows how to compute the turnover cost elements. However, not all costs apply to all types of turnover. Let’s first review which categories of costs apply to which type of employee separations. [Table 4-1](#) provides a guide.



Cost Element	Voluntary Quits	For-Cause Dismissals	Involuntary Layoffs
<i>Separation Costs</i>			
Exit interview	X		
Administrative time	X	X	X
Separation pay		X	X
Unemployment tax	X	X	X
Pension and benefit payouts	X	X	X
Supplemental unemployment benefits			X
Severance pay in lieu of bonus			X
Accrued vacation and sick pay	X	X	X

Lawsuits by aggrieved employees		X	X
<i>Replacement Costs</i>			
Communicating job availability	X	X	
Pre-employment administrative time	X	X	
Entrance interview	X	X	
Testing	X	X	
Staff meeting	X	X	
Travel/moving expenses	X	X	
Post-employment information	X	X	
Medical exam	X	X	
Rehiring of former employees			X
<i>Training Costs</i>			
New employee orientation literature and activities	X	X	
Formal training	X	X	
Instruction by experienced employee	X	X	

	<i>Lost Productivity</i>		
Performance difference leavers vs. stayers	X		X
Lost business with departing employee	X		X
Lost institutional memory	X		X
Decreased survivor productivity	X	X	X
Lack of staff when business rebounds			X
Risk of labor actions and strikes		X	X
Damage to company reputation	X		X

**Table 4-1. How Turnover Cost Elements Apply to Different Types of Turnover**

In the sections that follow, we focus mostly on the costs associated with voluntary quits and for-cause dismissals. Such separations are by far the more prevalent in most companies. Moreover, most of the costs of layoffs are also associated with the other two types of turnover, so the analytic approaches described next can also be used for layoffs.

However, it is worth noting that the costs of layoffs are often much higher than most organizations realize, and some costs are unique to the layoff situation. In *Employment Downsizing and Its Alternatives*, Cascio notes that direct costs may be as much as \$100,000 per layoff, and that, in 2008, IBM spent \$700 million on employee restructuring.<sup>13</sup> Short-term or one-time costs of layoffs include most costs, and in the long run the costs of layoffs can include the rehiring of former employees, pension and severance payouts, and indirect costs of lost productivity. Longer-term concerns include additional lost time of survivors, who worry about losing

their jobs, potential backlash from clients or customers if the layoffs are perceived as unfair, and increased voluntary separations.

## HOW TO COMPUTE TURNOVER RATES

Conceptually, annual employee turnover is computed by adding up the monthly turnover for a 12-month period. Monthly turnover is calculated as the number of employee separations during the month divided by the average number of active employees during the same month. More generally, the rate of turnover in percent over any period can be calculated by the following formula:

$$\frac{\text{Number of turnover incidents per period}}{\text{Average work force size}} \times 100$$

In the United States, as shown in [Figure 4-1](#), aggregate monthly turnover rates averaged about 1.5 percent, or 18 percent per year. The turnover rate in any given year can be misleading, however, because turnover rates are inversely related to unemployment rates (local, regional, and national). As [Figure 4-1](#) shows, turnover rates were 1.5 to 2 times higher before 2008, when unemployment rates were lower, than after the 2009 economic downturn, when unemployment was higher. One study reported a correlation of  $-0.84$  between unemployment and voluntary employee turnover in the years between 1945 and 1976.<sup>14</sup>

Typically, organizations compute turnover rates by business unit, division, diversity category, or tenure with the company. Then they attempt to benchmark those turnover rates against the rates of other organizations to gauge whether their rates are higher, lower, or roughly the same as those of competitors or their own industries. Many HR information systems allow managers to “drill down” on turnover rates in a vast number of ways. Indeed, probably hundreds of different turnover rates

can be calculated, tracked, and put into various scorecards.

### **Logical Costs to Include When Considering Turnover Implications**

Turnover can represent a substantial cost of doing business. Indeed, the fully loaded cost of turnover—not just separation and replacement costs, but also the exiting employee's lost leads and contacts, the new employee's depressed productivity while he or she is learning, and the time coworkers spend guiding the new employee—can easily cost 150 percent or more of the departing person's salary.<sup>15</sup>

Pharmaceutical giant Merck & Company found that, depending on the job, turnover costs 1.5 to 2.5 times annual salary.<sup>16</sup> At Ernst & Young, the cost to fill a position vacated by a young auditor averaged 150 percent of the departing employee's annual salary.<sup>17</sup> These results compare quite closely to those reported in the *Journal of Accountancy*—namely, that the cost of turnover per person ranges from 93 percent to 200 percent of an exiting employee's salary, depending on the employee's skill and level of responsibility.<sup>18</sup>

Unfortunately, many organizations are unaware of the actual cost of turnover. Unless this cost is known, management may be unaware of the financial implications of turnover rates, especially among pivotal talent pools. Management also may be unaware of the need for action to prevent controllable turnover and may not develop a basis for choosing among alternative programs designed to reduce turnover.

Organizations need a practical procedure for measuring and analyzing the costs of employee turnover, because the costs of hiring, training, and developing employees are investments that must be evaluated just like other corporate resources. The objective in costing human

resources is not only to measure the relevant costs, but also to develop methods and programs to reduce the more controllable aspects of these costs. Analytics and measurement strategies can work together to address these important issues.

## **Analytics**

Analytics focuses on creating a design and analyses that will answer the relevant questions. Although computing turnover rates for various subcategories of employees or business units is instructive, our main focus in this chapter is on the financial implications associated with turnover. We use the term *analytics* to refer to formulas (for example, for turnover rates and costs), as well as the research designs and analyses that analyze the results of those formulas. Turnover measures are the techniques for actually gathering information—that is, for populating the formulas with relevant numbers. In the following sections, therefore, we describe how to identify and then measure turnover costs. You will see both formulas and examples that include numbers in those formulas. As you work through this information, keep in mind the distinction between analytics and measures.

The general procedure for identifying and measuring turnover costs is founded on three major separate cost categories: separation costs, replacement costs, and training costs.<sup>19</sup> In addition, it considers the difference in dollar-valued performance between leavers and their replacements. Finally, the fully loaded cost of turnover should include the economic value of lost business, if possible.<sup>20</sup> Notice how these elements precisely mirror the categories in [Figure 4-2](#). There are costs of the transactions required to complete the separation of the former employee, and also of acquiring and training the replacement. The difference in performance between

stayers and leavers is part of the change in workforce value, as is the business that is lost with the leaver.

For each of these categories, we first present the relevant cost elements and formulas (analytics); then we provide numeric examples to illustrate how the formulas are used (measures). The “pay rates” referred to in each category of costs refer to “fully loaded” compensation costs (that is, direct pay plus the cost of benefits).

## Separation Costs

Figure 4-3 presents the key cost elements, together with appropriate formulas for each, that apply to separation costs. These include exit interviews ( $S_1$ ); administrative functions related to termination, such as deletion of the exiting employee from payroll, employment, and benefits files ( $S_2$ ); separation pay, if any ( $S_3$ ); and unemployment tax, if applicable ( $S_4$ ).

Cost Element	Formula				
Exit interview ( $S_1$ )	= cost of interviewer's time cost of terminating employee's time	= $\left( \begin{array}{l} \text{time required} \\ \text{prior to interview} \end{array} + \begin{array}{l} \text{time required} \\ \text{for the interview} \end{array} \right)$ = time required for the interview	$\times$ weighted average pay for terminated employees	$\times$ interviewer's pay rate during period $\times$ number of turnovers during period	$\times$ number of turnovers during period
Administrative functions related to termination ( $S_2$ )	= time required by HR dept. for administrative functions related to termination	$\times$ average HR dept. employee's pay rate	$\times$ number of turnovers during period		
Separation pay ( $S_3$ )	= amount of separation pay per employee terminated	$\times$ number of turnovers during period			
Unemployment tax ( $S_4$ )	= (unemployment tax rate - base rate)	$\times$ [(\$7,000 $\times$ number of employees earning at least \$7,000) + (weighted average earnings if < \$7,000 $\times$ (number of employees earning < \$7,000)]	+ unemployment tax rate	$\times$ $\left( \begin{array}{l} \$7,000 \text{ or} \\ \text{weighted} \\ \text{average} \\ \text{earnings if} \\ < \$7,000 \end{array} \right)$	$\times$ number of turnovers during period

Source: Cascio, W.F., *Managing Human Resources: Productivity, Quality of Work Life, Profits*, 2nd ed., (New York: McGraw-Hill, 1989). Copyright © 1989 McGraw-Hill. Used with permission.

**Figure 4-3. Measuring separation costs.**

Thus:

Total separation costs ( $S_T$ ) =  $S_1 + S_2 + S_3 + S_4$

The cost of exit interviews is composed of two factors, the cost of the interviewer's time (preparation plus actual interview time) and the cost of the terminating employee's time (time required for the interview  $\times$  weighted average pay rate for all terminated employees). This latter figure may be calculated as follows:

Times for exit interviews may be estimated in one of two ways:

- Time a random sample of exit interviews and calculate the average time.
- Interview a representative sample of managers who conduct exit interviews regularly and average their estimated times.

Each organization should specify exactly what administrative functions relate to terminations and the time required for them. Each of those activities costs money, and the costs should be documented and included when measuring separation costs.

Separation pay, for those organizations that offer it, can usually be determined from the existing accounting information system. Length of service, organization level, and the cause of termination are key factors that affect the amount of severance pay. Termination for poor performance generally does not include a severance package. Most lower-level employees receive one or two weeks of pay for each year they worked, up to a maximum of about 12 weeks. Midlevel managers typically receive anywhere from three to six months of pay; higher-level executives, six months to one year of pay; and chief executive officers with employment contracts two to three years of salary.<sup>21</sup> Fully 88 percent of organizations now require a signed release in



exchange for payment, whether in a lump sum or through salary continuation. Medical benefits typically continue throughout the severance period.

Among organizations that do business in the United States, unemployment tax is relevant. For those doing business elsewhere, this item should not be included in separation costs. United States employers' unemployment tax rates include federal and state taxes, of which the federal tax equals 6.2 percent of the first \$7,000 of each employee's earnings, and states impose a tax above that figure.<sup>22</sup> For example, in Colorado, the 2010 state tax is 2.48 percent of the first \$10,000 in wages.<sup>23</sup> Due to rising jobless claims during the great recession, at least 35 states hiked their tax rates or wages subject to unemployment taxes in 2010.<sup>24</sup> Employers' actual tax rates are based on their history of claims. Those with fewer claims for unemployment benefits are subject to a lower unemployment tax than those with more unemployment claims. This increase in unemployment tax due to an increased incidence of claims is an element of separation costs.

In practice, high turnover rates that lead to high claims for unemployment compensation by former employees increase the cost of unemployment tax in two ways. First, the state increases the employer's tax rate (called the "penalty" in this instance). Second, the employer must pay additional, regular unemployment tax because of the turnovers. For example, consider a 100-employee firm with a 20 percent annual turnover rate (that is, 20 people) and a history of relatively few claims. The total increase in unemployment tax is computed as follows:

The penalty:

$$(\text{New tax rate minus base rate}) \times [\$10,000 \times (100 + 20)]$$

$$= (5.4\% - 5.0\%) \times [\$1,200,000] = \$4,800$$

Additional unemployment tax due to turnover:

$(\text{New tax rate}) \times (\$10,000 \times \text{Number of turnovers during period})$

$$= (5.4\%) \times (\$10,000 \times 20) = \$10,800$$

Total additional unemployment tax due to turnover:

$$\$4,800 + \$10,800 = \$15,600$$

What about the incremental costs associated with taxes to fund public retirement programs (such as the Social Security program in the U.S.)? These costs should be included only if the earnings of those who leave exceed the taxable wage base for the year. Thus, in the U.S. in 2010, the taxable wage base was \$106,800, and the employer's share of those taxes was 7.65 percent. If an employee earning \$80,000 per year leaves after six months, for example, the employer pays tax on only \$40,000. If it takes one month to replace the departing employee, the replacement earns five months' wages, or \$33,333. Thus, the employer incurs no additional social security tax because the total paid for the position for the year is less than \$106,800. However, if the employee who left after six months was a senior manager earning \$250,000 per year, the employer would already have paid the maximum tax due for the year for that employee. If a replacement works five months (earning \$104,167), the employer then incurs additional social security tax for the replacement.

A final element of separation costs that should be included, if possible, is the cost of decreased productivity due to employee terminations. This may include the decline in the productivity of an employee prior to termination or the decrease in productivity of a the work group that lost the employee. The evidence regarding the effect on productivity as a result of downsizing is mixed.

The American Management Association surveyed 700 companies that had downsized in the 1990s. In 34 percent of the cases, productivity rose, but it fell in 30 percent of them.<sup>25</sup> Firms that increased training budgets after a downsizing were more likely to realize improved productivity.<sup>26</sup>

### **EXAMPLE: SEPARATION COSTS FOR WEE CARE CHILDREN'S HOSPITAL**

Let's now consider the computation of separation costs over one year for Wee Care Children's Hospital, a 200-bed facility that employs 1,200 people. Let's assume that Wee Care's monthly turnover rate is 2 percent. This represents 24 percent of the 1,200-person workforce per year, or about 288 employees. From Figure 4-3, we apply the following formulas (all costs are hypothetical):

Exit Interview ( $S_1$ )

Interviewer's time = (15 min. preparation + 45 min. interview)  $\times$  \$30/hour interviewer's pay + Benefits  $\times$  288 turnovers during the year

= \$8,640

Weighted average pay + benefits per terminated employee per hour = sum of the products of the hourly pay plus benefits for each employee group times the number of separating employees in that group, all divided by the total number of separations, or in this case

=  $(19.96 \times 75) + (23.44 \times 87) + (26.97 \times 65) + (29.13 \times 37) + (34.46 \times 14) + (47.17 \times 10)$  divided by 288

= \$25.42/hour

Terminating employee's time = 45 min. interview time ×  
\$25.42/hour weighted average pay + Benefits × 288  
turnovers during the year

$$= \$7,320.96$$

Total cost of exit interviews = \$8,640 + \$7,320.96

$$= \$15,960.96$$

Administrative Functions ( $S_2$ )

$S_2$  = Time to delete each employee × HR specialist's pay  
+ Benefits/hour × Number of turnovers during the year

$$= 1 \text{ hour} \times \$30 \times 288$$

$$= \$8,640$$

Separation Pay ( $S_3$ )

Suppose that Wee Care Children's Hospital has a policy of paying one week's separation pay to each terminating employee. Using the weighted average pay rate of the 288 terminating employees as an example, \$25.42/hour × 40 hours/week = \$1,016.80 average amount of separation pay per employee terminated.

Total Separation Pay = \$1,016.80 × 288

$$= \$292,838.40$$

Unemployment Tax ( $S_4$ )

Let's assume that because of Wee Care's poor experience factor with respect to terminated employees' subsequent claims for unemployment benefits, the state unemployment tax rate is 5.4 percent, as compared with a base rate of 5.0 percent. Let us further assume that turnovers occur, on the average, after four and a half

months (18 weeks). If the weighted average pay + benefits of terminating employees is \$25.42 per hour, and Wee Care pays an average of 35 percent of base pay in benefits, the weighted average pay alone is \$16.52 per hour (\$25.42 minus 35 percent). Over 18 weeks, the direct pay per terminating employee exceeds \$10,000.

The dollar increase in unemployment tax incurred because of Wee Care's poor experience factor is therefore as follows:

$$(5.4\% - 5.0\%) \times [\$10,000 \times (1,200 + 288)]$$

$$= (0.004) \times [\$10,000 \times 1,488]$$

$$= \$59,520 \text{ [Penalty]}$$

$$+ (5.4\%) \times (\$10,000 \times 288)$$

$$= \$155,520 \text{ [Additional Tax]}$$

$$\text{Total increase} = \$59,520 + \$155,520$$

$$= \$215,040$$

Now that we have computed all four cost elements in the separation cost category, total separation costs ( $\Sigma S_1, S_2, S_3, S_4$ ) can be estimated. This figure is as follows:

$$S_T = S_1 + S_2 + S_3 + S_4$$

$$= \$15,960.96 + \$8,640 + \$292,838.40 + \$215,040$$

$$= \$532,479.36$$

## **Replacement Costs**

As shown in Figure 4-2, employees who replace those who leave are acquisitions. The overall value, or payoff, of those acquisitions depends on three factors: their quantity, quality, and cost. Replacement costs, as described in the following paragraphs, reflect only the quantity and cost of acquisitions, not their quality. We address the issue of staffing quality beginning in Chapter 8, “Staffing Utility: The Concept and Its Measurement.”

Replacement costs are incurred by an organization when it replaces a terminated employee. Figure 4-4 shows the cost elements and the formulas for estimating them. As the figure indicates, there are eight categories of replacement costs:

1. Communication of job availability
2. Pre-employment administrative functions
3. Entrance interviews
4. Testing
5. Staff meetings
6. Travel/moving expenses
7. Post-employment acquisition and dissemination of information
8. Employment medical exams

Cost Element	Formula			
Communicating job availability ( $R_1$ )	= [ advertising and employment agency fees per termination	+ ( time required for communicating job availability	x HR dept. employee's pay rate )	x number of turnovers replaced during period
Pre-employment administrative functions ( $R_2$ )	= time required by HR dept. for pre-employment administrative functions	x average HR dept. employee's pay rate	x number of applicants during period	
Entrance interview ( $R_3$ )	= time required for interview	x interviewer's pay rate	x number of interviews during period	
Testing ( $R_4$ )	= ( cost of materials per person	+ cost of scoring per person )	x number of tests given during period	
Staff meeting ( $R_5$ )	= time required for meeting	x ( HR dept. employee's pay rate	+ dept. representative's pay rate )	x number of meetings during period
Travel/moving expenses ( $R_6$ )	= ( average travel cost per applicant	x number of applicants )	+ average moving cost per new hire	x number of new hires
Post-employment acquisition and dissemination of information ( $R_7$ )	= time required for acquiring and disseminating information	x average HR dept. employee's pay rate	x number of turnovers replaced during period	
In-house medical examinations ( $R_8$ )	= ( time required for examination	x examiner's pay rate )	+ cost of supplies used	x number of turnovers replaced during period
OR				
Contracted medical examinations ( $R_9$ )	= rate per examination	x number of turnovers replaced during period		

Source: Cascio, W. F., *Managing Human Resources: Productivity, Quality of Work Life, Profits*, 2nd ed. (New York: McGraw-Hill, 1989). Copyright © 1989 McGraw-Hill. Used with permission.

**Figure 4-4. Measuring replacement costs.**

The costs of communicating job availability vary by type of job and targeted labor market. Depending on the methods used in recruitment, these costs may range from the cost of an advertisement on the web, to employment agency fees paid by the employer.<sup>27</sup> Typically, these costs can be obtained from existing accounting records. If this communication process requires time from HR department employees, the cost of their time should also be included in replacement costs.

Administratively, several tasks are frequently undertaken in selecting and placing each new employee—for example, accepting applications, screening candidates, and checking references. These procedures can be expensive. For example, a simple background investigation that includes verification of last educational degree, a check with the last two employers, a five-year criminal check, and verification of the social security

number costs only about \$100. However, an extensive check that includes the previous items plus interviews with previous employers, teachers, neighbors, and acquaintances can run \$15,000 or more. Unfortunately, organizational information systems do not routinely document the time required to perform these activities. However, the methods described earlier for estimating exit interview time requirements can be used to estimate the time needed for pre-employment administrative functions.

Virtually all organizations use entrance interviews to describe jobs, to communicate employee responsibilities and benefits, and to make some general assessments of candidates. The costs incurred when completing entrance interviews are a function of the length of the interview, pay rates of interviewers involved, and the number of interviews conducted. Valid staffing procedures can reduce future turnover and improve future employee performance. Decision makers should consider both costs and benefits. This chapter focuses on costs; [Chapter 10](#) shows how to calculate the benefits from valid staffing procedures.

Many firms use pre-employment testing of some sort—for example, aptitude, achievement, drug, and honesty testing. To account properly for the costs of these activities, consider the costs of materials and supplies and the cost of scoring the tests. The costs of materials and scoring for aptitude, achievement, and honesty tests are often less than \$25 per candidate. Drug testing costs roughly \$45 to \$65 for a simple screening test,<sup>28</sup> but confirming a positive test with more accurate equipment—a step recommended by most specialists—costs an additional \$50 to \$75.

For some classes of employees, especially top-level managers or other professionals, meetings or



conferences may be held between the HR department and the department holding the vacant position. The estimated time for this meeting, multiplied by the sum of the pay and benefits rates for all attendees, provides a measure of this element of replacement costs. Travel and moving expenses can be extremely costly to organizations that pay these costs. Travel costs for candidates from a local labor market are minimal (carfare, parking, tolls), but travel costs for candidates who must fly in and stay in a hotel can average more than \$1,500. Moving expenses can cover a range of elements, including mortgage differentials, lease-breaking expenses, company purchase of the old house, costs of moving personal effects from the old to the new location, closing costs, hook-up fees for utilities, and more. "Fully loaded" moving costs for middle managers average about \$45,000 to \$50,000, whereas a complete relocation package for executives averages about \$70,000 per move.<sup>29</sup>

The seventh category of replacement costs is post-employment acquisition and dissemination of information. Pertinent information for each new employee must be gathered, recorded, and entered into various subsystems of an HR information system (for example, employee records, payroll files, benefits records). If flexible, cafeteria-style benefits are offered by an organization, an HR specialist could spend considerable time in counseling each new employee. The costs of this process can be estimated by calculating the time required for this counseling and multiplying it by the wage rates of employees involved. To compute the total cost of acquiring and disseminating information to new employees, multiply this cost by the number of acquisitions.

Pre-employment medical examinations are the final element of replacement costs. The extent and

thoroughness—and, therefore, the cost—of such examinations varies greatly. Some organizations do not require them at all, some contract with private physicians or clinics to provide this service, and others use in-house medical staff. If medical examinations are contracted out, the cost can be determined from existing accounting data. If the exams are done in-house, their cost can be determined based on the supplies used (for example, x-ray film and laboratory supplies) and the staff time required to perform each examination. If the new employee is paid while receiving the medical examination, his or her rate of pay should be added to the examiner's pay rate in determining total cost. The following example estimates replacement costs for a one-year period based on Figure 4-4 for Wee Care Children's Hospital.

#### Job Availability ( $R_1$ )

Assume that fees and advertisements average \$350 per turnover, that three more hours are required to communicate job availability, that the HR specialist's pay and benefits total \$30 per hour, and that 288 turnovers are replaced during the period. Therefore:

$$R_1 = [\$350 + (3 \times \$30)] \times 288$$

$$= \$126,720$$

#### Pre-Employment Administrative Functions ( $R_2$ )

Assume that pre-employment administrative functions to fill the job of each employee who left comprise five hours. Therefore:

$$R_2 = 5 \times \$30 \times 288$$

$$= \$43,200$$

### Entrance Interview ( $R_3$ )

Assume that, on the average, three candidates are interviewed for every one hired. Thus, over the one-year period of this study, 864 ( $288 \times 3$ ) interviews were conducted, each lasting one hour. Therefore:

$$R_3 = 1 \times \$30 \times 864$$

$$= \$25,920$$

### Testing ( $R_4$ )

Assume that aptitude tests cost \$12 per applicant for materials and another \$12 per applicant to score, and that, as a matter of HR policy, Wee Care uses drug tests (\$45 per applicant) as part of the pre-employment process. The cost of testing is therefore as follows:

$$R_4 = (\$24 + \$45) \times (288 \times 3)$$

$$= \$59,616$$

### Staff Meeting ( $R_5$ )

Assume that each staff meeting lasts one hour; that the average pay plus benefits of the new employee's department representative is \$42; and that, for administrative convenience, such meetings are held, on average, only once for each three new hires ( $288 / 3 = 96$ ). Therefore:

$$R_5 = (\$30 + \$42) \times 96$$

$$= \$6,912$$

### Travel/Moving Expenses ( $R_6$ )

Assume that Wee Care pays moving expenses of \$50,000, on average, for only one of every eight new

hires. Therefore:

$$R_6 = [\$95 \times (288 \times 3)] + (\$50,000 \times 36)$$

$$= \$56,160 + \$1,620,000$$

$$= \$1,882,080$$

Post-Employment Acquisition and Dissemination of Information ( $R_7$ )

Assume that two hours are spent on these activities for each new employee. Therefore:

$$R_7 = 2 \times \$30 \times 288$$

$$= \$17,280$$

Pre-Employment Medical Examination ( $R_8$  and  $R_9$ )

Assume that if the medical examinations are done at the hospital (in-house), each exam will take one hour; the examiner is paid \$55 per hour; x-rays, laboratory analyses, and supplies cost \$135; and 288 exams are conducted. Therefore:

$$R_8 = [(1 \times \$55) + \$135] \times 288$$

$$= \$54,720$$

If the exams are contracted out, let's assume that Wee Care will pay a flat rate of \$250 per examination. Therefore:

$$R_9 = \$250 \times 288$$

$$= \$72,000$$

Wee Care therefore decides to provide in-house medical examinations for all new employees, so  $R_9$  does not apply

in this case. Total costs ( $R_T$ ) can now be computed as the sum of  $R_1$  through  $R_8$ :

$$R_T = \$126,720 + \$43,200 + \$25,920 + \$59,616 + \$6,912 \\ + \$1,882,080 + \$17,280 + \$54,720$$

$$R_T = \$2,216,448$$

## **TRAINING COSTS**

In virtually all instances, replacement employees must be oriented and trained to a standard level of competence before assuming their regular duties. As discussed in Chapter 11, “Costs and Benefits of HR Development Programs,” this often involves considerable expense to an organization. For the present, however, assume that all replacement employees receive a total of 2 full days (16 hours) of new employee orientation from an HR department representative. After that, they are either placed in a formal training program, assigned to an experienced employee for some period of on-the-job training, or both. Figure 4-5 shows the cost elements and computational formulas for this category of turnover costs. The three major elements of training costs are informational literature plus new employee orientation, instruction in a formal training program, and instruction by employee assignment.

Cost Element	Formula				
Informational literature (T <sub>1</sub> )	= cost of informational package	x number of replacements during period			
Instruction in a formal training program (T <sub>2</sub> )	$= \left[ \begin{array}{l} \text{length of training program} \\ \text{average pay rate of trainer(s)} \\ \text{number of programs conducted} \\ \text{proportion of training costs attributed to replacements} \end{array} \right]$ $+ \left[ \begin{array}{l} \text{average pay rate per trainee} \\ \text{total number of replacements trained during period} \\ \text{length of training program} \end{array} \right]$				
Instruction by employee assignment (T <sub>3</sub> )	$= \text{number of hours required for instruction} \times \left[ \begin{array}{l} \text{average pay rate of experienced employee} \\ \text{proportional reduction in productivity due to training} \\ \text{number of experienced employees assigned to on-the-job training} \end{array} \right] + \left[ \begin{array}{l} \text{new employee's pay rate} \\ \text{number of instructions during period} \end{array} \right]$				

Source: Cascio, W. F., *Managing Human Resources: Productivity, Quality of Work Life, Profits*, 2nd ed. (New York: McGraw-Hill, 1989). Copyright © 1989 McGraw-Hill. Used with permission.

**Figure 4-5. Measuring training costs.**

The cost of any informational literature provided to replacement employees must be considered a part of orientation and training costs. Unit costs for those items may be obtained from existing accounting records. Multiplying the unit costs by the number of replacement employees hired during the period yields the first element of training costs. The cost of orientation includes the pay and benefits of the new employees who attend, as well as the pay and benefits of the HR representative who provides the orientation training times the number of hours of training.

New employees may also be involved in a formal training program. The overall cost of the training program depends on the cost of two major components: costs associated with trainers and costs associated with trainees. Whereas an organization incurs 100 percent of the costs associated with training replacements for employees who leave, the cost associated with trainers depends on the extent to which formal training is attributable to turnover. It is important, therefore, to

distinguish the proportion of trainees who are replacements for employees who left, from the reminder who are in training due to other factors, such as planned expansion of the workforce. For the sake of simplicity, the costs of facilities, food, and other overhead expenses have not been included in these calculations.

Instead of, or in addition to, instruction in a formal training program, new employees may also be assigned to work with more experienced employees for a period of time or until they reach a standard level of competence. The overall cost of this on-the-job training must be determined for all replacement employees hired during the period, for it is an important element of training costs.

Notice that, in Figure 4-5, the cost of reduced productivity of new employees while they are learning is not included as an element of overall training costs. This is not because such a cost is unimportant. On the contrary, even if an organization staffs more employees to provide for a specified level of productivity while new employees are training, the cost of a decrease in the quantity and quality of goods or services produced is still very real. Less experienced employees may also cause an increase in operating expenses because of inefficient use of supplies and equipment. Other elements of lost productivity and lost business include factors such as additional overtime to cover one or more vacancies, cost of temporary help, the offsetting effects of wages and benefits saved due to the vacancy, and the cost of low morale among remaining employees.

At high levels in organizations, and in other jobs where relationships with customers, leads, and contacts are critically important, the economic cost of business lost (that is, “opportunities foregone”) may be substantial. On top of that, there may also be “ripple effects”

associated with an employee's departure so that other employees follow him or her out the door. Situations such as these are especially prevalent when employee "stars" or "A-level" players depart and convince others to follow them. Executive recruiters call these situations "lift-outs." As *BusinessWeek* noted, "In a way, lift-outs are the iTunes of the merger world: Why buy the whole CD when all you really want are its greatest hits?"<sup>30</sup> They can be especially costly, not to mention that they create huge gaps in staffing. They tend to occur when tightly knit groups or networks of employees (coworkers, former colleagues, classmates, or friends) decide to leave en masse.<sup>31</sup>

All of these costs are important. In the aggregate, they easily could double or triple the costs tallied thus far. When they can be measured reliably and accurately, they certainly should be included as additional elements of training costs. The same is true for potential productivity gains associated with new employees. Such gains serve to offset the costs of training. However, in many organizations, especially those providing services (for example, credit counseling, customer services, and patient care in hospitals), the measurement of these costs or gains is simply too complex for practical application. At the same time, these costs are seldom zero, and it is probably better to include a consensus estimate of their magnitude from a knowledgeable group of individuals than to assume either that they do not exist or that the cost is zero.

Now let us estimate the total cost of training employee replacements at Wee Care. Using the formulas shown in [Figure 4-5](#), Wee Care estimates the following costs over a one-year period.

Informational Literature and New-Employee Orientation  
(T<sub>1</sub>)



Assume that the unit cost of informational literature is \$20 and that 288 employees are replaced. Each of the 288 replacements, at an average pay rate plus benefits of \$25.42 per hour (see the earlier computation of  $S_1$ ), attends 16 hours (two days) of general orientation to the hospital. This is provided in a two-day meeting that is held ten times per year, conducted by an HR representative, who receives \$30 per hour in pay and benefits. The total cost of informational literature and new-employee orientation is, therefore, as follows:

$$T_1 = (\$20 \times 288) + (16 \times \$25.42 \times 288) + (10 \times 16 \times \$30)$$

$$= \$127,695.36$$

#### Instruction in a Formal Training Program ( $T_2$ )

New-employee training at Wee Care is conducted 10 times per year, and each training program lasts 40 hours (1 full week). The average pay plus benefits for instructors is \$48 per hour, the average pay and benefits rate for trainees is \$25.42 per hour, and of the 576 employees trained on the average each year, half are replacements for employees who left voluntarily or involuntarily. The total cost of formal training attributed to employee turnover is, therefore, as follows:

$$T_2 = (40 \times \$48 \times 10 \times 0.50) + (\$25.42 \times 288 \times 40)$$

$$= \$9,600 + \$292,838.40$$

$$= \$302,438.40$$

#### Instruction by Employee Assignment ( $T_3$ )

To ensure positive transfer between training program content and job content, Wee Care requires each new employee to be assigned to a more experienced employee

for an additional week (40 hours). Experienced employees average \$35 per hour in wages and benefits, and their own productivity is cut by 50 percent while they are training others. Each experienced employee supervises two trainees. The total cost of on-the-job training for replacement employees is, therefore, as follows:

$$T_3 = 40 \times [(\$35 \times 0.50 \times 144) + (\$25.42 \times 288)]$$

$$= 40 \times (\$2,520 + \$7,320.96)$$

$$= 40 \times \$9,840.96$$

$$= \$393,638.40$$

Total training costs can now be computed as the sum of  $T_1$ ,  $T_2$ , and  $T_3$ :

$$T_T = \$127,695.36 + \$302,438.40 + \$393,638.40$$

$$= \$823,772.16$$

## **PERFORMANCE DIFFERENCES BETWEEN LEAVERS AND THEIR REPLACEMENTS**

A final factor to consider in the tally of net turnover costs is the uncompensated performance differential between employees who leave and their replacements. We call this difference in performance (DP). DP needs to be included in determining the net cost of turnover because replacements whose performance exceeds that of leavers reduce turnover costs, and replacements whose performance is worse than that of leavers add to turnover costs.

To begin measuring DP in conservative, practical terms, compute the difference by position in the salary range between each leaver and his or her replacement. Assume that performance differentials are reflected in terms of

deviations from the midpoint of the pay grade of the job class in question. Each employee's position in the salary range is computed as a "compa-ratio"; that is, salary is expressed as a percentage of the midpoint of that employee's pay grade. If the midpoint of a pay grade is \$50,000 (annual pay), for example, an employee earning \$40,000 is at 80 percent of the midpoint. Therefore, his or her compa-ratio is 0.80. An employee paid \$50,000 has a compa-ratio of 1.0 (100 percent of the midpoint rate of pay), and an employee paid \$60,000 has a compa-ratio of 1.2 because he or she is paid 120 percent of the midpoint rate of pay. Compa-ratios generally vary from 0.80 to 1.20 in most pay systems.<sup>32</sup>

To compute DP, use the following formula:

$$DP = \sum_{i=1}^n (CR_l - CR_r) MP_i$$

Here, DP is difference in performance between leaver

and replacement,  $\sum_{i=1}^n$  is summation over all leavers and their replacements,  $CR_l$  is the compa-ratio of the leaver,  $CR_r$  is the compa-ratio of the replacement, and  $MP_i$  is the annual rate of pay at the midpoint of the pay grade in question. Consider the following example:

$$CR_l = 0.80 \quad CR_r = 1.0 \quad MP_i = \$50,000$$

$$DP = (0.80 - 1.0) \times \$50,000$$

$$DP = (-0.20) \times \$50,000$$

$$DP = -\$10,000$$

DP is therefore subtracted from total turnover costs because the firm is gaining an employee whose performance is superior to that of the employee who was replaced.

If the compa-ratio of the leaver is 1.0, that of the replacement is 0.80, and the pay-grade midpoint is \$50,000, then  $DP = \$10,000$ . These costs are added to total turnover costs because the leaver was replaced by a lesser performer.

Why are differences in performance assumed to covary with differences in pay? Actually, this assumption is true only in a perfectly competitive labor market.<sup>33</sup> In a perfectly competitive labor market, every worker earns the marginal revenue product accrued to the firm from his or her labor. Thus, the firm is indifferent to workers whose compa-ratios are 0.80, 1.0, or 1.20 because each worker is paid exactly what he or she is “worth.”

Many entry-level jobs (for example, management analysts) approximate conditions in which it is reasonable to assume that compa-ratio differences reflect performance differences. Above the entry level, however, labor markets are often imperfect because workers develop what economists call “firm-specific human capital.”<sup>34</sup> Workers who have specific job knowledge that their firms value (for example, in banking, automobiles, or computers) tend to command higher wages. However, their value is reflected only partly in their higher wages. Wages reflect what economists call “opportunity costs,” or the value of a worker’s second-best employment opportunity. Competitors are able to offer only a wage that reflects the economic value of a worker to them. Therefore, opportunity costs and the wage rates paid to valued employees tend to reflect only the portion of a worker’s economic value that is easily transferable from one employer to another (that is, “generic”). The portion of an employee’s value that is not easily transferable, the firm-specific component, typically is reflected only partially in employee wages, if at all. Thus, the economic value of workers with firm-specific human capital is

above their wage (opportunity cost) level but can be assumed to be proportionate to these wages.

If an employee with substantial amounts of firm-specific human capital leaves the firm and is replaced by a worker who lacks such firm-specific human capital, the replacement will receive a lesser wage. However, if a poor performer leaves and is replaced by a worker with more human capital, albeit non-firm-specific, the replacement will receive a higher wage than the leaver.<sup>35</sup> The difference in pay between leavers and their replacements thus represents an indicator, although an imperfect one, of the “uncompensated performance differential” due to firm-specific human capital, and it should be considered when determining the net costs of turnover.

The assumption that excess value to the firm is a function of wages paid and that excess value and wages covary in a linear (straight-line) fashion is conservative. In practice, the relationship can be curvilinear (positive or negative). For our purposes, however, the conservative assumption of a linear relationship between excess value and wages is appropriate. At the same time, higher (lower) wages paid to a replacement employee represent an additional, ongoing cost (or saving) to an organization. It is appropriate to calculate such a pay differential, for it is part of the differential value of the replacement, relative to the employee who left. Although an offsetting strategic value may justify paying a replacement more, that is often a subjective estimate by decision makers.

For Wee Care, assume that the net DP = \$200,000. On average, therefore, the firm hired slightly poorer performers than it lost. The following equation, which uses the four major components of employee turnover, represents the total cost of employee turnover:

$$\text{Total cost of turnover} = S_T + R_T + T_T + D_P$$

Here,  $S_T$  is total separation costs,  $R_T$  is total replacement costs,  $T_T$  is total training costs, and  $D_P$  is net differential performance between leavers and their replacements.

For Wee Care, the total cost of 288 employee turnovers during a one-year period was as follows:

$$\$467,967.36 + \$2,216,448 + \$823,772.16 + \$200,000$$

$$= \$3,508,387.50$$

This represents a cost of \$12,166.90 for each employee who left the hospital.

## **THE COSTS OF LOST PRODUCTIVITY AND LOST BUSINESS**

In several places earlier in this chapter, we mentioned that it is useful to include the costs of lost productivity and lost business in the fully loaded cost of employee turnover, if it is possible to tally such costs accurately. Seven additional cost elements might be included, as follows:<sup>36</sup>

- The cost of additional overtime to cover the vacancy (wages + benefits × number of hours of overtime)
- The cost of additional temporary help (wages + benefits × hours paid)
- Wages and benefits saved due to the vacancy (these are subtracted from the overall tally of turnover costs)
- The cost of reduced productivity while the new employee is learning the job (wages + benefits × length of the learning period × percentage reduction in productivity)

- The cost of lost productive time due to low morale of remaining employees (estimated as aggregate time lost per day of the work group  $\times$  wages + benefits of a single employee  $\times$  number of days)
- The cost of lost customers, sales, and profits due to the departure (estimated number of customers  $\times$  gross profit lost per customer  $\times$  profit margin in percent)
- Cost of additional (related) employee departures (if one additional employee leaves, the cost equals the total per-person cost of turnover)

In terms of analytics, one final caution is in order: Don't be misled by variability across departments or business units that are based on small numbers. After all, if a six-person department loses two employees, that's a 33 percent turnover rate. We noted in [Chapter 2, "Analytical Foundations of HR Measurement,"](#) the dangers associated with generalizing from small samples that are not representative of the larger population they are designed to represent. In the case of small-sample turnover statistics, to make the sample more representative, it might make sense to segment employee turnover into broader categories that include larger numbers of employees.

Remember, the purpose of measuring turnover costs and using analytical strategies to reveal their implications is to improve managerial decision-making. Consider a brief example of one such an analysis.<sup>37</sup> Based on the model shown in [Figure 4-2](#), the researchers developed an analytical model that captured the value associated with employee separations (turnover) and acquisitions (hires) over a four-year period. Their model estimated three components in each time period:

- **Movement costs:** The costs associated with employee separations and acquisitions

- **Service costs:** The pay, benefits, and associated expenses required to support the workforce
- **Service value:** The value of the goods and service produced by the workforce

Then they estimated the dollar-valued implications of three different pay plans (equal pay increases plus two types of pay-for-performance plans) and of the subsequent separation and acquisition patterns over the four years. They did so by subtracting the movement costs and service costs from the service value. In short, they subtracted each pay plan's costs from its benefits.

Traditional compensation-cost analysis suggested that a strong link between pay and performance would be unwise, given its extreme cost. When the potential benefits of workforce value were accounted for, however, a different conclusion emerged. By fully incorporating both costs and benefits into their model, the researchers showed that even under the most conservative assumptions, pay-for-performance was a valuable investment, with potentially very high payoffs for the firm, in part because it caused poor performers to leave more often and good performers to leave less often. This reinforces a point we made at the beginning of the chapter: Turnover is only one part of a family of external moves. Adopting a broader perspective is a wise strategy indeed.



## PROCESS

Organizational budgeting practices sometimes provide a natural opportunity to use the costs of employee turnover as part of a broader framework to demonstrate tangible economic payoffs from effective management practices. When line managers complain that they cannot keep positions filled or that they cannot get enough people to join as new hires, it is a prime opportunity to elevate the conversation.

Revenue at Superior Energy Services in New Orleans is based on billable hours. That fact gave Ray Lieber, the HR vice president, an opportunity to portray every separation as lost revenue. Nearly half of the separations were skilled operators or supervisors with high impact on revenue. Then he made the case for an investment in statistical modeling to predict how to reduce turnover. He discovered that the most significant factor was not higher pay or benefits, but one-on-one coaching from supervisors. Superior Energy invested in supervisor coaching training and saw turnover drop from 34 percent to about 27 percent.<sup>38</sup>

Thrivent Financial for Lutherans in Minneapolis had always assumed that the more experience a new hire had in the job he or she was hired into, the less likely that new hire was to leave, but it found just the opposite when it analyzed turnover data. That gave HR leaders at Thrivent the chance to get the attention of line management and to invest in studies to discover why those with more experience were more likely to leave. Similarly, at Wawa, Inc., a Pennsylvania food service and convenience company, leaders had suspected that hourly wage was the biggest factor in turnover among clerks, but careful analysis found that the most significant turnover predictor was hours worked. Those working more than 30 hours per week were classified as full-time and separated less. This discovery opened the door to

moving from 30 percent part-time to 50 percent full-time, reducing turnover rates by 60 percent.<sup>39</sup>

As a final example, consider the SAS Institute of Cary, North Carolina. SAS is renowned for its low voluntary turnover rate among computer programmers. In an industry that routinely experiences 20 percent voluntary turnover per year among programmers, at SAS, turnover runs about 3 percent per year. It does that largely through its enlightened management practices. Those practices are founded on the idea that in an intellectual capital business, attracting and retaining talent is paramount, and the way to attract and retain good people is to give them interesting work and interesting people to do it with, and treat them like the responsible adults they are.

SAS is justifiably famous for its pleasant physical work environment and generous, family-friendly benefits. Those benefits include an on-site 7,500-square-foot medical facility and a full-indemnity health plan that includes vision, hearing, and dental care; free physical exams; and free mammography. It also provides on-site Montessori day care, a fitness center, soccer, and softball fields. All this is free to employees and their families. The company even provides towels and launders exercise clothes—also for free. Finally, it provides elder care, domestic-partner benefits, and cafeterias with subsidized meals.<sup>40</sup>

Suppose that a line leader addresses the following question to HR leaders: “I’m happy that our turnover among programmers is 3 percent, but are we spending too much to keep them, and is it worth it?” In answering that very reasonable question, an HR leader might begin by reviewing the company’s business model. In brief, it is as follows.<sup>41</sup>

SAS relies on annual product renewals from its clients, who use its software for deep analysis of their organizational databases. SAS also relies on employees for innovations and services that are tailored to those clients' particular industry requirements and their unique competitive positions in their industries. This means that client relationships with SAS advisers need to be based on a thorough, shared understanding about industry-specific competition and on long-term trust. This may be more important for SAS than for its competitors, whose business models are based more on software purchases than renewable licenses and whose value proposition is not so deeply dependent on close and well-informed relationships with clients.

One way that SAS creates the capability, opportunity, and motivation to achieve this kind of deep, common, client-focused synergy is by creating an employment model that attracts and motivates programmers, designers, and client advisers to join and stay for the long run. This is a distinctive value proposition because a long-term employment deal is unusual in professions where the norm is to move from project to project, often changing employers many times in a few years to find the most interesting work or a higher paycheck.

The HR leader might then present the cost implications of that 17 percent difference in employee turnover between SAS and the software industry. Table 4-2 includes some hypothetical calculations.

Annual turnover	3%	20%
Annual salary	\$60,000	\$60,000
Number per 1,000 programmers who leave	30	200
Cost of turnover per programmer (1.5 × salary)	\$90,000	\$90,000
Total cost	\$2,700,000	\$18,000,000
Annual opportunity savings at SAS	\$15,300,000	

**Table 4-2. Annual Opportunity Savings from Lower Employee Turnover among Programmers: SAS Versus the Software Industry**

Of course, the annual opportunity savings does not include the incremental, yearly cost to SAS of providing such generous benefits to its employees. Assume, however, that the annual cost of benefits per SAS employee is as high as 50 percent of salary (compared to a 2008 U.S. average of 39 percent).<sup>42</sup> Its incremental, yearly cost, relative to its competitors', is thus roughly 11 percent higher. The total annual opportunity savings to SAS as a result of lower employee turnover may be viewed as an annuity that helps to pay for the benefits that keep employee turnover low. Because it takes a long time for a new employee to develop the kind of shared understanding and high level of trust with clients that is central to the SAS business model, retaining talent truly is critical to achieving the company's strategic objectives. The answer to the line leader's original question is that SAS's investments in generous employee benefits are likely to be worth it.

## EXERCISE

Software that calculates answers to one or more of the following exercises can be found at <http://hrcosting.com/hr/>.

1. Ups and Downs, Inc., a 4,000-employee organization, has a serious turnover problem, and management has decided to estimate its annual cost to the company. Following the formulas presented in Figures 4-3, 4-4, and 4-5, an HR specialist collected the following information. Exit interviews take about 45 minutes (plus 15 minutes preparation); the interviewer, an HR specialist, is paid an average of \$31 per hour in wages and benefits; and, over the past year, Ups and Downs, Inc., experienced a 27 percent turnover rate. Three groups of employees were primarily responsible for this: blue-collar workers (40 percent), who make an average of \$33.20 per hour in wages and benefits; clerical employees (36 percent), who make an average of \$18.50 per hour; and managers and professionals (24 percent), who make an average of \$44.75 per hour. The HR department takes about 90 minutes per terminating employee to perform the administrative functions related to terminations; on top of that, each terminating employee gets two weeks' severance pay. All this turnover also contributes to increased unemployment tax (old rate = 5.0 percent; new rate = 5.4 percent); because the average taxable wage per employee is \$22.90, this is likely to be a considerable (avoidable) penalty for having a high turnover problem.

It also costs money to replace those terminating. All pre-employment physicals are done by Biometrics, Inc., an outside organization that charges \$250 per physical. Advertising and employment-agency fees run an additional \$550, on average, per termination, and HR specialists spend an average of four more hours communicating job availability every time another employee quits. Pre-employment administrative functions take another two and a half hours per terminating employee, and this excludes pre-employment interview time (one hour, on average). Over the past year, Ups and Downs, Inc., records also show

that, for every candidate hired, three others had to be interviewed. Testing costs per applicant are \$14 for materials and another \$14 for scoring. Travel expenses average \$85 per applicant, and one in every ten new hires is reimbursed an average of \$55,000 in moving expenses. For those management jobs being filled, a 90-minute staff meeting is also required, with a department representative (average pay and benefits of \$37.75 per hour) present. In the past year, 17 meetings were held. Finally, post-employment acquisition and dissemination of information takes 75 minutes, on average, for each new employee.

And of course, all these replacements have to be oriented and trained. Informational literature alone costs \$19 per package, and a formal orientation program run by an HR specialist takes 2.5 days (20 hours) spread over the first two months of employment. New employees make an average of \$22.50 per hour in wages and benefits. After that, a formal training program (run 12 times last year) takes four 8-hour days, and trainers make an average of \$46 per hour in wages and benefits. About 65 percent of all training costs can be attributed to replacements for those who left. Finally, on-the-job training lasts three 8-hour days per new employee, with two new employees assigned to each experienced employee (average pay and benefits = \$36.25 per hour). During training, each experienced employee's productivity dropped by 50 percent. Net DP was + \$210,000. What did employee turnover cost Ups and Downs, Inc., last year? How much per employee who left? (Use the software available from <http://hrcosting.com/hr/> for all computations.)

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## 5. Employee Health, Wellness, and Welfare

We often think of vital human capital decisions being made by business leaders and their HR colleagues, but some of the most important talent decisions in every organization are made by employees themselves.

Employee decisions that affect their health and wellness have profound effects that are often overlooked. This chapter shows how to capture and evaluate these effects.

In 2009, Steve Burd, CEO of the U.S. supermarket chain Safeway, took eight trips to speak to U.S. politicians about reforming the health-care system. Safeway's health-care costs had been rising 10 percent per year for several years prior to 2004, but since then the company had kept health-care costs flat, compared to a 40 percent average increase in U.S. companies. How did Safeway do it? The company fully pays for an array of preventative visits and tests, but employees pay in full the next \$1,000 in expenses and 20% of costs after that, up to a \$4,000 maximum. Noting that 75 percent of health-care costs result from four conditions (cardiovascular disease, cancer, diabetes, and obesity), Safeway has a voluntary program that tests employees for smoking, weight, blood pressure, and cholesterol. Every area they pass results in a reduction in their insurance premiums of up to \$1,560 per family per year.<sup>1</sup>

According to the Centers for Disease Control (CDC), "chronic diseases account for more than 75 percent of the nation's \$2 trillion medical care costs."<sup>2</sup> Behavior determines approximately 50 percent of health status, and genetics and environment determine another 20 percent each. Access to care accounts for the remaining 10 percent.<sup>3</sup>

This chapter deals with the economic impacts of employee lifestyle choices on health-care costs, the return on investment of worksite health-promotion programs, and the costs and benefits of employee assistance programs. Our objective is not to describe the structure, content, or operational features of such programs, but rather to present methods for estimating their economic impact on an organization. To provide some background on this issue, let's begin by considering the relationship of unhealthy lifestyles to health-care costs. Following that, to provide some perspective on firm-level decisions about health-care expenditures, we present a logical framework that illustrates how changes in employee health affect financial outcomes.

## **HEALTH, WELLNESS, AND WORKSITE HEALTH PROMOTION**

It is important to note that the concept of health includes more than just the absence of illness. Wellness represents the balance of physical, emotional, social, spiritual, and intellectual health.<sup>4</sup> A 2009 Towers-Watson study found that companies that perform best in controlling health-care costs more often take these actions:<sup>5</sup>

- **Clearly articulate their strategies:** Fully 84 percent of high performers use results measures to build action plans for performance improvement, versus 43 percent of low performers.
- **Engage leaders:** The vast majority of high performers (86 percent) have secured senior management involvement, which is a critical performance factor (compared to 57 percent of low performers).
- **Understand their employee populations:** Three-quarters of high performers measure employee health

status and risks by population segment (compared to 46 percent of low performers).

- **Engage employees:** Most high performers (65 percent) provide health-care communications, employee education, and access to health information year-round (compared to only 34 percent of low performers).

- **Optimize investments:** Fully 80 percent of high performers take steps to align subsidies and resources with employees' most significant needs (compared to only 29 percent of low performers).

- **Support employee health:** Seventy-four percent of high performers actively help employees understand and manage their health and health risks (compared to only 22 percent of low performers).

- **Measure for success:** The majority of high performers measure such critical success factors as employees' understanding and use of resources and tools (81 percent of high performers versus 47 percent of low performers), as well as employee attitudes and understanding of their benefit programs (82 percent of high performers versus 53 percent of low performers).

## **SKYROCKETING HEALTH-CARE COSTS BROUGHT ATTENTION TO EMPLOYEE HEALTH**

The potential relationships between employee health and organizational productivity are obvious, but the issue is particularly significant in the United States, where health care is largely paid for by corporations and individuals instead of being provided more universally by the government. Even in the United States, organizations did not begin to seriously address the issue of health-care cost containment until a substantial increase in health-care costs forced them to look for savings. How large of a run-up? From 2000 through 2005, U.S. employers hiked workers' annual contributions for family health coverage by 68 percent, from an average of \$1,600 to \$2,700.<sup>6</sup> A 2009 Kaiser Family Foundation study found that 22 percent of workers now pay deductibles of more than \$1,000, up from 10 percent in 2006. Premiums for employer-sponsored health insurance rose 5 percent in 2009 to \$13,375 for a family, more than doubling from \$5,791 ten years ago.<sup>7</sup>

Rising health-care costs often translate into less disposable income for employees because wage increases have not kept pace with rising employee health-care contributions. Higher insurance premiums can also cut into disposable income. In 2010, the U.S. Department of Health and Human Services chided health insurance companies for "massive increases" such as the 39 percent premium increase for individual plans from one company in California.<sup>8</sup> To illustrate, average out-of-pocket medical costs for employees more than doubled between 2000 and 2005, with wages growing only 18 percent.<sup>9</sup> Employers may offset increased health-care costs by holding down wages.<sup>10</sup> Even with such cost shifting, health-related employer costs have risen dramatically. Moreover, no matter who bears the cost,

opportunities to reduce such costs can benefit both employers and employees.

## **TWO BROAD STRATEGIES TO CONTROL HEALTH-CARE COSTS**

To help control spiraling medical costs, organizations can pursue one or both of two broad tactics:

- Improve workers' health habits
- Reduce employer payments for employee health insurance or health care

Unfortunately, evidence indicates that employees who are most at risk often find it most difficult to change to healthier lifestyles, so the first strategy can be difficult. Employers can use economic incentives to motivate employees. A combination of the two approaches links employee lifestyle choices to their personal health insurance or medical-care costs. Rockford Products Corp., which makes metal parts used in items from Caterpillar earthmovers to yo-yos, combed through 15 years of records and found that 31 of 32 workers who had heart attacks or required major heart surgery—including 2 who keeled over in the factory—were smokers.<sup>11</sup> Pitney Bowes, Inc., used statistical modeling to identify future high-cost health claims caused by failure to adhere to prescribed medication. The company modified its pharmacy benefit structure to make such medications affordable. For example, the company moved statins used to treat high cholesterol and angiotensin-converting enzyme (ACE) inhibitors for treating high blood pressure to a zero-copay tier, making these drugs free of charge. “We see fewer emergency room visits, and we also see people being able to come to work and be more productive,” says Andrew Gold, executive director of global benefits planning. “That creates an overall benefit to the company and to employees.”<sup>12</sup>

Wellness programs therefore hold considerable promise as a strategy to reduce those costs. Support for such programs is growing, as a *Wall Street Journal*/Harris poll found.<sup>13</sup> More than half of all adults surveyed (53 percent) said it would be fair to ask people with unhealthy lifestyles to pay higher insurance premiums than people with healthy lifestyles, whereas 32 percent said it would be unfair. When asked the same question in 2003, 37 percent said it would be fair, whereas 45 percent said it would be unfair. The American Institute for Preventive Medicine estimates that 62 percent of employers have some type of health-improvement program in place.<sup>14</sup>

Of course, health and wellness investments can also translate into savings for companies. The 2010 Towers-Watson survey found that the high-performing companies had a health-care cost of \$9,240 per employee per year, compared to \$11,244 for low-performing companies. Although 35 percent of low performers reported double-digit cost increases in the prior year, 33 percent of high performers kept their cost increases below 4 percent. Even more interesting is that the cost reductions were not simply achieved by passing along costs to employees. The annual employee contribution in high-performing companies was \$2,028, compared to \$2,496 in low-performing companies.<sup>15</sup> As noted in [Chapter 3, “The Hidden Costs of Absenteeism,”](#) research suggests that for every \$1 spent on direct pharmacy costs, an organization incurs \$2.30 in health-related productivity costs.

As lucrative as these returns can be, not all investments in employee health are appropriate for all companies, and they don’t work equally well in all situations or for all employee groups. How can organizations analyze their options and make choices?



We now turn to the logic that connects investments in employee health and welfare to strategic organizational outcomes.

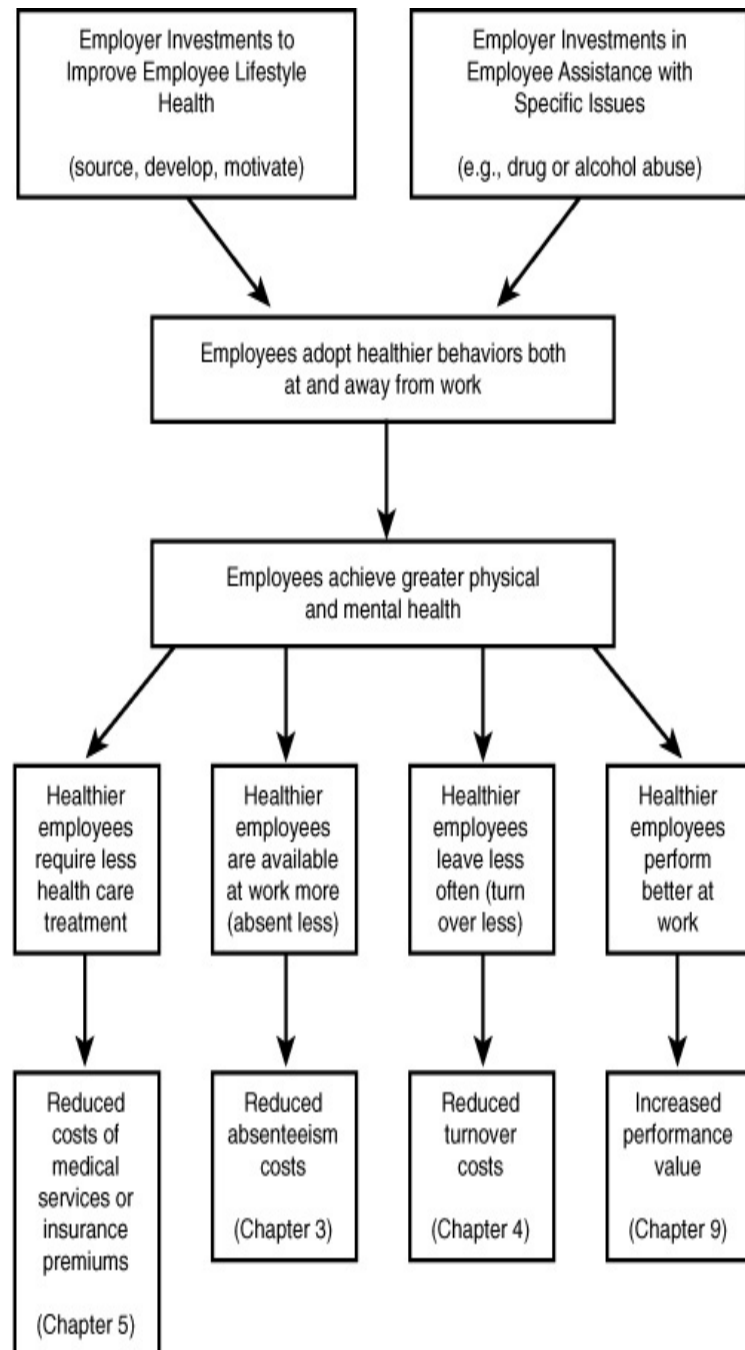
### **LOGIC: HOW CHANGES IN EMPLOYEE HEALTH AFFECT FINANCIAL OUTCOMES**

Simply put, the logic of the costs and benefits of employee health and wellness can be traced through the following logical connections:

- Organizations invest in programs that attract, select, develop, or encourage employees to improve their health at the worksite and in their lifestyles.
- Organizations invest in employee assistance programs to address specific employee health issues.
- Employees respond by adopting healthier lifestyle behaviors both at work and away from work.
- Healthier employees require less treatment for health problems, reducing employer-paid health-care services or group health insurance premiums.
- Healthier employees are available at work more often because they are absent less (due to both personal health and family health issues), and they separate less frequently.
- Healthier employees perform better at work due to greater physical and mental capacity.

Figure 5-1 shows logical connections between changes in employee health and financial outcomes. The process begins with organizational policies and practices that encourage employees to make healthy lifestyle choices, or with assistance with specific issues such as alcoholism or drug abuse. These might include staffing policies, changes in insurance programs (as those at Pitney

Bowes, described previously), programs to educate employees about health-risk factors, health screenings, and opportunities to improve personal fitness. You're probably wondering, "Okay, but how much can my company expect to gain from these efforts?" One estimate attributes fully 15–25 percent of corporate health-care costs to employees' unhealthy lifestyles.<sup>16</sup>



**Figure 5-1. Logic of employee health and wellness.**

In light of these potential savings, some companies have adopted policies to preempt higher health-care costs by not hiring those with unhealthy lifestyles in the first place. For example, Rockford Products imposes a \$50 per month fee on employees who smoke, are obese, or suffer from hypertension.<sup>17</sup> Turner Broadcasting won't hire smokers. Multi-Developers won't hire anyone who engages in what the company views as high-risk activities: skydiving, piloting a private aircraft, mountain climbing, or motorcycling. Weyco, Inc., an insurance-consulting firm, gave smokers 15 months to quit and offered smoking-cessation programs to help them do so. After that, it tested employees for evidence of nicotine in their bodies. If they failed the test, they were fired.<sup>18</sup>

Continuing on with the logic of Figure 5-1, if organizational policies and practices are effective, this should lead to changes in the behavior of employees, and, eventually, in the health of employees over time. Improved health may be reflected in outcomes such as higher levels of cardiovascular fitness, weight loss, and lower levels of stress. Those changes, in turn, should lead to changes in behaviors, such as reduced absences, accidents, and employee turnover, accompanied by higher levels of employee productivity. Changes in behavior should be reflected eventually in improved financial outcomes: fewer insurance claims; lower overall medical costs; reductions in the costs of employee absence, accidents, and turnover; and higher sales value of products and services.

## THE TYPICAL LOGIC OF WORKPLACE HEALTH PROGRAMS

As [Figure 5-1](#) suggests, a useful first step in estimating the savings that accrue from a workplace health promotion (WHP) program is to choose which health-related costs are actually reduced. Some firms establish WHP programs with very specific objectives, such as to reduce the rising costs associated with premature births or to realize cost savings through early cancer detection and treatment. Programs with specific objectives make evaluation more straightforward. Unfortunately, however, the great majority of WHP programs are implemented without such specific objectives.

A survey of wellness program objectives for selected Fortune 500 companies showed these top five objectives:

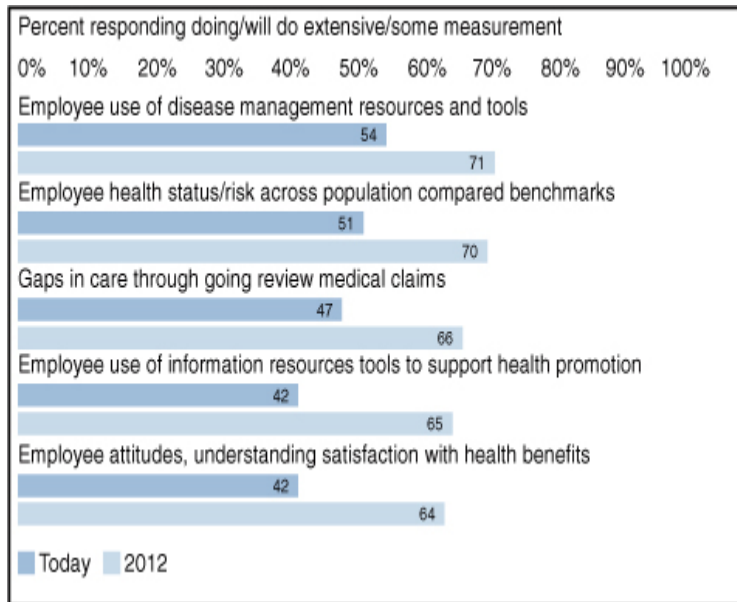
1. To promote better health
2. To improve cardiovascular fitness
3. To reduce coronary risk factors
3. To decrease health-care costs
4. To improve employee relations<sup>19</sup>

How might we evaluate objectives 1 and 5?

Improvements in objectives 2 and 3 are important, to be sure, but how do they relate specifically to a firm's health-care costs? Finally, with respect to objective 4, how might we demonstrate the extent to which a reduction in health-care costs was due to a WHP program and how much to other factors?

The 2010 Towers-Watson health-care cost survey revealed measurement practices and intentions shown in [Figure 5-2](#). The measures tend to be closely focused on

immediate program usage patterns and employee attitudes toward health management and benefits. Yet the ultimate outcomes of these attitudes and behaviors are not among the most commonly listed measures.



Source: Towers-Watson. 2010 Health Care Cost Survey (Stamford, Conn.: Towers Watson, 2010), p. 17, Exhibit 20.

**Figure 5-2. Health cost measurement in U.S. companies.**

This is not to diminish the good intentions or employment commitment of firms that instituted wellness programs. However, comparing this list of objectives with the logical approach of [Figure 5-1](#) suggests that setting more specific objectives and carefully analyzing the connections can significantly enhance the ability to measure the effects of such programs (and even the effects themselves).

## **LEGAL CONSIDERATIONS AND INCENTIVES TO MODIFY LIFESTYLES**

At first glance, it might appear that changing employees' unhealthy lifestyles is a win-win for employer and employees. However, some practices would reject applicants with certain lifestyles or even dismiss employees for certain behaviors (for example, smoking, skydiving). If an employer wants to institute such policies, can employees contest them? U.S. civil rights laws generally don't protect individuals against such "lifestyle discrimination" because smokers and skydivers aren't named as protected classes. In addition, more than half of all states prohibit termination for various types of off-duty conduct (for instance, use of tobacco products). U.S. employers also need to beware of violating the Americans with Disabilities Act (ADA). Obesity, for example, is generally not considered to be a disability under the ADA.<sup>20</sup> However, in 2009, the U.S. government implemented the Genetic Information Nondiscrimination Act, which restricts employers' and health insurers' ability to collect and disclose genetic information, including family medical history. Some employers say the law stymies wellness-promotion efforts by barring them from offering financial incentives to complete health surveys that ask about family history.<sup>21</sup>

## **ANALYTICS FOR DECISIONS ABOUT WHP PROGRAMS**

Companies that market their WHP programs provide statistics to support their claims of savings in health-care costs, but calculating how much any given employer can expect to save is difficult because program sponsors use different methods to measure and report cost-benefit data. When a program's effects are measured and for how long they are measured are crucial considerations. For example, DuPont found that the greatest drop in absenteeism due to illness occurred in the first two or three years; then it leveled off. Other effects, which might not appear for three years or longer, are so-called lagged effects. The greatest savings should accrue over time because of the chronic nature of many illnesses that WHP programs seek to prevent. However, employers should actually expect to see an increase in health-care claims after initial health assessments are done, as employees remedy newly identified problems.<sup>22</sup>

In Chapter 1, "Making HR Measurement Strategic," we noted that analytics relies on rigorous research designs and statistical analyses to draw proper conclusions from data. In Chapter 2, "Analytical Foundations of HR Measurement," we emphasized the need to use control groups that did not participate in a treatment (for example, education about healthy lifestyles) in the context of an experimental or quasi-experimental research design to rule out alternative explanations for results.

Unfortunately, many companies use no control groups when evaluating their WHP programs. Without a control group of nonparticipating employees, it is difficult to tell how much of the improved health is due to the WHP program and how much is due to popular trends (for example, the general fitness craze), changes in state or

local health policies and regulations, and changes in medical insurance. Other potential methodological problems include biases due to self-selection (those at high risk are less likely to participate) and employees who drop out of a program. The resulting evaluations have little internal or external validity because they report results only for employees who voluntarily participate in and complete the program.

Researchers also need to address unit-of-analysis issues. Thus, if data is evaluated across worksites at the level of the individual employee, the effect of a WHP program tends to be overstated because the design ignores within-worksite variation. In practice, substantial differences have been found across different worksites receiving the same intervention.<sup>23</sup> Conversely, if the unit of analysis is the plant or worksite, a very large number of sites per intervention is necessary to achieve adequate statistical power to detect effects, if they exist (see [Chapter 2](#) for more on statistical power).

It is advisable to commit to health promotion with a corresponding commitment to data collection. Without data, evaluation is impossible. In the accompanying sidebar, General Motors provides a good example of harnessing analytics and the power of existing data to gain insights into the potential value of workplace health programs.



#### **Analytics and WHP to Deal with Obesity at General Motors**

In analyzing the records of its 1.1 million beneficiaries, GM found that 26 percent were obese under federal guidelines (a body weight that exceeds standard height and weight by 20 percent or more). "Morbid" obesity refers to a body weight more than 100 percent above the norm or more than 100 pounds over the optimal weight.<sup>24</sup> GM also discovered that obese employees cost the company between \$1,000 and \$3,000 more in health services per year, on average, than beneficiaries who are not obese.<sup>25</sup> That suggests that obesity is costing GM at least \$286 million per year.<sup>25</sup> At the level of the individual employee, a longitudinal study of the impact of obesity on worker health and productivity found that obesity was equivalent to adding 20 years of age. Workers in their mid-20s and 30s had work limitations and cardiovascular risk factors similar to those of normal-weight workers in their 40s and 50s.<sup>26</sup>

As a result of collective bargaining with the United Auto Workers in late 2007,<sup>27</sup> GM changed the way it pays for health care among employees and retirees. At the same time, it also is encouraging improved employees' health, such as by installing gymnasiums at manufacturing plants. Installing gymnasiums is supported by some analytical evidence. The World Health Organization reported that workplace physical-activity programs in the United States can reduce the use of short-term sick leave by 6 percent to 32 percent, reduce health-care costs by 20 percent to 55 percent, and increase productivity by 2 percent to 52 percent.<sup>28</sup>

## **MEASURES: COST EFFECTIVENESS, COST-BENEFIT, AND RETURN-ON-INVESTMENT ANALYSIS**

Typically, the evaluation of a WHP program relies on some form of cost-effectiveness, cost-benefit, or return-on-investment (ROI) analysis. We discussed these concepts in some detail in [Chapter 2](#), and we apply them here.

### **Cost-Effectiveness Analysis**

Cost-effectiveness (C/E) analysis identifies the cost of producing a unit of effect within a given program. To illustrate, suppose a worksite hypertension-control program incurs an annual cost of \$50,000 for a 100-employee population. The average reduction in diastolic blood pressure per treated individual is 8 millimeters of mercury (mm/Hg). The C/E ratio is as follows:

$\$50,000 / 100 \div 8 \text{ mm/Hg} = \$62.50 \text{ per mm/Hg}$   
reduction

C/E analysis permits comparisons of alternative interventions designed to achieve the same goal. For example, the cost of \$62.50 to reduce each mm/Hg achieved by the program could be compared to alternative programs to reduce diastolic blood pressure that are not offered at the worksite. Unfortunately, from a financial perspective, C/E analysis fails to address the issue of whether the program should have been offered in the first place. Cost-benefit analysis overcomes that problem.

### **Cost-Benefit and Return-on-Investment Analysis**

Cost-benefit (C/B) analysis expresses benefits in monetary terms. One of the most popular forms of C/B analysis is ROI analysis (noted in [Chapter 2](#)).

Suppose that a WHP program costs a firm \$250,000 during its first year of operation. The measured savings are \$65,000 from reduced absenteeism, \$110,000 from reduced employer health-care payments (assuming a self-funded plan), and \$90,000 from reduced employee turnover. The ROI before interest and taxes is calculated as shown in [Table 5-1](#).

Benefit Type	Benefit Amount
Reduced absenteeism	\$65,000
Reduced health-care payments	\$110,000
Reduced employee turnover	\$90,000
Total expected benefits	\$265,000
ROI = Total expected benefit ÷ Program investment	
ROI = $\$265,000 \div \$250,000 = 106\%$	

**Table 5-1. ROI of WHP Program**

The preceding analysis is for a single time period. Data for future time periods (costs and benefits) should be

discounted to the present. The numbers provided here are abstract, and firms need to pay careful attention to how they derive them. With respect to absenteeism, for example, savings need to be attributed directly to the WHP program. Employees might take fewer sick days in a given year, and the cost savings from those days not used may be attributed to decreases in employee absenteeism, but how does one know that the savings are due to the WHP program? The same is true for savings attributed to reduced health-care payments or reduced employee turnover. Measures are blind to the logic and rationale behind the numbers. This is where sound analytics and research design play an important role. To attribute changes in any of the outcomes of interest to a WHP program, a combination of methods may be necessary, such as employee survey data combined with focus groups and structured individual interviews.

### **Conclusions Regarding Cost-Effectiveness, Cost-Benefit, and ROI Analyses**

Although the logic and techniques of C/E and C/B analysis (including ROI) appear straightforward, there are several unresolved issues, as noted in [Chapter 2](#). Much subjectivity is involved in the choice of variables to include in these models, in attributing savings directly to a WHP program, in estimating the timing and duration of program effects, and in discounting the dollar value of costs and benefits that occur in future time periods. Because of this subjectivity, it is important to conduct sensitivity analyses (to examine the impact of variations in assumptions on C/E and C/B ratios) and break-even analysis (see [Chapter 2](#)) to identify the minimum levels of dependent variables (such as early cancer detection or savings in absenteeism) that will allow recovery of investments in the WHP program.

## **SOLVING THE ANALYSIS AND MEASUREMENT DILEMMAS TO IMPROVE DECISIONS ABOUT WHP PROGRAMS**

To summarize, these analytical issues can affect decisions about WHP programs:

1. Managers have difficulty identifying the health-related costs that actually decreased.
2. Program sponsors use different methods to measure and report costs and benefits.
3. Program effects may vary depending on when they are measured (immediate versus lagged effects).
4. Program effects may vary depending on how long they are measured.
5. Few studies use control groups.
6. Potential biases exist as a result of self-selection and exclusion of dropouts.
7. Analysis at the level of the individual employee ignores within-site variation. However, analysis at the level of the worksite may produce low statistical power to detect effects.
8. Data on effectiveness is limited in the choice of variables, estimation of the economic value of indirect costs and benefits, estimation of the timing and duration of program effects, and estimation of the present values of future benefits.

A sound experimental design is one that allows cause-and-effect relationships to emerge. In this section, we present an evaluation strategy that includes a mix of features that are rarely gathered in actual evaluations but should serve as an ideal toward which organizations

should aim. The strategy begins with a determination of the demographics of an organization (age, gender, race, and ethnicity), identification of high-risk employees, expected participation rates, and start-up and maintenance costs required to reach an organization's goals (such as reducing the incidence and costs of undetected cancerous conditions).

The next step is to develop a testing and tracking system to quantify the outcomes of the WHP program for both participants and nonparticipants. Individuals in these two groups should be matched as closely as possible in terms of characteristics such as gender, age, weight category, and lifestyle variables. Pre- and post-comparisons can be made for both groups in terms of behavioral changes, health-care costs, fitness level, absenteeism, turnover, injury rate and severity, productivity, and job satisfaction. Quantifiable variables (such as health-care costs and absenteeism) must be analyzed separately by demographic or socioeconomic cohort, for both participants and nonparticipants. Regression, path analysis, or meta-analysis can rule out alternative explanations for observed results. Finally, cost-benefit analyses must include present and future benefits, expressed in current dollar values.

Although a growing number of studies report favorable C/E or C/B results, it is difficult to evaluate and compare the studies because no widely accepted approach currently exists for estimating costs and benefits. Different authors use different assumptions in their estimates of WHP intervention costs and dollar benefits, and small changes in assumptions can have large effects on the interpretation of results. Meta-analyses (that is, quantitative cumulations of research results across studies) and single studies that are based on very large sample sizes can deal with many of these methodological

difficulties.<sup>29</sup> Several such analyses have now been done for WHP programs, as the next section demonstrates.

### **Process: Communicating Effects to Decision Makers**

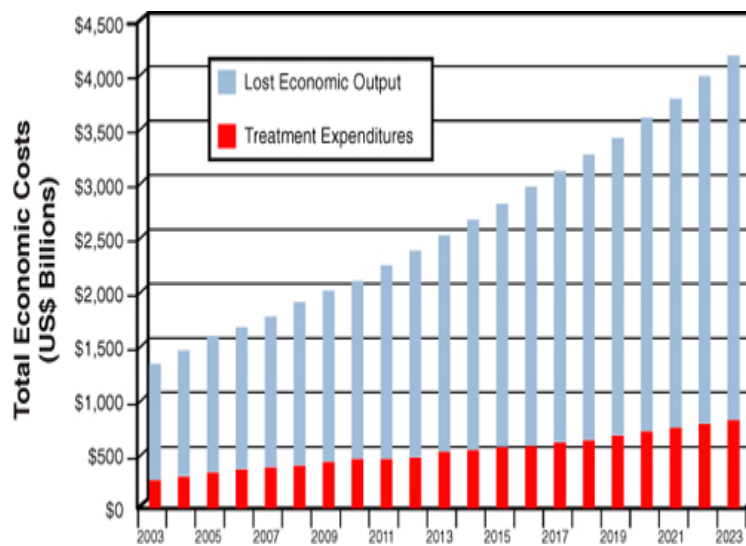
In communicating the results of WHP programs, it may be helpful to begin by presenting some national-level statistics to serve as benchmarks against which to measure a firm's employees. Consider four broad categories of such data: chronic conditions, smoking, regular exercise, and lifestyle choices.

#### **Chronic Conditions**

A 2007 Milken Institute report, *An Unhealthy America*,<sup>30</sup> analyzed 2003 data (the most recent available) from the Medical Expenditure Panel Survey by the Agency for Healthcare Research and Quality. Their findings included the statement that more than half of all Americans suffer from one or more chronic diseases. Each year millions of people are diagnosed with chronic disease, and millions more die from their condition. Despite dramatic improvements in therapies and treatment, disease rates have risen dramatically. Diabetes has become a new national epidemic, and rapidly rising rates of obesity and cardiovascular disease threaten to cancel the gains we have made over the past decades. The study estimated that the total impact of these diseases on the U.S. economy is \$1.3 trillion annually, including productivity losses of \$1.1 trillion per year and \$277 billion per year spent on treatment.

A 2007 study in the *Journal of Occupational and Environmental Medicine* found that costs of productivity loss were four times the cost of direct medical costs for a chronic condition.<sup>31</sup> This includes the cost of “presenteeism” (see [Chapter 3](#)), in which employees are present at work but are producing much less due to poor health or distractions.<sup>32</sup>

Figure 5-3 shows the estimated cost projections for several chronic conditions through the year 2023.



Source: Ross DeVol & Armen Bedroussian. *An Unhealthy America*. (Santa Monica, CA: Milken Institute, October 2007). p. 12, Figure 8.

**Figure 5-3. Estimated treatment costs and lost economic output due to chronic conditions (2003–2023).**

Milken Institute estimated that, with modest reductions in obesity and smoking, 27 percent of these costs might be avoided, amounting to trillions of dollars. Although these percentages may not apply to individual firms, this suggests that opportunities abound for reducing firms' health-care costs. Employees with chronic diseases such as asthma, diabetes, and congestive heart failure, all of which can be managed, account for 60 percent of the typical employer's total medical costs.<sup>33</sup> One report estimated that 4 percent of employees with serious health conditions account for almost half of their employers' annual healthcare spending.<sup>34</sup>

When you have presented this broad information as background, consider presenting a second, more focused set of information that relates more directly to ROI analyses of WHP programs in your own organization.

## **ROI Analyses of WHP Programs**

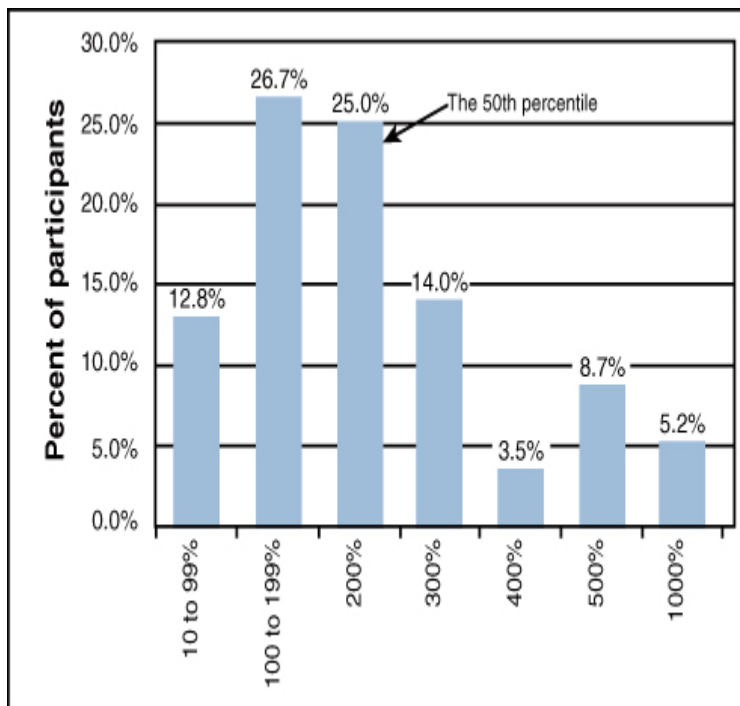
The return for such programs has been reported at anywhere from \$1.81 (Unum Life) to \$6.15 (Coors) per dollar invested. Peer-reviewed evaluations and meta-analyses show that ROI is achieved through improved worker health, reduced benefit expense, and enhanced productivity.<sup>35</sup> A review of 72 articles concluded that health-promotion programs achieve an average ROI of \$3.48 per \$1 invested when considering health-care costs alone, \$5.82 when considering absenteeism, and \$4.30 when both health-care costs and absenteeism are considered.<sup>36</sup> In a separate investigation, researchers conducted a 38-month case study of 23,000 participants in Citibank N.A.'s health-management program. They reported that, within a two-year period, Citibank enjoyed an ROI of between \$4.56 and \$4.73.<sup>37</sup> A follow-up study found improvements in the risk profiles of participants, with the high-risk group improving more than the "usual-care" group as a result of more intensive programs.

Worksite health-promotion programs attempt to reduce the health risks of employees at high risk, while maintaining the health status of those at low risk. Using an 18-year data set comprised of 2 million current and former employees, University of Michigan researchers found that increases in costs when groups of employees moved from low risk to high risk were much greater than the decreases in cost when groups moved from high risk to low risk.<sup>38</sup> Programs designed to keep healthy people healthy will likely provide the greatest ROI.

In conclusion, when communicating results to decision makers in your firm, we recommend that you begin with some broad statistics on health care, move on to more focused results that relate to WHP, and finish with results from your own firm, rooted in strong inferences



based on a research design such as the one shown in the preceding list. Chief financial officers (CFOs) may be a more receptive audience than one might think. Figure 5-4 shows the perceived percentage returns for each dollar spent improving workplace safety, among a sample of 231 corporate financial decision makers. Only 13 percent estimated returns at less than 100 percent, and 68.7 percent estimated returns between 100 percent and 300 percent. These results apply to investments in workplace safety, but they suggest that financial decision makers may be comfortable with estimated returns that are quite high compared to typical investments.



Adapted from Yueng-Hsiang Huang, Tom B. Leamon, Theodore K. Courtney, Sarah DeArmond, Peter Y. Chen, and Michael F. Blair, Financial Decision Makers' Views on Safety, *Professional Safety* (April, 2009). [www.asse.org](http://www.asse.org).

**Figure 5-4. Corporate financial officers' estimated returns to workplace safety investments.**

## **IMPROVING EMPLOYEE WELFARE AT WORK: EMPLOYEE ASSISTANCE PROGRAMS (EAPS)**

Whereas WHP programs focus on prevention, employee assistance programs (EAPs) focus on rehabilitation. An EAP is a system that provides confidential, professional care to employees whose job performance is or may become adversely affected by a variety of personal problems. Supervisors are taught to look for symptoms of declining work performance such as the following and then to refer employees to the EAP for professional help: predictable absenteeism patterns (for example, Mondays, Fridays, or days before or after holidays), unexcused or frequent absences, tardiness, and early departures; arguments with fellow employees; injuries caused to other employees through negligence, poor judgments and bad decisions; unusual on-the-job accidents; increased spoilage or broken equipment through negligence; involvement with the law; or a deteriorating personal appearance.<sup>39</sup>

### **The Logic of EAPs**

Today 87 percent of employers with more than 1,000 employees and 51 percent of those with 50–99 employees offer EAPs.<sup>40</sup> Modern EAPs are comprehensive management tools that address behavioral risks in the workplace by extending professional counseling and medical services to all “troubled” employees. A troubled employee is an individual who is confronted by unresolved personal or work-related problems. Such problems run the gamut from alcoholism, drug abuse, and high stress to marital, family, and financial problems. Although some of these may originate “outside” the work context, they most certainly will have spillover effects to the work context.

An emerging application of EAPs for critical incident stress response (CISR) is for unexpected, life-threatening, and time-limited events that cause symptoms of post-traumatic stress syndrome. These might include the death of a child, attempted or actual physical assault, break-ins, or a suicide attempt or completed suicide of a patient or prisoner. A 2009 paper by Mark Attridge describes that a CISR program following bank robberies in Australia showed worker absence reduced by 60 percent, and medical benefits and workers' compensation costs reduced by 66 percent. CISR after raids at post office businesses reduced sickness and absence by 50 percent. CISR after traumatic incidents at an Australian prison reduced the costs of assisting stressed employees by 90 percent.<sup>41</sup> Indeed, the economic downturn produced a new sort of "critical incident," the experience of a job loss or impending financial hardship by the employee or a member of the family. Aetna Behavioral Health, part of Aetna Inc., a health insurer, saw a 60 percent increase in EAP program members seeking help in the third quarter of 2008 versus the same period in 2007, with financial stress the main source of the increase.<sup>42</sup>

Statistics such as these lead to one inescapable logical conclusion: The personal problems of troubled employees can have substantial negative economic impacts on employers. To help resolve those problems, many employers have adopted employee assistance programs.

### **Costs and Reported Benefits of EAPs**

EAPs are either internal or external. An internal EAP is an in-house service staffed by company employees. An external EAP is a specialty-service provider hired by the employer; it may have multiple locations, to make it easy for clients to access. Such arrangements are especially convenient to small employers who do not have the resources to provide internal services. On the other hand, a comparison of the two models found that internal EAPs received 500 percent more referrals from supervisors and 300 percent more employee cases. Perhaps this is because most employees do not seek assistance on their own—they get help only when referred by their supervisors.<sup>43</sup> Costs of the two types of programs are similar: \$21.83 per employee per year for internal programs and \$18.09 for external programs.<sup>44</sup>

A large-scale review of the cost-effectiveness of EAPs concluded, “There is no published evidence that EAPs are harmful to corporate economies or to individual employees .... All of the published studies indicate that EAPs are cost-effective.”<sup>45</sup> By offering assistance to troubled employees, the companies promote positive employee-relations climates, contribute to their employees’ well-being, and enhance their ability to function productively at work, at home, and in the community.<sup>46</sup>

From a business perspective, well-run programs such as those at GM or ChevronTexaco seem to pay off, with benefit-cost ratios of 3:1, 5:1, or more. On the other hand, not all programs are equally effective, and anecdotal evidence of the effectiveness of EAPs abounds. Findings do not generalize across studies, however, unless the EAP is implemented in the same way. For example, as noted earlier, in some companies, counselors are available on-site. In other companies, it is possible to

access an EAP counselor only through a toll-free telephone number. Evidence indicates that when counselors are available on-site instead of solely through a toll-free number, the programs are more effective.<sup>47</sup> Results of the programs will be more interpretable, to the extent that proper research designs and methods for collecting data are followed. This is the purpose of analytics in the LAMP model, and we consider it further in the next section.

### **Enhanced Analytical Considerations in EAPs**

Actual results may not be quite as rosy as have been reported in the literature or the media. Evaluation may be ex-ante (estimates computed before implementation of an EAP) or ex-post (measurement of the costs and benefits of actual program operations and impacts after the fact). Evaluation may be expressed in qualitative terms or in quantitative terms.

If evaluation is expressed in quantitative terms, as many operating executives demand, two major issues must be considered. One is how to establish all program costs and benefits. To establish its costs, an EAP must incorporate an information system that can track factors such as insurance use, absenteeism, performance analysis, accidents, and attendance data. A second issue is how to express and translate the costs and benefits into monetary values. Benefits derived from an EAP may be very difficult to translate into economic terms. In addition, unless proper experimental controls are exercised, cause-effect relations between EAP involvement and one or more dependent variables may be difficult or impossible to identify. As a reminder, these ideas are summarized as follows:

- Identify all program costs and benefits.

- Express costs and benefits in economic terms.
- Demonstrate that implementation of the EAP has caused changes in outcomes of interest.

### **A Template for Measuring the Effects of EAPs**

In the following sections, we present detailed methods for expressing the returns of EAPs in economic terms for four important outcomes: productivity, employee turnover, unemployment costs, and savings in supervisors' time. These are by no means exhaustive, but they illustrate high-quality analysis elements that are often feasible but overlooked in typical situations.

#### **Productivity**

The productivity losses associated with troubled employees can be staggering. Here is one method for determining the productivity cost (ex-ante) attributable to employees who abuse alcohol.<sup>48</sup> To use the method properly, compute the following formula separately for each age–gender cohort. Then sum the costs for all age–gender cohorts.

#### **Equation 1**

No. of workers in age–gender cohort in workforce

× Proportion of workers in age–gender cohort with alcohol–abuse problems

× Annual earnings

× Productivity decrease attributable to alcohol

= Cost of alcohol-related reduced productivity

Two key inputs to this formula might be difficult to acquire:

- The proportion of workers in each age–gender cohort with alcohol abuse problems
- The productivity decrease attributable to alcohol

Over all cohorts, however, national figures suggest that 5 percent to 10 percent of a typical workforce suffers from alcohol abuse,<sup>49</sup> and that the figure may be as high as 16 percent across all full-time employees.<sup>50</sup> In well-controlled studies, productivity losses attributable to alcohol abuse have ranged from 14 percent to 21 percent.<sup>51</sup> However, one researcher has estimated that personal problems overall affect 18 percent of the workforce, resulting in an overall productivity loss of 25 percent.<sup>52</sup> It is important to note that the latter figure is an estimate, not a precise number derived on the basis of controlled research. It is used in the calculations shown here simply for illustrative purposes. Keep this in mind in analyzing the example and in applying the formula to actual work situations.

For one age–gender cohort in any given workforce, inputs to Equation 1 might be as follows:

100 workers in age–gender cohort in workforce

× 10 percent with alcohol abuse problems

× Annual earnings of \$45,000 per worker in cohort

× 20 percent productivity decrease attributable to alcohol

= Cost of alcohol-related reduced productivity of \$90,000

At a more general level, the city of Phoenix developed the following formula through its Project Concern to determine the costs due to troubled employees, as well as

(ex-ante) the amount of money that could be saved in terms of improved productivity through an EAP:<sup>53</sup>

## **Equation 2**

Compute the average annual wage of employees by dividing the average total number of employees into the annual payroll for employees.

Determine the proportion of the payroll for troubled employees. To do that, multiply the average annual wage by 18 percent of the total number of employees (average percentage of troubled employees identified across many studies).<sup>54</sup>

Determine the present loss in productivity due to troubled employees. To do so, multiply the result of step 2 by 25 percent (average productivity loss across studies).<sup>55</sup>

Identify the potential amount saved per year by an EAP. To do that, multiply the result of step 3 by 50 percent (actual success rate reported by Project Concern).

To illustrate, let us assume that a firm employs 100 workers, at an annual payroll cost of \$4.5 million, or \$45,000 per worker (step 1). To calculate the payroll for troubled employees, let us assume that 18 percent, or 18 workers, are troubled  $\times$  \$45,000 annual earnings/worker = \$810,000 (step 2). To determine the present cost of reduced productivity for these troubled workers, multiply \$810,000  $\times$  25 percent = \$202,500. Finally, to determine the potential amount of money that could be saved per year through an EAP, multiply \$202,500  $\times$  50 percent = \$101,250.

Note that potential savings in this example reflect only the direct cost of labor (just one component of productivity). To the extent that such savings do not



reflect the contribution of improved use of capital and equipment that can be realized by a fully productive employee, they will underestimate the actual level of savings the firm can realize.

#### **Costs of Employee Turnover in EAPs**

Turnover savings realized through the implementation of an EAP are “opportunity savings” (see [Chapter 2](#)) because they reflect costs that were not actually incurred.

In the hypothetical example that follows, let’s assume that 10 percent of 2,500 employees (250) can be expected to quit each year. Assume further that of the 250 employees who are expected to quit, 20 percent of them (50 employees) use the firm’s EAP. Of those 50, assume that 30 represent production employees, 10 are administrative/technical, and 10 are managerial. Based on the method for calculating the fully loaded cost of turnover that we described in [Chapter 4](#), “[The High Cost of Employee Separations](#),” (that is, separation, replacement, and training costs), potential turnover costs may be stated as shown in [Table 5-2](#).

	No. of People	No. Using EAP	Individual Cost	Total Cost
Production	150	30	\$60,000	\$1,800,000
Administrative/ technical	50	10	\$82,500	\$825,000
Managerial	50	10	\$140,000	\$1,400,000
Totals	250	50		\$4,025,000

**Table 5-2. Potential Turnover Costs**

For those employees who use the company’s EAP, assume that the actual number who terminate or quit after EAP involvement is as shown in [Table 5-3](#), a 50 percent turnover reduction.

	No. of People	Individual Cost	Total Cost
Production	15	\$60,000	\$900,000
Administrative/ technical	5	\$82,500	\$412,500
Managerial	5	\$140,000	\$700,000
<b>Totals</b>	<b>25</b>		<b>\$2,012,500</b>

**Table 5-3. Post-EAP Terminations**

Suppose as well that one result of EAP diagnosis is that some employees are hospitalized for their condition, at a cost of \$295,600 per year. So, the overall cost of the EAP is the program budget of \$400,000 plus the hospitalization of \$295,600, or \$695,600 per year.

To compute the ROI, use these numbers:

Turnover cost without EAP	\$4,025,000
Turnover cost with EAP	\$2,012,500
Net turnover cost benefit	\$2,012,500
ROI ([benefit - cost]/cost)	\$1,316,900 / \$695,600
= 189 percent or 1.89 for every \$1 invested	

Compiling this information year after year is particularly useful because numbers can be compared across years and trends can be identified.

#### **Unemployment Compensation in EAPs**

Assume in the preceding example that employees who quit draw unemployment compensation for an average of six weeks, at an average of 60 percent of full-time pay. If the firm's average hourly wage rate was \$24 per hour in 2010, the savings in unemployment compensation would be  $\$24 \times 25 \text{ people} \times 40 \text{ hours/week} \times 6 \text{ weeks} \times .62 = \$89,280$ . Obviously, this figure could be considerably larger if the hourly rate, the number of employees saved, or the duration of the unemployment compensation increased.

### **Savings in Supervisors' Time in EAPs**

Continuing with our hypothetical example, if the EAP were not available, supervisors would be forced to deal with employee problems. The hours that supervisors save by not dealing with problems is equal to the total number of hours spent in counseling sessions for the 50 employees who took part in the firm's EAP. Assume that each employee received 20 hours of counseling, on average. Thus, the supervisors had at least 1,000 hours to carry out their duties more effectively. Assuming that the average cost of one hour of supervisory time (wages plus benefits and overhead costs) was \$57.50 in 2010 dollars, the economic value of that time was  $\$57.50 \times 1,000 = \$57,500$ . Remember, as we cautioned in Chapter 2, the total pay of supervisors does not vary whether they are counseling troubled employees or not. The economic value of their time is simply a proxy, and an imperfect one at that, for the opportunity cost of the lost value that supervisors would have been creating if they had not been using their time to counsel troubled employees.

## **FUTURE OF LIFESTYLE MODIFICATION, WHP, AND EAPS**

Based on the research reviewed in this chapter, it is clear that WHP and EAP programs can yield significant payoffs to organizations that adopt them.

However, it also is clear that the programs do not work under all circumstances and that the problems associated with assessing relative costs and benefits may be complex. At the very least, we need well-controlled, longitudinal studies to investigate program costs and benefits and the extent to which behavior changes are maintained over time.

Moreover, the type and structure of programs should be evaluated for their success and impact on different populations of workers (older/younger; male/female; high, moderate, and low risk; racial or ethnic group), especially in light of the changes in the composition of the workforce that are taking place.<sup>56</sup> We need to understand the factors that affect employee participation or nonparticipation and the factors that promote long-term changes in behavior. If we then build these factors into lifestyle modification, WHP, and EAPs, and if we are successful in attracting troubled or at-risk employees into the programs, the programs will flourish, even in an era of limited resources.

## **EXERCISES**

Software that calculates answers to one or more of the following exercises can be found at <http://hrcosting.com/hr/>.

1. Sobriety, Inc., a marketer of substance abuse programs, is concerned about the cost of alcohol abuse among its own employees. Based on the following data, what is the productivity cost associated with employees

who abuse alcohol? Among all cohorts, the productivity decrease attributable to alcohol abuse is 20 percent.

Age-Gender Cohort	Number	Percentage with Alcohol Abuse Problems	Average Annual Earnings of Cohorts
Males, 25 and under	43	7%	\$32,000
Males, 26–44	59	10%	\$49,000
Males, 45 and over	38	5%	\$64,000
Females, 25 and under	41	5%	\$33,000
Females, 26–44	64	10%	\$47,000
Females, 45 and over	34	7%	\$61,000

2. The following data shows turnover costs for the 4,000 employees of Hulakon, Inc., for one year. In any given year, 12 percent of the employees can be expected to quit.

Employee Group	Number of Employees	Individual Cost of Employee Turnover
Production	250	\$48,500
Clerical	175	\$39,000
Management	55	\$74,000

A total of 120 employees participate in the company's EAP (62 production employees, 44 clerical employees, and 14 managers). As a result of that involvement, the following numbers of employees actually quit.

Employee Group	Number of Employees
Production	31
Clerical	22
Management	7

Hospitalization costs comprise \$189,000, or 56 percent of the total amount annually budgeted for the EAP. What is Hulakon's ROI for its employee assistance program for this one year?

3. Your firm is considering establishing an EAP, but it is unsure of which provider to select. Top management has asked you to assess the strengths and weaknesses of

possible providers. Make a list of questions to ask each one.

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## 6. Employee Attitudes and Engagement

Every year, *Fortune* magazine conducts an annual survey of the “100 Best Companies to Work For.” Firms strive to be named to this list because they receive twice as many applications as firms that are not on the list, and they enjoy employee turnover levels that are less than half those of their competitors.<sup>1</sup> In short, people want to work at places where they are treated well. If satisfied employees really do fuel corporate profits, one would expect “100 Best” employers to outperform broad indexes of firms that are publicly traded—and they do.<sup>2</sup>

In one well-controlled study, for example, researchers compared the organizational performance of *Fortune*’s “100 Best Companies to Work For” with two sets of other companies, a matched group and the broad market of publicly traded firms, over a six-year period.<sup>3</sup> They found that organization-level employee attitudes of the “100-Best” firms were both highly positive and stable over time. They also found that the return on assets and market-to-book value of the equity of publicly traded companies included on the “100 Best” list were generally better than those of a matched comparison group. That finding established an important link between employee attitudes and organization-level financial performance.

As for stock returns, the same study found that the “100 Best” companies outperformed the broad market when considering cumulative (longer-term) returns (82 percent versus 37 percent from 1998 to 2000), although not consistently for annual returns. The authors concluded: “At the very least, our study finds no evidence that positive employee relations comes at the expense of financial performance. Firms can have both.”<sup>4</sup> Similar

results have been reported in the accounting and finance literature.<sup>5</sup>

Of course, finding a correlation between financial performance and employee attitudes does not mean that enhancing employee attitudes *caused* the superior financial performance of the organizations in the study.

#### Chapter 2, “Analytical Foundations of HR

Measurement,” showed that correlation is not the same as causation. For example, people like to work for companies that are financially successful. It is just as plausible that when companies become financially successful, their employees display positive attitudes. This is, in fact, the case for people whose jobs are a “central life interest.”<sup>6</sup> For an investor, the link between employee attitudes and financial performance of the firm is a valuable signal, and the direction of causality is irrelevant. From a manager’s perspective, however, “what causes what” is extremely important because it affects decisions about talent.

Given the positive financial results cited earlier for “100 Best” companies, it is perhaps not very surprising that measuring attitudes such as satisfaction, engagement, and commitment has become big business. There are many consulting products and internal organizational processes to define and track employee attitudes and to relate those attitudes to a variety of operational and financial results. Yet the working models of most business leaders are often no more sophisticated than a belief that “happy employees are productive employees” or that “becoming a great place to work will create superior financial results.” Of course, a valuable logic and measurement system would do better, by articulating the connections between attitudes and organizational outcomes and directing measures to the areas that best articulate those connections.

Measures, often in the form of employee surveys, are valuable to the extent that they lead to actions or decisions designed to improve organizational effectiveness and to promote long-term, relevant change.<sup>7</sup> This chapter presents frameworks that HR and business leaders can use to collect and interpret relevant measures to make better decisions about programs to improve employee attitudes, even if the decision is not to invest in them. Such systems can certainly identify where attitude-assessment or employee-engagement programs are valuable. Our purpose, however, is not simply to provide tools to sell such investments, but to enhance decisions about employee attitudes.

### **ATTITUDES INCLUDE SATISFACTION, COMMITMENT, AND ENGAGEMENT**

Attitudes are internal states that are focused on particular aspects of or objects in the environment. They include three elements: cognition, the knowledge an individual has about the focal object or employment aspect; the emotion an individual feels toward the object or aspect; and an action tendency, a readiness to respond in a predetermined manner to the object or aspect.

One reason that it is important to have a clear and logical framework for understanding how attitudes connect to organizational success is that attitudes are often multidimensional. Thus, job satisfaction is a multidimensional attitude. In its 2009 survey of employees from small, medium, and large companies in a wide range of industries, the Society for Human Resource Management found that the top five drivers of job satisfaction were job security, benefits, compensation/pay, opportunities to use skills and abilities, and a safe feeling in the work environment.<sup>8</sup>

Job satisfaction is related to, but not identical with, employee engagement. Job satisfaction connotes a state of satiation; it is an outcome. Engagement connotes activation—feelings of energy, enthusiasm, and a positive affective state.<sup>9</sup> Although conceptually distinct, the two are highly correlated.<sup>10</sup>

Likewise, organizational commitment is a bond or linking of an individual to the organization that makes it difficult to leave.<sup>11</sup> It is the emotional engagement that people feel toward a firm.<sup>12</sup> Commitment can be to the job or the organization and can take the form of a commitment to contribute, to stay, or both.

Commitment is closely related to the concept of employee engagement.<sup>13</sup> Engagement is a positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption.<sup>14</sup> Vigor refers to high levels of energy and mental resilience while working, the willingness to invest effort in one's work, and persistence even in the face of difficulties. Dedication is characterized by a sense of significance, enthusiasm, inspiration, pride, and challenge at work. Absorption consists of being so fully concentrated, happy, and deeply engrossed in one's work that time passes quickly and one has difficulty detaching oneself from work.<sup>15</sup> Engagement fuels discretionary efforts and concern for quality. It is what prompts employees to identify with the success of their companies, to recommend them to others as good places to work, and to follow through to make sure problems get identified and solved.



## SATISFACTION, COMMITMENT, AND ENGAGEMENT AS JOB OUTCOMES

The 2008 National Study of the Changing Workforce was based on survey responses from 2,769 wage and salaried employees.<sup>16</sup> That study identified six dimensions of effective workplaces that include both work and nonwork factors: job challenge and learning, autonomy, supervisor task support, climate of respect and trust, work-life fit, and economic security. The researchers found that greater overall workplace effectiveness, a summary index that includes all six criteria, was strongly related to three important work outcomes: greater engagement ( $R^2 = .473$ ), job satisfaction ( $R^2 = .466$ ), and desire to stay with the organization ( $R^2 = .187$ ). At the same time, however, each outcome related somewhat differently to the six criteria, as shown in Table 6-1.

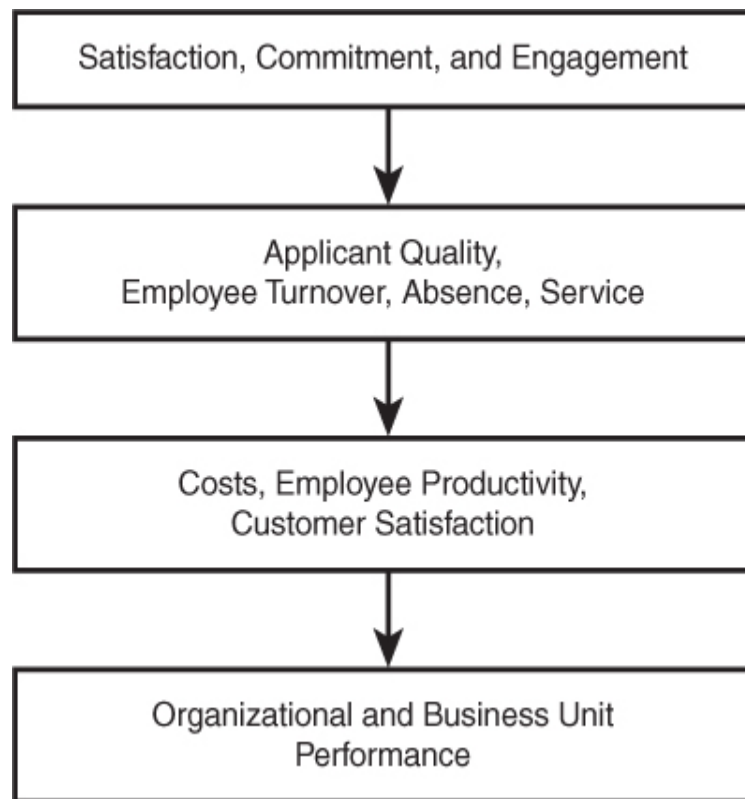
Greater Engagement	Greater Job Satisfaction	Greater Probability of Retention
1. Job challenge and learning	1. Economic security	1. Economic security
2. Climate of respect	2. Work-life fit	2. Work-life fit
3. Autonomy	3. Climate of respect	3. Job challenge and learning
4. Work-life fit	4. Autonomy	4. Supervisor task support
5. Economic security	5. Supervisor task support	5. Autonomy
6. Supervisor task support	6. Job challenge and learning	
Source: Aumann, K., and E. Galinsky, Families and Work Institute, 2008 National Study of the Changing Workforce. <i>The State of Health in the American Workforce: Does Having an Effective Workplace Matter?</i> (New York: Families and Work Institute, 2009).		

**Table 6-1. Effective Workplace Dimensions That Significantly Predicted Work Outcomes, Rank-Ordered by Relative Importance**

Note, for example, that although job challenge and learning is the most important predictor of engagement, relative to the other effective workplace dimensions, it is the sixth-best predictor of job satisfaction and the third-best predictor of intent to stay. Whereas work-life fit and economic security rank fourth and fifth in the prediction of engagement, they are the two top predictors of job satisfaction and intent to stay, with economic security the best predictor of both.

### **THE LOGIC CONNECTING EMPLOYEE ATTITUDES, BEHAVIORS, AND FINANCIAL OUTCOMES**

At a more general level, employee satisfaction, commitment, and engagement affect organizational performance through employee behaviors. Employees with lower attitudes may be absent, may be late for work, may quit more often, or may place less emphasis on customer satisfaction than those with more positive attitudes. Evidence indicates that this is often the case.<sup>17</sup> Figure 6-1 shows these ideas graphically.



**Figure 6-1. Logical relationships among employee attitudes, behaviors, and financial outcomes.**

Figure 6-1 shows that enhancing employee attitudes can affect a firm's financial performance. Changing employee attitudes can have direct effects on employee turnover and absence, with the associated effects on the costs of absence and turnover (see Chapters 3, "The Hidden Costs of Absenteeism," and 4, "The High Cost of Employee Separations"). Having a reputation as a satisfying place to work may enhance the ability to recruit more or higher-quality applicants (see Chapters 8, "Staffing Utility: The Concept and Its Measurement," and 10, "The Payoff from Enhanced Selection"). In addition, some evidence suggests that employee attitudes directly affect employee performance, particularly the tendency for employees to do tasks that are beyond their formal job descriptions (often called "citizenship behaviors") and to convey positive emotions to customers. These latter connections show up in

productivity or service costs and in sales and revenue levels (see Chapter 9, “The Economic Value of Job Performance”).

It is also important to note that the relationships shown in Figure 6-1 vary depending on the nature of the talent pool and the work. For jobs whose contributions depend significantly on interacting with customers and conveying positive emotions, the effects of attitudes on service performance may be paramount. For jobs that seldom encounter a customer, but in which teamwork and cooperation are key, citizenship behaviors may be the vital connection. For jobs in which the costs of absence and turnover are very significant, the effects of attitudes on these behaviors may be the vital measurement question. Just as with all measurement, employee attitudes have different effects depending on what elements of employee behaviors are pivotal.

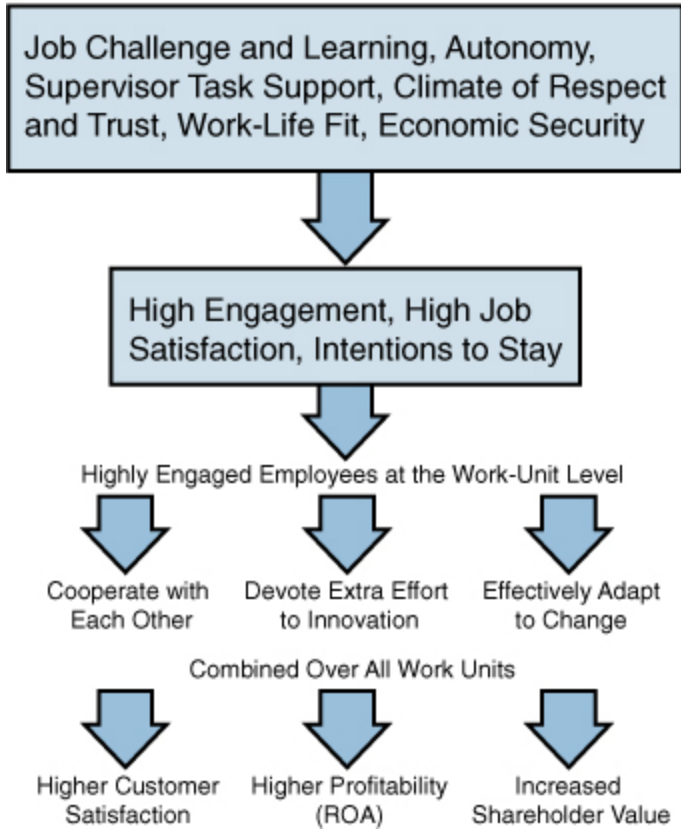
Of course, employee attitudes also relate to important outcomes that are less tangible or measurable by traditional financial systems, including individual growth and well-being, organizational adaptability, and goodwill. Many organizations measure employee attitudes not only because they provide leading indicators of tangible financial performance, but because they are a signal about more subtle nonfinancial results. In other words, they see improving employee attitudes as a worthy goal in and of itself. We recognize the nonfinancial outcomes of employee attitudes and their independent value as an organizational goal, but we focus in this chapter on the connections between financial outcomes and employee attitudes.

## **EMPLOYEE ENGAGEMENT AND COMPETITIVE ADVANTAGE**

It is important to note that engagement behaviors operate at the individual, team, and organizational levels.<sup>18</sup> From the perspective of competitive advantage, the aggregate level of employee engagement matters, for that affects work-unit performance as well as overall organizational performance. As Macey and Schneider (2008b) noted, “The unit manager responsible for a work group of 10 frontline employees thinks very differently about the meaning of 8 out of 10 people being engaged than does a division manager who thinks about 8,000 out of 10,000.” These proportions have very different implications for the kinds of interventions the respective managers think about and the likely consequences of their change efforts.

At the level of the work unit, performance improves when highly engaged team members devote extra effort to innovation, cooperate with each other, and effectively adapt to change.<sup>19</sup> Having an engaged employee base can facilitate adaptation to change, which is essential to innovation, continuous improvement, and competitiveness.<sup>20</sup> If one aggregates these kinds of behaviors from highly engaged employees across work units of the organization, this should lead to the kinds of outcomes that speak directly to competitive advantage: improvements in customer satisfaction, profitability, and shareholder value.<sup>21</sup> These are the kinds of outcomes that managers and investors care about. Figure 6-2 shows graphically some relationships among individual, work-unit, and organizational levels of engagement and financial outcomes that produce competitive advantage.

## Employees Experience



**Figure 6-2. Logical relationships among behavioral indicators of employee engagement at the individual and work-unit levels, and, when aggregated at the organizational level, how engagement relates to competitive advantage.**

Our next section describes a study that empirically linked high levels of employee engagement to improvements in service climate, customer loyalty, and financial outcomes.

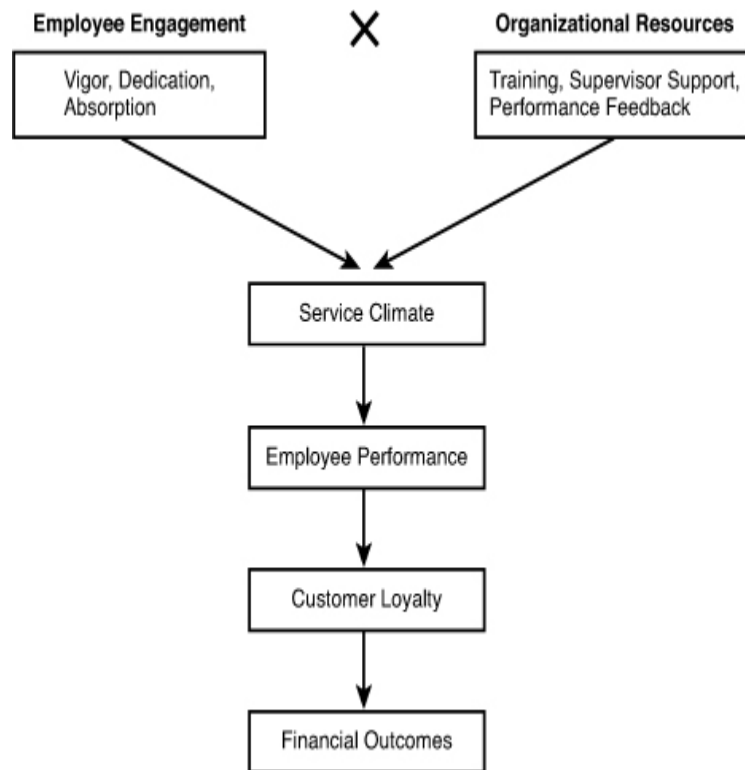
## **EMPLOYEE ENGAGEMENT AND SERVICE CLIMATE**

A well-controlled field study suggests that employee engagement promotes a positive service climate (shared perceptions of practices and behaviors that are expected and rewarded with regard to customer service)<sup>22</sup> and customer loyalty.<sup>23</sup> The researchers selected a sample of three employees and ten customers from each of 120 hotel and restaurant work units. They demonstrated that organizational resources (for example, training, supervisor support, performance feedback) and employee engagement predict service climate, which, in turn, predicts employee performance and then customer loyalty.

Loyal customers, in turn, tend to do two things:

- Recommend the organization to others
- Generate repeat business

Both of these have been shown to lead to changes in revenue growth, lagged about one fiscal quarter.<sup>24</sup> Figure 6-3 illustrates graphically these logical connections.



**Figure 6-3. Logical connections among employee engagement, employee performance, customer loyalty, and financial outcomes.**

Note in the figure that the relationship between employee engagement and organizational resources is multiplicative, not additive. That is, it is represented as employee engagement *times* organizational resources, not *plus* organizational resources, because if either of those is low or, in theory, zero, the other element cannot compensate enough to affect service climate and the remaining elements of the model in a positive manner.

At a broader level, the Corporate Leadership Council found that every 10 percent improvement in commitment can increase an employee's level of discretionary effort by 6 percent and performance by 2 percent, and that highly committed employees perform at a 20 percent higher level than noncommitted employees. Another study by Hewitt Associates reported that double-digit growth companies have 39 percent more highly engaged employees and 45 percent fewer



highly disengaged employees than single-digit growth companies.<sup>25</sup> These studies provide very useful examples that connect employee attitude measures to intermediate processes, and ultimately to customer behaviors and financial results.

Still, these results do not allow us to say “what causes what.” Although employee engagement may cause double-digit financial growth in companies, it is equally plausible that double-digit-growth companies are fun, exciting places to work, and, as a result, employees are highly engaged. Academic researchers, consulting firms, and the in-house research departments of large companies conduct studies like these regularly, and their findings are often extracted in media reports. To be better consumers of measures and correlations between attitudes and financial performance, it is important that readers be aware of key qualifications and limitations of study findings. The next sections of the chapter present a summary of common ways to measure attitudes and then introduce some analytical principles that help ensure that the conclusions from the data are valid.

## **MEASURES OF EMPLOYEE ATTITUDES**

Measures of employee attitudes are fairly well developed.<sup>26</sup> Job satisfaction is a multidimensional attitude. We can assess how satisfied someone is with a job as a whole (the global feeling about the job) by asking, for example, “Overall, how much enjoyment do you find in your work?” Alternatively, we might assess and sum up satisfaction with facets of the job, such as satisfaction with pay, colleagues, the nature of the work, and supervision. If the purpose is to understand the overall effect of jobs, global ratings are the best choice. If the assessor wants to know how to improve job satisfaction in a particular situation, the facet approach is more diagnostic.<sup>27</sup>

Organizational commitment is also a multidimensional attitude with three distinct components. Affective commitment refers to an employee's emotional attachment to an organization and a desire to stay. Continuance commitment refers to the extent to which an employee believes that leaving would be costly. Normative commitment refers to an employee's feelings that staying with the current organization is the right thing to do.<sup>28</sup> There are well-developed measures of each of these components of commitment. For example, here is an item from the Organizational Commitment Questionnaire, a measure of affective commitment: "It would take a lot to get me to leave this organization."<sup>29</sup>

We noted earlier that employee engagement is closely related to job satisfaction and commitment, for it is a positive, fulfilling, work-related state of mind characterized by vigor, dedication, and absorption. Two well-known measures of engagement are the Gallup Organization's Q12 and the Utrecht Work Engagement Scale 9. The Q12 assesses 12 employee perceptions of work characteristics and people-related management practices (measures of employee satisfaction-engagement) that play a large role in triggering a profitable, productive workplace. Employees respond on a 1–5 Likert-type scale, where 5 is Extremely Satisfied and 1 is Extremely Dissatisfied. Consider three sample items:<sup>30</sup>

- I know what is expected of me at work.
- In the last six months, someone at work has talked to me about my progress.
- The mission/purpose of my company makes me feel that my job is important.

Each item is a causal contributor to engagement, and the composite or sum of the items is said to measure

engagement through the measurement of its causes. Likewise, each item is actionable and generalizably related to important business outcomes,<sup>31</sup> as we describe in a later section.

The Utrecht Work Engagement Scale 9 (UWES-9)<sup>32</sup> is a nine-item measure of vigor, dedication, and absorption. Because the three factors are highly intercorrelated (above 0.8), it is probably best to use the total score from the UWES-9 as a measure of engagement at work. In responding to each item, employees indicate how often they feel this way about their jobs, from Never (0) to Always (6). Here are the nine items:

1. At my work, I feel bursting with energy.
2. At my job, I feel strong and vigorous.
3. When I get up in the morning, I feel like going to work.
4. I find the work that I do full of meaning and purpose.
5. I am enthusiastic about my job.
6. My job inspires me.
7. Time flies when I am working.
8. When I am working, I forget everything else around me.
9. I feel happy when I am working intensely.

Before adopting any particular measure, it is important to consider the logical relationships you want to examine. The descriptions in this section can help you make better choices. Broad, global measures of job satisfaction or commitment may be appropriate for examining general employee attitudes, but it may often be appropriate to choose measures that focus on

particular work facets that more clearly distinguish the elements of satisfaction, commitment, or engagement. Too often organizations adopt the most popular or well-known measure, without realizing that decades of research have produced many alternatives.

### **ANALYTICAL PRINCIPLES: TIME LAGS, LEVELS OF ANALYSIS, AND CAUSAL ORDERING**

The following sections address three important issues that can help illuminate attitude-behavior relationships: appropriate intervals of time to assess these relationships; individual and organizational levels of analysis; and causal relationships between attitudes and important organizational outcomes.

#### **Time Lags**

Unfortunately, the research literature produces no consensus about what the most appropriate time lag might be for collecting relevant information either on the same variable measured at two different times (for example, attitudes of employees about their supervisors) or when attempting to assess the relationship between two or more variables (for example, aggregated employee attitudes and organizational performance). Indeed, organizational performance may even drop a bit immediately following the implementation of a change in management practices, as the organization adapts.<sup>33</sup> At the very least, such relationships must be relatively stable. Stability is important because if a variable is not stable over time, it cannot be predicted reliably by another variable. Hence, if lagged analyses are the major focus of interest, the stability of those lags is important.

As an example of how different time lags can produce different results, consider the results of a longitudinal

study.<sup>34</sup> The researchers analyzed employee attitude data from 35 companies over eight years at the organizational level of analysis relative to financial (return on assets) and market performance (earnings per share) using a variety of lagged analyses. They found consistent and significant positive relationships over various time lags between aggregated attitudes about satisfaction with security, pay, and overall job satisfaction (OJS) and financial and market performance.

The same researchers also examined one-year, two-year, three-year, and four-year lags. They found remarkable stability in employee attitudinal data at the organizational level of analysis. The one-year lags ranged from a low of 0.66 (satisfaction with work group) to a high of 0.89 (satisfaction with security). Even the four-year lags revealed substantial stability, ranging from a low of 0.40 (satisfaction with work facilitation) to a high of 0.78 (satisfaction with empowerment).

With respect to financial indicators, return on investment (ROI), return on equity (ROE), return on assets (ROA), and earnings per share (EPS) were significantly correlated across time. Median correlations were 0.57 (ROI-ROE), 0.73 (ROE-ROA), 0.94 (ROI-ROA), 0.38 (ROI-EPS), 0.48 (ROE-EPS), and 0.33 (ROA-EPS). However, they were differentially stable over time, with ROI being the least stable (median one-year lag  $r = 0.47$ ) and ROA being the most stable (median one-year lag  $r = 0.74$ ). Based on these results, the researchers used ROA as the most stable indicator of organizational financial performance. They used EPS as an indicator of market performance, although it was not as stable as ROA (median one-year lag  $r = 0.49$ ).

These results show that both attitude measures and organizational performance measures may vary in their stability over different time spans. If possible, it is wise

to collect data on attitudes and organizational outcomes (behavioral or financial) at multiple time periods and choose the interval that yields the most stable and representative relationships. It is also useful to consider the logical connections and strategic decision factors in choosing time lags. In organizations with stable and long-term employment relationships, the relationship between attitudes and financial outcomes spanning several years may be quite relevant and valuable, because such organizations would reap the rewards of attitude change over many years. In organizations where employee tenure or time in a job is less, the relevant strategic issue may be the effect of attitudes on outcomes that occur much sooner.

### **Levels of Analysis**

Studies of the relationship between employee attitudes and customer satisfaction or turnover, using cross-lagged correlational analyses (that is, correlations between employee attitudes and customer satisfaction or turnover, computed at different times) have been inconclusive regarding the direction of causality, as noted previously.<sup>35</sup> Still, such studies provide tantalizing evidence that the collective employee attitudes of the organization or business unit may be correlated with overall performance of that organizational or business unit, even if, for particular individuals, the attitudes are only weakly correlated with individual-level performance. For example, we noted that the Gallup Organization identified 12 worker beliefs (measures of employee satisfaction-engagement) that relate most closely to workplace profits and productivity.<sup>36</sup> Its multiyear study was based on an analysis of data from more than 100,000 employees in 12 industries.

A subsequent meta-analysis (see [Chapter 2](#)) included data from almost 8,000 business units in 36

companies.<sup>37</sup> The results showed a consistent, reliable relationship between the level of the 12 beliefs among employees and unit-level outcomes such as profits, productivity, employee retention, and customer loyalty. At the level of the work group, groups that demonstrated positive attitudes were 50 percent more likely to achieve above-average customer loyalty and 44 percent more likely to have above-average profitability.

At the level of the business unit (division, plant, and so on), those in the top quartile on employee engagement had, on average, from \$98,000 to \$146,000 higher monthly revenues or sales (in 2010 dollars) than those in the bottom quartile. A \$98,000 monthly difference translates into more than \$1 million (\$1,176,000) per year. Interestingly, researchers found significant variances among work groups or operating units within the same company, suggesting that even companies that do well overall may have significant opportunities to improve individual business units.

In a 2009 study of 50 multinational companies by the London office of Towers Watson, those with high levels of employee engagement outperformed those with low levels on three important financial indicators: 12-month change in operating income (19.2 percent versus -32.7 percent), 12-month net income growth rate (13.7 percent versus -3.8 percent), and 12-month earnings per share growth rate (27.8 percent versus -11.2 percent).<sup>38</sup>

Understanding how the connections between attitudes and organizational outcomes vary depending on the unit of analysis is important. Again, one implication is that organizations should not presume that the whole story is in the relationships between individual employee attitudes and their behaviors. It appears that even when relationships at the individual level are weak, there may still be strong relationships when the aggregated

attitudes of employees are related to aggregate performance at the work group or business unit level. Choosing the appropriate level of analysis is a matter both of the power of the statistical test and of the strategic question at hand. In most organizations, fundamental strategic issues involve business unit or work-group performance (for example, store sales, customer satisfaction, ROI), and interventions typically take place at the level of the unit, not at the level of the individual employee.<sup>39</sup> Thus, results suggesting that relationships may be more powerful or stable at this level of analysis are encouraging.

### **Causal Ordering**

Based on meta-analysis, described earlier, the authors concluded that the causal order runs from employee attitudes to organizational performance, although they recognized that multidirectional (reciprocal) relationships might also be expected. In the earlier section on time lags, we cited a study that included longitudinal data from 35 companies on employee attitudes and longitudinal data from the same companies on organizational financial and market performance (eight years of data).<sup>40</sup> Using both of these sets of data, the researchers were able to explore questions involving causal ordering and time lags among the two sets of variables.

Their analyses revealed statistically significant and stable relationships across various time lags for three of seven attitude scales. Overall job satisfaction and satisfaction with security were predicted by ROA and EPS more strongly than the reverse, although some of the reverse relationships were also significant. Satisfaction with pay exhibited a more reciprocal relationship with ROA and EPS. Based on these results, it is clear that relationships among employee attitudinal variables and organizational performance are complex and may be multidirectional or



reciprocal in nature. Researchers can therefore be misled if they simply assume, on the basis of cross-sectional data, that employee attitudes predict organizational financial or market performance, but not vice versa, and if they do not allow for the possibility of reciprocal relationships. To avoid this trap, researchers must collect employee attitude data and organizational performance data longitudinally, at multiple points in time. Doing so allows researchers to test forward and backward lags and to draw meaningful inferences about causal priorities.

The remainder of this chapter shows how financial and attitudinal measures can be synthesized to produce an estimate in dollars of the costs and benefits of human resource management programs designed to improve employee attitudes. We begin with the behavior-costing approach to attitude valuation and then illustrate its application at SYSCO Corporation.

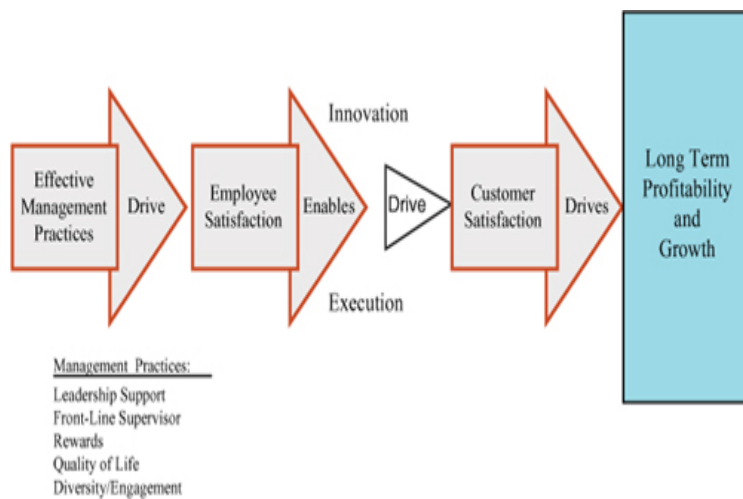
## **ESTIMATING THE FINANCIAL IMPACT OF EMPLOYEE ATTITUDES: THE BEHAVIOR- COSTING APPROACH**

The behavior-costing approach to employee attitude valuation is based on the assumption that measures of attitudes are indicators of subsequent employee behaviors.<sup>41</sup> These behaviors can be assessed using cost-accounting procedures, and they have economic implications for organizations. The conceptual framework underlying behavior costing stems from psychological theories that emphasize that employees' behavior at work is the result of choices about whether to appear at the workplace ("participation membership"),<sup>42</sup> and of choices about how to behave at work ("work strategies").<sup>43</sup> This framework assumes that employees will be more likely to come to work than be absent or quit if they are satisfied with their jobs. In addition, they are likely to exert more effort and to choose more effective job performance strategies if they expect to be rewarded, either intrinsically or extrinsically, for their efforts.<sup>44</sup>

These ideas suggest that attitudinal indexes of employee satisfaction and engagement should be the best predictors of participation membership, because they reflect perceptions of the rewards associated with being at work. They also suggest that attitudinal indexes of employee motivation should predict job performance, because they reflect some of the performance outcomes contingent on doing a good job: competence, achievement, and self-realization.

### Behavior Costing at SYSCO: The Value-Profit Chain

SYSCO, the largest food marketer and distributor in North America, illustrates the behavior-costing approach nicely. It began with a logical framework that describes how SYSCO creates value from its human capital. The framework is based on a service-profit-chain model developed earlier.<sup>45</sup> That new model included a more descriptive explanation of the process of creating customer value, with a broader range than the service sector, per se. Figure 6-4 shows SYSCO's model.



Source: *HR in Alignment: The Link to Business Results* (2004).  
Alexandria, VA: Society for Human Resource Management Foundation

**Figure 6-4. SYSCO's value-profit chain.**

#### **Logic: The Causal Model**

As [Figure 6-4](#) shows, effective management practices drive employee satisfaction (and engagement). A satisfied and engaged workforce, in turn, enables a company to pursue excellence in innovation and execution. The logical proposition is that higher employee satisfaction-engagement drives innovation and execution, which, in turn, enhances customer satisfaction, customer purchasing behavior, and, eventually, long-term profitability and growth. Certainly, management needs to put in place systems, people, technology, and processes that will initiate and sustain innovation and execution—the principal components of an effective value-profit chain. Technology and processes are easily copied by competitors, but a highly skilled, committed, and fully engaged workforce is difficult to imitate.

#### **Analytics: Connecting the Model to Management Behaviors**

SYSCO's basic management model—the set of practices that describe how the company seeks to engage the hearts and minds of employees with its employer brand—has been termed the 5-STAR management model.<sup>46</sup> That model is all about taking care of people, extending the same respect to employees as managers do to their external customers. The framework is general enough to apply to any type of company structure or business model, and it gives businesses wide discretion in actual implementation. As [Figure 6-4](#) shows, the five principles of the STAR model (“Management Practices” in [Figure 6-4](#)) are as follows:

- Ensuring that leaders offer direction and support
- Strengthening front-line supervisors
- Rewarding performance

- Addressing employees' quality of life
- Including employees by engaging them and leveraging diversity

Although specific leadership and management practices that address each of the 5-STAR principles are beyond the scope of this chapter, we want to emphasize that employee attitudes are integral components of the STAR model because, as a set, those attitudes reflect employee satisfaction-engagement, a key component of the value-profit chain. At a broader level, [Figure 6-4](#) shows how SYSCO creates value from its human capital. It shows clearly the intermediate linkages between employee attitudes and financial performance. Indeed, the logic of the model is so compelling that it is taught to every manager and employee from the first day on the job.

#### Measures

To measure the attitudes of its employees, SYSCO developed a work climate/employee engagement survey built around each of the 5-STAR principles. All members of each SYSCO operating company participate in a comprehensive annual self-assessment and impromptu and informal assessments on an as-needed basis.<sup>47</sup> The total survey comprises 61 items, but SYSCO found that just 14 of them differentiated the top-performing 25 percent of its 147 operating companies from the bottom 25 percent. [Table 6-2](#) shows these items.

5-STAR Principle	Work Climate Survey Item
Leadership support	I know what is expected of me at work.  Upper management spends time talking with employees about our business direction.
Front-line supervisor	My supervisor treats me with dignity and respect.  My supervisor and I review my top goals and discuss how they contribute to the company's success.  I have received constructive feedback on my performance within the last six months.  My supervisor removes obstacles so I can do my job better.
Quality of life	I trust what the company tells me.  Different departments of our company work together to get the job done.
Rewards	My pay is the same as or better than other companies in our market.  Doing my job well leads to monetary rewards.  Decisions made about promotions or job changes within this organization are fair.
Engagement/diversity	I am willing to work harder to make this company succeed.  I am proud to work for SYSCO.
Source: Carrig, K., and P. M. Wright, <i>Building Profit Through Building People</i> (Alexandria, Va.: Society for Human Resource Management Foundation, 2006).	

**Table 6-2. The 14 Most “Impactful” Items from SYSCO’s Work Climate/Employee Engagement Survey**

Source: Carrig, K., and P. M. Wright, *Building Profit Through Building People* (Alexandria, Va.: Society for Human Resource Management Foundation, 2006).

Consider just one of the items in Table 6-2, under “Front-line supervisor,” item #4: “My supervisor removes obstacles so I can do my job better.” A multiyear study of hundreds of knowledge workers in a variety of industries that tracked their day-to-day activities, emotions, and motivations through 120,000 journal entries strongly supports this driver of engagement. The study found that “workers reported feeling most engaged on days when they made headway or received support to overcome obstacles in their jobs.”<sup>48</sup> They reported

feeling least engaged when they hit brick walls. In short, small dents in work meant as much as large achievements.

#### **Analytics Combined with Process: The SYSCO Web Portal for Managers**

SYSCO has a decentralized organizational structure comprised of 147 autonomous operating companies. It employs an organization-wide rewards system to encourage managers of the autonomous operating companies to share information with each other and to transfer best practices within the organization. SYSCO built a “best business practices” web portal on its intranet to provide a platform for organization-wide improvement. The web architecture offered a framework for managers to do two things: share information on their own operating company’s successful practices and learn from the best practices of other SYSCO operating companies.

SYSCO also assesses the performance of each operating company in terms of balanced-scorecard metrics in four areas: financial, operational, human capital, and customer performance. Scores on the work climate/employee engagement survey comprise one element of the human capital metrics, along with measures of productivity (employees per 100,000 cases shipped) and employee retention (among marketing associates, drivers, and night warehouse employees). Managers of operating companies can use the “best business practices” portal to identify and learn from operating companies in the top quartile of performance on one or more metrics in the balanced scorecard.

As an example, consider the area of safety (specifically, the costs of workers’ compensation for work-related injuries). By leveraging best practices and shared, reciprocal visits among managers of its operating companies, SYSCO reduced the performance gap in

workers' compensation costs between the top and bottom 25 percent of operating companies, and it increased company-wide safety results by nearly 50 percent over a five-year period. As a result, SYSCO cut by half its overall cost of workers' compensation as a percentage of sales. That represented a significant improvement in performance and an annual cost savings to the company of \$36 million.<sup>49</sup> Note that operating managers worked with the *set* of key metrics—operations, financial, customers, and human capital—to leverage best practices to reduce the costs of workers' compensation. Work climate/employee engagement scores comprise only one element of human capital metrics, which, in turn, comprise only one component of the balanced scorecard. One cannot conclude that improvements in work climate/employee engagement scores alone contributed to reductions in the costs of workers' compensation.

SYSCO's in-house research also supports other links in the value-profit chain. Table 6-3 shows that SYSCO operating companies with the most satisfied employees consistently receive the highest scores from their customers and have higher retention of marketing associates and drivers.

	High		Low		
Associate satisfaction	4.00–5.00	3.90–3.99	3.75–3.89	3.55–3.74	< 3.55
Customer loyalty score	4.55	4.40	4.25	4.15	4.05
Retention, marketing associates	88%	85%	81%	75%	76%
Retention, drivers	87%	81%	81%	75%	76%
Source: Carrig, K., and P. M. Wright, <i>Building Profit Through Building People</i> (Alexandria, Va.: Society for Human Resource Management Foundation, 2006).					



### **Table 6-3. Satisfied Employees Deliver Better Results**

The data in Table 6-3 are tantalizing, but some important questions are left unanswered. Clearly, retention is higher in operating companies with better associate satisfaction-engagement. Although results for customer loyalty and employee retention are in the right direction (high/low customer loyalty systematically tracks with high/low employee retention), it is not clear that those results are statistically significant and, thus, whether they generalize beyond the particular situation. Furthermore, causes and effects are not clear. Does making employees more satisfied and engaged cause customers to be more loyal? Or is it more rewarding to work in operating companies with loyal customers, and, as a result, that employees who work there tend to be more satisfied and engaged? The information in Table 6-3 simply does not provide answers to those important questions. This is not meant to deny the tangible and important contributions of the SYSCO analysis. It does, however, suggest that continued improvements in logic, analytics, measures, and process are vital, even in advanced systems like SYSCO's.

#### **Translating the Analysis into Dollar Values**

Table 6-3 does not include cost savings associated with improvements in the retention of marketing associates and drivers, but those cost savings were significant. We can use those retention numbers, along with the costing principles discussed in Chapter 4, to provide an example of the economic effect of attitudes.

In 2000, retention rates for these groups were 75 percent and 65 percent, respectively. By 2005, those retention rates improved to 88 percent and 87 percent, respectively. SYSCO then estimated the replacement and

training costs of these three groups of employees as \$50,000 per marketing associate and \$35,000 per driver. Assuming 100 employees per business unit, from 2000 to 2005, each business unit saved (in terms of costs that were not incurred) \$650,000 among marketing associates and \$770,000 among drivers, for a total savings of \$1.42 million. Corporate-wide savings in retention over all categories of employees from 2000 to 2005, assuming 10,000 employees, totaled \$156.5 million.<sup>50</sup> Such savings contributed to the firm's long-term profitability and growth.

#### **Integrating the Attitude-Analysis System into Organizational Systems**

Today top executives at SYSCO meet on a quarterly basis to review the metrics. Their purpose is to see whether those numbers are, in fact, consistent with the operating expenses and the pretax earnings of each operating company, as well as with those of the corporation as a whole. What led SYSCO executives to pay attention to the human capital indices? HR researchers found a high multiple correlation ( $R^2 = 0.46$ ) between work climate/employee engagement scores, productivity, retention, and pretax earnings. This means that 46 percent of the variation in pretax earnings was associated with variation in the combination of these three employee-related variables.

In short, SYSCO leaders began to pay attention when they realized that the human capital indices served as indicators of financial results that the executives could see in their own operating companies. The relationship is lagged about six months, and although exact cause-effect relations have not been determined, the business model that the company uses assumes that employee satisfaction-engagement drives customer satisfaction, which drives long-term profitability and growth. In short, SYSCO has been able to determine not only what

practices and processes are helping to drive the human capital indices, but also how those, in fact, influence the financial metrics over time. This led SYSCO to develop the business model shown earlier in [Figure 6-4](#).

## A FINAL WORD

A number of challenges remain in relating attitudes to costs (see [Table 6-4](#)). Note that although the logic of the attitude-cost models shown in [Table 6-4](#) is similar, the major differences lie in how much of the process chain each approach actually measures.

Model	Assumptions	Advantages	Challenges
Behavior costing	Attitudinal measures are indicators of subsequent employee behaviors/ participation membership.	a. Relates attitudes to future costs.	a. Difficult to validate cost savings because analyses are based on correlational data.
		b. Yields the financial measure closely related to employee attitudes.	b. Best time lag for determining attitude-behavior relationships is unknown.
		c. Analysis is explicitly at individual, not at work group or organizational levels.	c. Instability in attitude-behavior relationships yields inaccurate financial changes.
Value-profit chain	Effective management actions drive employee satisfaction-engagement, which enables excellence in innovation and execution, which leads to customer satisfaction, which drives profitability and growth.	a. More complete specification of intermediate linkages between attitudes and outcomes.	a. Requires regular data collection, analysis, and reporting to leverage best practices.
		b. Analysis is explicitly at the work group or organizational levels.	b. "Best" time lag is unknown.
		c. More generally applicable than other models.	c. Longitudinal data required to test causal ordering of links in the model.

**Table 6-4. Assumptions, Advantages, and Challenges of Attitude-Cost Models**

Certainly, refinements are needed in the methods described here, but the potential of cost-benefit comparisons of attitude-behavior relationships is enormous. If organizations can develop compelling, logical frameworks that relate employee attitudes and employee engagement to financial outcomes, and if they can use sound analytics and measures to draw

meaningful conclusions from their data, they can engage in a more rational decision-making process regarding where they should and should not make investments. Most important, they will be able to identify critical decision pivot points where this kind of information will make the biggest difference.

## **EXERCISES**

1. Your boss has asked you for evidence that shows the link between employee attitudes such as job satisfaction, commitment, and engagement, and both individual and organizational outcomes. In other words, convince him that attitudes matter. What sort of evidence might you present?

2. Develop a logic diagram that shows the common and unique outcomes that employee satisfaction, commitment, and engagement might be related to.

3. What is SYSCO's value-profit chain? Explain each link in the model and why it is important in understanding how management practices affect employee satisfaction-engagement, customer satisfaction, and, ultimately, long-term profitability and growth.

4. You have read that SYSCO's value-profit chain serves as a business model for the company. As a senior manager, respond to the following questions:

What implications might such a model have for recruitment, selection, orientation, training, performance management, and incentive compensation?

What practical issues have to be considered in deploying the model throughout the company?

5. You are the CEO of a public relations company. You have just read about the 5-STAR management model in

the value-profit chain and want to implement it in your company. Develop a detailed strategy for embedding the model into your organization's culture.

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## 7. Financial Effects of Work-Life Programs

### “REMIXING” REWARDS

Consider some of the ways that the workforce is changing, and how the attitudes, beliefs, and perceptions of employees are shaping today's workplaces.<sup>1</sup>

- The composition of the workforce now reflects the growing influence of Generation Y (about 70 million, born between 1979 and 1994), Generation X (about 35 million, born between 1965 and 1978), and Baby Boomers (about 77 million, born between 1946 and 1964).
- Especially among the members of Gen Y and Boomers, flexible work arrangements (89 and 87 percent, respectively) and the opportunity to give back to society (86 and 85 percent, respectively) trump the sheer size of the pay package. That's not as true for Gen Xers—people in their 30s and early 40s are 10 percent less likely to find this important.
- Fully 87 and 83 percent, respectively, of Gen Yers and Boomers say that work/life fit is important to them. That's also true of Gen Xers, but to a lesser degree.
- The majority of employees of all generations feel that they do not have enough time for the important aspects of their personal lives.
- Gender roles at home and at work have changed significantly. Women are now in the workforce in almost equal numbers as men, they are just as likely as men to

want jobs with greater responsibility, and almost 80 percent of couples are dual earners.

- A climate of respect, a supportive supervisor, and better work-life fit have positive effects on the work, health, and well-being of both men and women of all generations.
- Being treated with respect by managers and supervisors has a stronger effect on the mental health of low-income employees than middle- or high-income employees.

## **SPECIAL ISSUES PARENTS FACE**

Working parents face a host of additional issues:<sup>2</sup>

- About 70 percent of mothers with school-age children work for pay outside the home, with 55 percent of mothers with infants younger than one year old employed outside the home.
- One in three children is born to a single mother; that group comprises seven million mothers in the United States who do not have a spouse to share the work of earning a livelihood and caring for children.
- More than 1.5 million single fathers are raising children without the financial or emotional support of a spouse. Considered another way, a father heads one in every five single-parent households.
- In 1997, women in dual-earner couples contributed an average of 39 percent of average family income. By 2008, that figure had increased significantly to an average of 44 percent. At the same time, 60 percent of men had annual earnings at least 10 percentage points higher than their spouses/partners, down from 72 percent of men in 1997.
- Men are taking more overall responsibility for care of their children (providing one-on-one care, as well as managing child-care arrangements) according to

themselves *and* their wives/partners. This has led to increased work-life conflict, as 59 percent of fathers in dual-earner couples report experiencing some or a lot of conflict today, up from 35 percent in 1977. Not surprisingly, therefore, 70 percent of men say they would take a pay cut to spend more time with their families, and almost half would turn down a promotion if it meant less family time.<sup>3</sup>

- At the same time, there is pressure to maintain a two-income lifestyle. Few families can afford “luxuries” such as health insurance, mortgage payments, and grocery bills on one salary. Indeed, more American families file for bankruptcy every year than file for divorce.<sup>4</sup>

Can organizations enhance both employee productivity and the fit between their work and nonwork lives? When do investments in work and nonwork life fit become a recruitment and retention advantage? Is the advantage actually enough to offset the costs? In short, can investments to enhance the fit between work and nonwork actually pay off, and how much? As in other chapters, our purpose here is to follow the LAMP model presented in Chapter 1, “Making HR Measurement Strategic,” to offer a logical, analytic, and measurement framework regarding work-life programs that might facilitate better decisions about investments in them. We conclude the chapter by providing some practical suggestions about the process of communicating results to decision makers. Let us begin by addressing a simple question: Just what is a work-life program?

## **WORK-LIFE PROGRAMS: WHAT ARE THEY?**

Although originally termed “work-family” programs, this book uses the term *work-life programs* to reflect a broader perspective of this issue. Work-life recognizes the fact that employees at every level in an organization, whether parents or nonparents, face personal or family issues that can affect their performance on the job. A work-life program includes any employer-sponsored benefit or working condition that helps an employee to enhance the fit between work and nonwork demands. At a general level, such programs span five broad areas:<sup>5</sup>

- **Child and dependent-care benefits** (for example, on-site or near-site child- or elder-care programs, and summer and weekend programs for dependents)
- **Flexible working conditions** (for example, flextime, job sharing, teleworking, part-time work, and compressed workweeks)
- **Leave options** (for example, maternity, paternity, and adoption leaves; sabbaticals; phased re-entry; and retirement schemes)
- **Information services and HR policies** (for example, cafeteria benefits, life-skill educational programs such as parenting skills, health issues, financial management and retirement, exercise facilities, and professional and personal counseling)
- **Organizational cultural issues** (for example, an organizational culture that is supportive with respect to the nonwork issues of employees, coworkers, and supervisors who are sensitive to family issues)

#### Example of a Work-Life Champion: SAS<sup>6</sup>

In Chapter 4, “The High Cost of Employee Separations,” we described some of the financial payoffs from low employee turnover at SAS. We also described some of its wide array of employee benefits, including high-quality child care at \$410 a month (versus \$1,500 per month outside the company), 90% coverage of the health insurance premium, unlimited sick days, a medical center staffed by four physicians and 10 nurse practitioners (at no cost to employees), a free 66,000-square-foot fitness center and natatorium, a lending library, and a summer camp for children. This bounty of benefits stems from the company’s core beliefs about minimizing distractions and that happy, healthy employees are more productive.

SAS has long been recognized as an innovator in encouraging employee work-life balance. Is it any surprise that SAS was named by *Fortune* magazine as the #1 best company to work for in America in 2010, or that it has made the “100 Best” list every year since it was created in 1998? The architect of this culture—based on “trust between our employees and the company”—is Jim Goodnight, its co-founder, and the only CEO that SAS has had in its 34-year history.

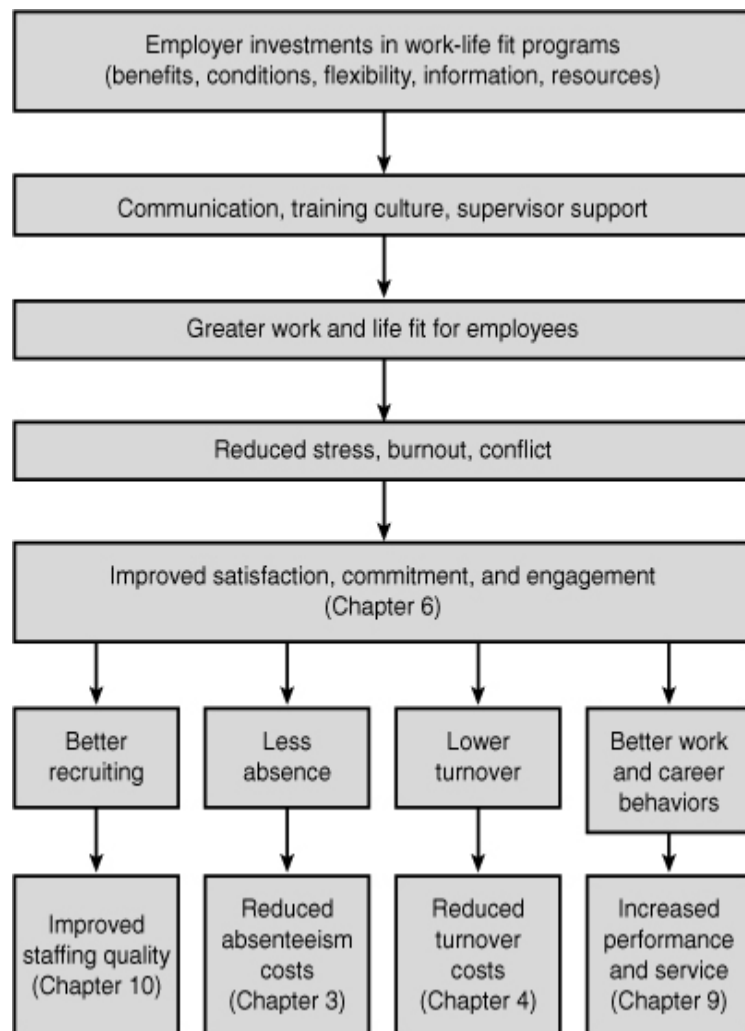
Some might think that, with all those perks, Goodnight was giving away the store. Not so. SAS has had an unbroken chain of profitability and growth every year in the 34 years since its founding. With 2009 revenues of \$2.31 billion, it ranks as the world’s largest privately owned software company. Voluntary turnover is the industry’s lowest, at 2%. With more than 11,000 employees, 5,487 in the U.S., the company added 119 new jobs last year. A total of 26,432 people applied for those jobs.

## LOGICAL FRAMEWORK

As the chapter-opening statistics make clear, pressures for work-life fit stem from a variety of sources. Whether an organization chooses to address those needs or not, each choice has consequences.

Figure 7-1 is a logical framework to describe the conditions that affect the potential impact of work-life programs on behaviors and financial outcomes.





**Figure 7-1. Logic of work-life fit.**

As [Figure 7-1](#) shows, there are consequences, both behavioral and financial, to decisions to offer or not to offer one or more work-life programs. If an organization chooses not to offer such programs, there may be negative consequences with respect to job performance. Some of these potential impacts include heightened stress, more burnout, a higher likelihood of mistakes, and more refusals of promotions by employees already feeling the strain of pressures for better fit between their work and nonwork lives.

Under these circumstances, job satisfaction, commitment to the organization, and engagement in

one's job (vigor, absorption, dedication—see [Chapter 6](#), “[Employee Attitudes and Engagement](#)”) are likely to wane. When that happens, people begin to think about quitting, some actually do quit, and customer service may suffer. All of these consequences lead to significant financial outcomes, as [Chapters 3–6](#) have demonstrated.

Assuming that an organization does offer one or more work-life programs, the financial and nonfinancial effects of those programs depend on several factors. These include the range, scope, cost, and quality of the programs; the extent and quality of communications about the programs to employees; training on how to manage work-life programs; and support for them from managers and supervisors. If those conditions are met, it is reasonable to expect that employees will achieve greater work and life fit. Such fit implies reduced stress, burnout, and conflict, along with increased engagement, satisfaction, and commitment. Those human-capital outcomes lead to improvements in talent management (reductions in withdrawal behaviors and voluntary turnover, and improvements in the ability to attract top talent); motivation to perform well; and financial, operational, and business outcomes. [Chapters 3–6](#) documented some of the financial consequences associated with those outcomes. The following sections elaborate on the elements of [Figure 7-1](#) in more detail.

### **Impact of Work-Life Strains on Job Performance**

Companies can own tangible assets, such as patents, copyrights, and equipment, but they cannot own their own employees.<sup>7</sup> Conflicts between job demands and the demands of nonwork life may lead some employees to a condition known as “burnout.”

Employees suffering from burnout do the bare minimum, do not show up regularly, leave work early, and quit their jobs at higher rates than less-stressed employees.<sup>8</sup> To reduce such tensions, they may leave the workforce altogether or move to positions in other organizations that generate less work-life stress. For firms that are trying to build valuable human assets that are difficult to copy or to lure away, work-life programs may provide powerful retention and performance-enhancement tools.

Other employee-withdrawal behaviors, such as reduced effort while at work, lateness, and absenteeism, also diminish the value of human resources to an employer.<sup>9</sup>

As shown in Chapter 3, “The Hidden Costs of Absenteeism,” the number-one reason for unscheduled employee absenteeism is personal illness (34 percent). The number-two reason is family-related issues (22 percent). Taken together, these causes account for more than half of all absenteeism incidents. Work-life programs are designed to address precisely these underlying reasons for employee withdrawal. Work-life initiatives that incorporate flexibility into work scheduling, together with “family-friendly” features, can play a potentially important role in protecting a firm’s investment in its human capital. This is especially true for professional employees.

## **Work-Life Programs and Professional Employees**

The view of work-life programs as a strategy for protecting investments in human capital applies particularly well to professional employees.

Professional employees are critical resources for organizations because of their expense, their relative scarcity, and the transferability of their skills.<sup>10</sup> In addition, professionals tend to be highly autonomous, substituting self-control for organizational control.

Attracting and retaining professionals is difficult because other employers value their skills. Work-life programs can be effective for attracting and retaining these employees.<sup>11</sup> Professionals in many countries are delaying the birth of their first child until they have achieved some measure of financial and career security. Given the relatively long years of education and training required of professionals, these people are especially likely to delay starting their families.<sup>12</sup> For this reason, work-family tensions tend to rise for many professionals as they reach their 30s and 40s. If organizations fail to provide assistance in handling this tension, they risk losing these valuable employees to employers that offer more flexibility.

From a competitive standpoint, because work-life programs are more highly developed in some organizations than in others, organizations with extensive work-life benefits may be better able to retain top-performing professionals despite efforts by competitors to bid them away. Consider how one public accounting firm does it.<sup>13</sup>

#### **Crowe, Horwath, LLP**

For accountants in tax and auditing practices in the United States, the busy season, January 2 to April 15, is recognized as a time when putting in extra hours and working on Saturdays is a given. To help ease that burden, Crowe, Horwath offers benefits targeted to help its people maintain work/life fit. In several offices, the firm offers complementary on-site babysitting on Saturdays during the busy season. Kids enjoy activities ranging from arts and crafts to group games, and special guests, like local firefighters. They also enjoy "going to work" with Mom or Dad.

The firm also offers a "road-warrior" program to those who travel overnight more than 30 percent of their scheduled workdays. Benefits include, among others, a weekend travel program to fly a significant other or a friend to their location, or the option to fly to a different destination instead of back home. As one senior staff member noted, "[The weekend-travel program] is great because it makes being out of town and away from family manageable. We get to have a little weekend getaway in places we might not normally have seen."

Offering programs like Crowe, Horwath's might lead some parents, mostly women, to decide that they don't have to opt out of the work force temporarily when they have children.

#### **Opting Out**

Today many companies recruit roughly equal numbers of female and male MBA graduates, but they find that a substantial percentage of their female recruits drop out within three to five years. The most vexing problem for businesses, therefore, is not finding female talent, but retaining it.<sup>14</sup>

How large is the opt-out phenomenon? A recent survey examined this phenomenon among 2,443 highly qualified women and a smaller comparison group of 653 highly qualified men (defined as those with a graduate degree, a professional degree, or a high-honors undergraduate degree).<sup>15</sup> Fully 37 percent of the women (43 percent of those with kids), as opposed to only 24 percent of the men (no statistical difference between those who are fathers and those who are not), took time off from their careers. Among women, the average break lasted 2.2 years (1.2 years for those in business), with 44 percent citing child- or elder-care responsibilities,

compared with only 12 percent of men. Among men, who averaged one year off, the primary reason was career enhancement.

Although 93 percent of the women who took time off from work wanted to return, only 74 percent of them were able to do so. Even then, they paid a high price for their career interruptions, with the penalties becoming more severe the longer the break. Among women in business, the average loss in earnings was 28 percent, even though the average break among those women lasted little more than a year. When women spent three or more years out of the work force, they earned only 63 percent of the salaries of those who took no time out.

The same survey also found that many women cope with job-family tradeoffs by working part time, by reducing the number of hours they work in full-time jobs, and by declining to accept promotions. Women are less likely to opt out of work if their employers offer flexible career paths that allow them to ramp up and ramp down their professional responsibilities at different career points.<sup>16</sup> Flexibility is a key retention tool for women as well as for men.

### **The Toll on Those Who Don't Opt Out**

Especially for those who do not or cannot opt out of working, family and personal concerns are a source of stress:<sup>17</sup>

- In professional-service firms, well over half the employees can expect to experience some kind of work-family stress in a three-month period.
- Staff members with work-family conflict are three times more likely to consider quitting (43 percent versus 14 percent).

- Staff members who believe that work is causing problems in their personal lives are much more likely to make mistakes at work (30 percent) than those who have few job-related personal problems (19 percent).
- On the other hand, employees with supportive workplaces and supportive supervisors report greater job satisfaction and more commitment to helping their companies succeed.

Organizations want their employees to be highly committed and fully engaged, but in many cases, that is just wishful thinking because of the spillover effect from issues at work to employees' personal lives off the job. Research has shown that the impact of work on employees' home lives is fairly well balanced among positive, negative, and neutral.<sup>18</sup> Regardless of the direction of the spillover, from work to personal life or from personal life to work, a meta-analytic review found that both types of conflict are negatively related to job and life satisfaction.<sup>19</sup>

Negative spillover effects are reflected in high stress, bad moods, poor coping, and insufficient quality and amount of time for family and friends. When employees are worried about personal issues outside of work, they become distracted, and their commitment wanes along with their productivity. Ultimately, both absenteeism and turnover (voluntary or involuntary) may increase. As we have noted, family/personal issues are widespread sources of stress, and conflicts between work and personal life affect productivity and general well-being.

The good news, however, is that the impact of employees' personal or family lives on work is generally positive. Fully half of employees in a large national study reported that their personal or family lives provide them with more energy for their jobs. Only 12 percent reported that their home lives undermined their energy for work, and

38 percent reported a balanced impact of their personal or family lives on their energy levels at work.<sup>20</sup>

Organizational programs that support work-life fit reinforce these outcomes. Unfortunately, in many organizations, although the programs are available, formidable barriers may make it difficult for employees to use them.<sup>21</sup>

### **Enhancing Success Through Implementation**

The mere presence of a work-life initiative is no guarantee of success. As shown in Figure 7-1, one must also consider the range, scope, quality, and cost of work-life initiatives, along with the quality and care with which they are deployed. Key factors to consider are the careful alignment of the programs with the strategic objectives of the organization, the extent and quality of communications about the programs, training for managers on how to make the programs work for them, and the extent of management and supervisory support for the programs. If implemented properly, work-life initiatives should reduce employee withdrawal behaviors, increase retention, and increase employees' motivation to perform well. Unfortunately, this is not always the case.

Both employers and employees have reasons for not using work-life programs. Many supervisors and higher-level managers, for example, think of “work-life” as “work-life equals work less.” They see such programs benefiting employees only and not their organizations.<sup>22</sup> The challenge, then, is to help them view work-life initiatives as a new way of working that focuses on fitting work to the employee, not just fitting the employee to the organization's needs. Training can help them understand what research has shown: The single best predictor of health and well-being at work is work-life fit.<sup>23</sup>



Employees also have their reasons for not using work-life programs. Researchers in one study used focus groups to investigate why.<sup>24</sup> It revealed six major barriers to more widespread use of the programs:

- **Lack of communication** about the policies (vague or limited knowledge about them)
- **High workloads** (work builds up when employees take time off)
- **Management attitudes** (to some managers, employees who take advantage of the policies show lack of commitment; others are unwilling to accommodate differing needs of employees)
- **Career repercussions** (belief that if employees access work-life policies, their career progression will suffer)
- **The influence of peers** (fear that employee use of a work-life program will cause resentment or suggest that the employee is not a team player)
- **Administrative processes** (excessive paperwork and long approval processes)

In short, not just the policies, but also the environment in which they are implemented, make the biggest difference for employees.<sup>25</sup> Thus, a nationwide study by Canada's Department of Labor found that 70 percent of employees surveyed attributed problems with their respective companies' work-life programs to treatment by their immediate supervisors.<sup>26</sup> A follow-up study included a list of 26 items related to work-life fit. Seven of the nine items that were most strongly related to the success of these programs were related to the attitudes and behaviors of supervisors. Indeed, study after study has reinforced the critical role that immediate

supervisors play in the overall success of work-life programs.<sup>27</sup>

An organization that truly is committed to work-life policies does more than simply provide them. It also takes tangible steps to create a workplace culture that supports and encourages the use of the policies,<sup>28</sup> and it offers streamlined processes to approve employee access to them. As [Figure 7-1](#) illustrates, those steps include things such as a multichannel communication strategy to promote and publicize the organization's work-life policies (for example, company intranet, in-house newspaper, e-mail), coupled with training for managers on how to support employees who take advantage of them. For example, that training could be designed around the kinds of behaviors from supervisors that are reflected in just three items from the 2008 National Study of the Changing Workforce. Those items are strongly related to employee engagement, job satisfaction, and turnover intentions:<sup>29</sup>

- My supervisor is supportive when I have a work problem.
- My supervisor recognizes me when I do a good job.
- My supervisor keeps me informed of things I need to know to do my job well.

To break down barriers and to enhance decisions about where investments in work-life programs are likely to have the most significant strategic value, line managers need a logical framework (see [Figure 7-1](#)) and research results. Although work-life initiatives are only one determinant of employee behaviors, along with factors such as pay, working conditions, and the work itself, research indicates that they can have substantial effects on employee decisions to stay with an organization and to produce high-quality work. The next section focuses

on analytics and measures that make those results meaningful.

## **ANALYTICS AND MEASURES: CONNECTING WORK-LIFE PROGRAMS TO OUTCOMES**

As we pointed out in earlier chapters, the term *analytics* refers to the research designs and statistical models that allow us to draw meaningful conclusions from studies that purport to show linkages between programs and outcomes. The term *measures* refers to the actual data that populate those models and the formulas that accompany them. In the case of work-life programs, the measures include the investments in the programs, as well as measures of outcomes such as absence and turnover that are discussed in earlier chapters. The analytical challenges include ensuring that program effects are not confused with other factors (controlling for extraneous effects) and determining correlation and causation.

### **Child Care**

U. S. employers lose an estimated \$4 billion annually to absenteeism related to child care.<sup>30</sup> Several studies have examined the impact of child-care programs on absenteeism, retention, and return on investment. For example, Citigroup owns or participates in 12 child-care centers in the United States. Employees pay about half the cost to use Citigroup facilities managed by Bright Horizons Family Solutions or at non-Citigroup back-up centers. In two follow-up studies, Citigroup found the following:<sup>31</sup>

- A 51 percent reduction in turnover among center users compared to noncenter users
- An 18 percent reduction in absenteeism
- A 98 percent retention rate of top performers

Chase Manhattan Bank (now JPMorgan Chase) analyzed the return on investment (ROI) of its backup child-care program (that is, child care used in emergencies or when regular child care is unavailable). It found that child-care breakdowns were the cause of 6,900 days of missed work by parents. Because backup child care was available, these lost days were not incurred. When multiplied by the average daily salary of the employee in question (expressed in 2010 dollars), gross savings were \$2,393,015. The annual cost of the backup child-care center was \$1,131,170, for a net savings of \$1,261,845 and an ROI of better than 110 percent.<sup>32</sup>

Finally, Canadian financial services giant CIBC recently bulked up its backup child-care program, rolling out the on-site service to 14 Canadian cities. Employees can take advantage of the program for up to 20 days a year at no cost to them. CIBC's Children's Care Center has saved more than 6,800 employee days since the first facility opened in 2002. The company estimates its cost savings over that period to be about \$1.6 million (in 2010 dollars). Equally important, the program is a big winner with CIBC's workers.<sup>33</sup>

Simply offering child care is no guarantee of results like those we have described. Employers considering offering such a benefit should understand child-care service delivery, the cost of care and its availability, what is available in the local market, and any challenges it presents. In addition, employers need to consider the business case for offering child care.<sup>34</sup> Depending on the nature of the business, the goal may be to improve recruitment and retention, support the advancement of women, reduce absenteeism, retain high performers, or be an employer of choice. Then measure what matters, considering key drivers of the business and the goals established for the program.

## Flexible Work Arrangements

When one stops to consider the effects of e-mail, smart phones, personal and family demands, and the 24/7 business environment, the inescapable conclusion for many employees is that 9 a.m. to 5 p.m. just isn't working anymore. Time is employees' most precious commodity. They want the flexibility to control their own time—where, when, and how they work. They want a better fit in their lives between work and leisure. Flexibility in schedules is important, as organizations strive to retain talented workers. Indeed, a recent survey of 182 organizations primarily in the U.S. and Canada revealed that 90 percent offer one or more flexible work arrangements to employees.<sup>35</sup> It is important to emphasize, however, that the concept of “flexibility” reflects a broad spectrum of possible work arrangements, as Figure 7-2 makes clear.

<b>Accommodation-Based Flexibility</b>	<b>Business-Based Flexibility</b>	<b>Culture of Flexibility</b>
<ul style="list-style-type: none"><li>-Private deals based on individual's needs</li><li>-Inconsistent implementation, often secret</li><li>-Restricted access to flexibility</li></ul>	<ul style="list-style-type: none"><li>-Decisions based on both businesses and individual needs</li><li>-Policy infrastructure that defines scheduling options and supports consistent implementation</li></ul>	<ul style="list-style-type: none"><li>-Incorporates options for formal arrangements as well as widespread, occasional flexibility</li><li>-Culture that rewards results achieved rather than time spent</li><li>-Flexibility viewed as a management strategy</li></ul>

*Source: Corporate Voices for Working Families. (November 2005). Business Impacts of Flexibility: An Imperative for Expansion (p. 18). Retrieved from [www.cvwf.org](http://www.cvwf.org) on May 18, 2006. Used with permission.*

**Figure 7-2. Implementing flexibility: A spectrum of practice.**

In terms of specific initiatives, here are six broad categories of flexible work arrangements.<sup>36</sup>

**1. Choices in managing time**, which includes control over one's schedule and satisfaction with one's schedule

2. **Flex time and flex place**, which includes traditional flexibility, daily flexibility, and shift work, compressed workweeks, and working at home

3. **Reduced time**, which includes part-time and part-year work

4. **Time off** for small necessities, one's own or family members' illnesses, vacations and holidays, and volunteer work

5. **Caregiving leave**, which includes maternity and paternity leave

6. **Culture of flexibility**, which includes perceived jeopardy, supervisor support, and general obstacles for using flexibility

Research has revealed that 87 percent of employees at *all levels* say they want increased flexibility at work. These include employees from low-income families (median annual income of \$15,600), middle-income families (median annual income of \$62,400), and high-income families (median annual income of \$140,400).<sup>37</sup> In terms of job levels (executives, managers, and professionals), the two most common flexible work arrangements are telework and flex time. Depending on the level of employee, 56–72 percent of companies offer these options. Among hourly and nonexempt employees, the following percentages of companies offer these options: flex time (49 percent), part-time work (42 percent), and telework (33 percent).<sup>38</sup>

Earlier we noted some key barriers to wider implementation of work-life programs. Flexible work schedules are no exception. “Flexibility is frequently viewed by managers and employees as an exception or employee accommodation, rather than as a new and effective way of working to achieve business results. A

face-time culture, excessive workload, manager skepticism, customer demands, and fear of negative career consequences are among the barriers that prevent employees from taking advantage of policies they might otherwise use—and that prevent companies from realizing the full benefits that flexibility might bestow.”<sup>39</sup>

To help inform the debate about flexible work arrangements, consider the financial and nonfinancial effects that have been reported for these key outcomes shown in [Figure 7-1: talent management](#) (specifically, better recruiting and lower turnover) and *human-capital outcomes* (increased satisfaction and commitment, decreased stress), which affect cost and performance, leading to *financial, operational, and business outcomes*. Here are some very brief findings in each of these areas, from a recent study of 29 American firms.<sup>40</sup>

#### **Talent Management**

IBM’s global work-life survey demonstrated that, for IBM employees overall, flexibility is an important aspect of an employee’s decision to stay with the company. Responses from almost 42,000 IBM employees in 79 countries revealed that work-life fit—of which flexibility is a significant component—is the second-leading reason for potentially leaving IBM, behind compensation and benefits. Conversely, employees with higher work-life fit scores (and, therefore, also higher flexibility scores) reported significantly greater job satisfaction and were much more likely to agree with the statement “I would not leave IBM.”

In the corporate finance organization, 94 percent of all managers reported positive impacts of flexible work options on the company’s “ability to retain talented professionals.” In light of these findings showing the strong link between flexibility and retention, IBM

actively promotes flexibility as a strategy for retaining key talent.

#### **Human-Capital Outcomes: Employee Commitment**

At Deloitte & Touche, one employee survey item asked whether employees agreed with the statement “My manager grants me enough flexibility to meet my personal/family responsibilities.” Those who agreed that they have access to flexibility scored 32 percent higher in commitment than those who believed they did not have access to flexibility. Likewise, AstraZeneca found that commitment scores were 28 percent higher for employees who said they had the flexibility they needed, compared to employees who did not have the flexibility they needed.

#### **Financial Performance, and Operational and Business Outcomes: Client Service**

Concern for quality and continuity of client or customer service is often one of the concerns raised about whether flexibility can work in a customer-focused organization. To be sure that compressed workweeks did not erode traditionally high levels of customer service, the Consumer Healthcare division of GlaxoSmithKline surveyed customers as part of the evaluation of its flexibility pilot program. Fully 89 percent of customers said they had not seen any disruption in service, 98 percent said their inquiries had been answered in a timely manner, and 87 percent said they would not have any issues with the program becoming a permanent work schedule.

Studies such as these make it possible to reframe the discussion and to position flexibility not as a “perk,” employee-friendly benefit, or advocacy cause, but as a powerful business tool that can enhance talent management, improve important human-capital outcomes, and boost financial and operational performance.<sup>41</sup>



## **Work-Life Policies and Firm Performance**

A large-scale, empirical study of data from a series of surveys administered by the Ministry of Manpower, Singapore, from 1996 to 2003, investigated the indirect impact of work-life practices through employee turnover and the direct impact of work-life practices on firm performance.<sup>42</sup> The researchers defined firm performance in three ways: financial (return on assets [ROA]), employee productivity (logarithm of sales per employee), and investor return (one-year compounded stock-price return). What is unique about this study, relative to prior research, is that most prior research has examined the effects of work-life programs on employee turnover within a single firm. Data on employee turnover across a large sample of firms, in this study, 2,570 firms, is not easily available, and therefore has not been examined.

### **Work-Life Practices in Singapore**

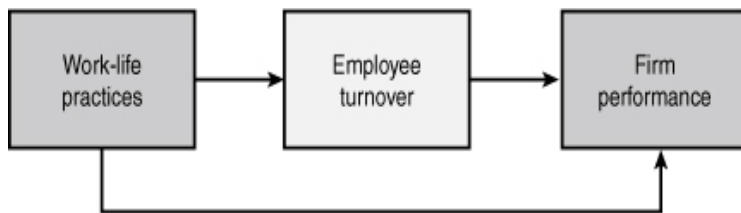
Employee benefits in Singaporean firms fall into two main categories: work-life benefits and resource benefits. Work-life benefits refer to benefits that allow employees to adjust their work hours or work location to accommodate their personal and family demands, such as various leave benefits and flexible working arrangements. Resource benefits refer to financial and other resources that firms give to employees, either as a form of welfare benefit or as performance incentives, such as transportation benefits and stock options.

The researchers analyzed data separately for management and nonmanagement employees. In addition, they examined four variables to indicate the extensiveness of work-life benefits in a firm:

- Number of work-life benefits (controlling for number of resource benefits)

- Annual leave entitlement
- Workweek pattern (compressed versus standard)
- Availability of part-time employment

Figure 7-3 presents the design of the study.

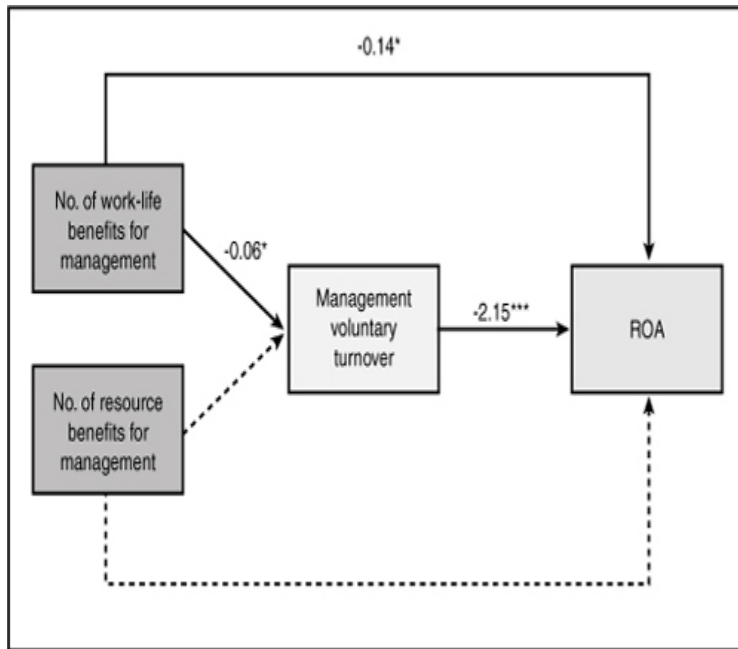


Source: Kelly, K., and S. Ang, *A Study on the Relationships between Work-Life Practices and Firm Performance in Singapore Firms*, technical report, Nanyang Business School, Nanyang Technological University, Singapore, October 2005.

**Figure 7-3. Relationships between work-life variables, employee turnover, and firm performance.**

As Figure 7-3 shows, the design of the study allowed the researchers to investigate the indirect impact of work-life practices through employee turnover and the direct impact of work-life practices on firm performance. They controlled for the size of the firm, ownership (publicly listed or private), industry (manufacturing or service), degree of industry concentration, and year (where multiple years of data were used). For stock return, they also controlled for the age of the firm and the systematic risk of the firm's stock (beta).

Figure 7-4 shows a typical result of the analysis.



Source: Kelly, K., and S. Ang, *A Study on the Relationships between Work-Life Practices and Firm Performance in Singapore Firms*, technical report, Nanyang Business School. Nanyang Technological University, Singapore, October 2005.

**Figure 7-4. Relationships between number of work-life benefits and number of resource benefits for management, management voluntary turnover, and ROA.**

Note:  $*p < 0.05$ ,  $**p < 0.01$ ,  $***p < 0.001$

Source: Kelly, K., and S. Ang, *A Study on the Relationships between Work-Life Practices and Firm Performance in Singapore Firms*, technical report, Nanyang Business School. Nanyang Technological University, Singapore, October 2005.

Based on 1,178 observations from the year 2003, and controlling for the number of resource benefits, firms that offer more work-life benefits for management employees have lower management voluntary turnover (standardized regression coefficient =  $-0.06$ ). In turn, firms with lower management voluntary turnover generate higher ROA (standardized regression coefficient =  $-2.15$ ). Hence, the indirect effect of the number of work-life benefits for management on ROA through turnover is positive ( $-0.06 \times -2.15$ ).

However, there is also a direct negative relationship between the number of work-life benefits for management and return on assets (standardized regression coefficient =  $-0.14$ ), suggesting that implementing work-life benefits for management is financially costly for firms.

#### **Overall Summary of Results**

The results of this study indicate that voluntary turnover among managers as well as rank-and-file employees negatively affects firm financial performance, employee productivity, and investor return. Conversely, implementing work-life initiatives for both management and rank-and-file employees can be an effective business strategy for firms to reduce voluntary employee turnover. While the effects of reduced turnover do not quite offset the direct financial costs, reduced turnover is only one effect of work-life programs. The study found lower voluntary employee turnover in these firms:

- Firms that offer a larger number of work-life benefits to their employees
- Firms that have a higher proportion of employees with more generous annual leave entitlements
- Firms that have a higher proportion of employees on shorter workweeks

After reading these results, you may well be wondering what causes what. That is, do work-life programs drive reductions in employee turnover, or do firms with low turnover rates find it viable to invest in work-life programs? Fortunately, the results of a recent large-scale, longitudinal study have begun to shed light on this important issue.<sup>43</sup> Using data from 885 private-sector businesses in multiple industries over five years, researchers found multidirectional (reciprocal)

relationships between firm performance (ROA) and both voluntary and involuntary turnover. That means that turnover was higher in poorer-performing firms, and that this was due both to poor firm performance causing employees to leave and to high employee turnover causing poorer firm performance. Furthermore, employee benefits moderated the negative relationships between firm performance and both voluntary and involuntary turnover. That means that employees in firms that offered a larger number of employee benefits were less likely to leave voluntarily when firm performance was poor. Correspondingly, firms that offered a larger number of employee benefits were less likely to respond to poor firm performance by terminating employees involuntarily.

What are the practical implications of these findings? Anticipate a possible spike in voluntary turnover when a firm performs poorly, but recognize that work-life benefits may offset that trend.

## **STOCK MARKET REACTIONS TO WORK-LIFE INITIATIVES**

A recent study examined stock market effects of 130 announcements among *Fortune* 500 companies of work-life initiatives in *The Wall Street Journal*.<sup>44</sup> The study examined changes in share prices the day before, the day of, and the day after such announcements. The average share price reaction over the three-day window was 0.39 percent, and the average dollar value of such changes was approximately \$60 million per firm.

Apparently, investors anticipate that firms will have access to more resources (such as higher-quality talent) following the adoption of a work-life initiative. There is a difference, however, between announcements and actual implementation. Only firms that do what they say they

will do are likely to reap the benefits of work-life initiatives.

In another study, researchers used data from 1995 to 2002 to compare the financial and stock market performance of the “100 Best” companies for working mothers, as published each year by *Working Mother* magazine, to that of benchmark indexes of the performance of U.S. equities, the S&P 500, and the Russell 3000.<sup>45</sup> In terms of financial performance, expressed as revenue productivity (sales per employee) and asset productivity (ROA), the study found no evidence that *Working Mother* “100 Best” companies were consistently more profitable or consistently more productive than their counterparts in S&P 500 companies.

At the same time, however, the total returns on common stock among *Working Mother* “100 Best” companies consistently outperformed the broader market benchmarks in each of the eight years of the study. Although the researchers found no evidence to indicate that “100 Best” companies are handicapped in the marketplace by offering generous work-life benefits, companies with superior stock returns may have a lower cost of capital and, therefore, can afford to invest in such benefits. The results reflect associations, not causation, between firms that adopt family-friendly work practices and financial and stock market outcomes. Nonetheless, the results suggest the possibility that at least some of the association is due to the effects of family-friendly investments on market outcomes.

## PROCESS

In this chapter, you have read facts and interview results that describe work-life fit/misfit. You have also seen data that reflect both financial and nonfinancial effects of work-life programs. In this final section, we present some guidelines to help you inform decision makers in a systematic way about the costs and benefits of such programs. Let's begin with a general query: What does it all mean?

If the findings described at the beginning of this chapter generalize widely, it is clear that employees at all levels, both men and women, and the members of different generations, want a "new deal" at work. To advance this agenda, leaders need to take four actions:<sup>46</sup>

- Stop defining the desire for "doable" jobs as a women's issue. Men want this, too.
- Start viewing efforts to humanize jobs as a competitive advantage and business necessity, not as one-time accommodations for favored employees or executives.
- Realize that progress is actually possible and that many examples show that work at all levels can be retooled.
- Make it safe within your organization to talk about these issues. As former Xerox CEO Anne Mulcahy noted wryly, "Businesses need to be 24/7; individuals don't."<sup>47</sup>

### Influencing Senior Leaders

Remember that the purpose of HR metrics is to influence decisions about talent and how it is organized. To do that, senior leaders have to buy in to the logic and analyses that underlie the adoption of work-life programs. At a general level, here is a three-pronged strategy to consider in securing that kind of buy-in:<sup>48</sup>

1. Make the business case for work-life initiatives through data, research, and anecdotal evidence.
2. Offer to train managers on how to use flexible management approaches—to understand that, for a variety of reasons, some people want to work long hours, way beyond the norm, but that's not for everybody. The objective is to train managers to understand that individual solutions will work better in the future than a one-size-fits-all approach.
3. Use surveys and focus groups to demonstrate the importance of work-life fit in retaining talent.

Recognize that no one set of facts and figures applies to all firms. It depends on the unique strategic priorities of each organization. Figure 7-1 provides a diagnostic logic for conversations about this. One might start by discussing whether such initiatives will be part of a recruitment strategy to help the organization become an employer of choice, a diversity strategy to promote the advancement of women and minorities, a total rewards strategy, a strategy to retain top talent, or a health and wellness strategy if the priority is stress reduction.<sup>49</sup> Find out what your organization and its employees care about right now, what the workforce will look like in three to five years, and therefore, what senior leaders will need to care about in the future.<sup>50</sup>

Second, don't rely on isolated facts. By itself, any single study or fact is only one piece of the total picture. Think in terms of a multipronged approach:

- External data that describe trends in your organization's own industry
- Internal data that outline what employees want and how they describe their needs.<sup>51</sup>



- Internal data, perhaps based on pilot studies, that examine the financial and nonfinancial effects of work-life programs. As one executive noted, “Nothing beats a within-firm story.”<sup>52</sup>

Be sure to communicate the high costs of employee absenteeism and turnover to employers (see [Chapters 3 and 4](#)). For example, because most costs associated with employee turnover are hidden (separation, replacement, and training costs), many firms do not track them. With these costs identified, communicate the benefits of work-life initiatives in reducing them.

Include stories from your own workers that describe how work-life programs have helped them. Have quotes from people whom senior leaders know and care about. In other words, use a combination of quantitative and qualitative data to make your case.

Third, understand that decision makers may well be skeptical even after all the facts and costs have been presented to them. Perhaps more deeply rooted attitudes and beliefs may underlie the skepticism—such as a belief that allowing employees to attend to personal concerns through time off may erode service to clients or customers, or that people will take unfair advantage of the benefits, or that work-life issues are just women’s issues. To inform that debate, HR leaders need to address attitudes and values, as well as data, on costs and benefits of work-life programs. As one set of authors noted:

Every workplace, small or large, can undertake efforts to treat employees with respect, to give them some autonomy over how they do their jobs, to help supervisors support employees to succeed on their jobs, and to help supervisors and coworkers promote work-life fit.<sup>53</sup>

Ultimately, a system of work-life programs, coupled with an organizational culture that supports that system, will help an organization create and sustain competitive advantage through its people.

## **EXERCISES**

1. Your boss is skeptical about claims that work-life fit is important to managers as well as employees. What evidence can you provide to offset this line of thinking?
2. What is a work-life program? What are some examples?
3. Describe the wage penalty associated with “opting out” of the workforce.
4. Why is work-life fit particularly important to professional employees?
5. Describe some of the key barriers to wider implementation of work-life programs.
6. Develop a strategy for informing the debate over whether to invest in work-life programs. What cautions would you build into your game plan?
7. Explain: The concept of “flexibility” reflects a broad spectrum of possible work arrangements.
8. What key features are critical to making decisions about whether to provide options for increased flexibility in work arrangements?
9. How do work-life programs relate to organizational performance?
10. You are given the following data regarding the costs and payoffs from employer-subsidized child-care arrangements in your 159-person professional services

organization. Before offering child-care, employees missed 850 days of work each year. That has been cut by 170 days per year, at a cost savings of \$315 per day in direct costs. Likewise, voluntary turnover among high performers has dropped by 22 percent, saving the company \$1.1 million each year in costs that were not incurred. The full cost of the child-care program (design and delivery) is \$650,000. What is the ROI of this investment?

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## 8. Staffing Utility: The Concept and Its Measurement

Management ideas and programs often have been adopted and implemented because they were fashionable (for example, Total Quality Management, Quality Circles, reengineering) or commercially appealing, or because of the entertainment value they offered the target audience.<sup>1</sup> In an era of downsizing, deregulation, and fierce global competition, and as operating executives continue to examine the costs of HR programs, HR executives are under increasing pressure to demonstrate that new or continuing programs add value in more tangible ways. Indeed, an ongoing challenge is to educate managers about the business value of HR programs in areas such as staffing and training. While some of the business value of these programs may be expressed in qualitative terms (such as improvements in customer service, team dynamics, or innovation),<sup>2</sup> our focus in this chapter and the three that follow it is on methods to express the monetary value of HR programs.

This chapter and Chapter 10, “The Payoff from Enhanced Selection,” address the payoffs from improved staffing. Chapter 11, “Costs and Benefits of HR Development Programs,” illustrates how the logical frameworks for staffing can be adapted to calculate the monetary value of employee training and development. The monetary value estimation techniques have been particularly well developed when applied to staffing programs. The combination of analytics based on widely applicable statistical assumptions, plus a logical approach for combining information to connect to the quality of the workforce, and analytical frameworks and tools to understand how workforce quality affects pivotal

organizational outcomes, has produced sophisticated frameworks.

We begin this chapter by describing the logic underlying the value of staffing decisions, in terms of the conditions that define that value and that, when satisfied, lead to high value. After that, we present a broad overview of utility analysis as a way to improve organizational decisions, especially decisions about human capital. Note that many of the examples in this chapter refer to “dollar-valued” outcomes because the research was conducted in the United States. However, the same concepts apply to any currency.

Recall from Chapter 2, “Analytical Foundations for HR Measurement,” that utility analysis generally refers to frameworks that help decision makers analyze in a systematic manner the subjective value, or expected utility of alternative outcomes associated with a decision. The expected utility or usefulness of each outcome is obtained by summing a rating of the outcome’s importance or value to the decision maker multiplied by the expectation or probability of achieving that outcome. After summing these values across all outcomes, the decision rule is to choose the option with the highest expected utility. The approach to staffing utility measurement is similar; instead of simple estimates and multiplication, however, the formulas incorporate more nuanced approaches to probabilities, value estimation, and combinations of the individual elements.

## **A DECISION-BASED FRAMEWORK FOR STAFFING MEASUREMENT**

Measures exist to enhance decisions. With respect to staffing decisions, measures are important to the decisions of applicants, potential applicants, recruiters, hiring managers, and HR professionals. These decisions include how to invest scarce resources (money, time, materials, and so on) in staffing techniques and activities, such as alternative recruiting sources, different selection and screening technologies, recruiter training or incentives, and alternative mixes of pay and benefits to offer desirable candidates. Staffing decisions also include decisions by candidates about whether to entertain or accept offers, and by hiring managers about whether to devote time and effort to landing the best talent. Increasingly, such decisions are not made exclusively by HR or staffing professionals, but in conjunction with managers outside of HR and other key constituents.<sup>3</sup>

Effective staffing requires measurements that diagnose the *quality* of the decisions of managers and applicants. Typical staffing-measurement systems fail to reflect these key decisions, so they end up with significant limitations and decision risks. For example, selection tests may be chosen solely based on their cost and predictive relationships with turnover or performance ratings. Recruitment sources may be chosen solely based on their cost and volume of applicants. Recruiters may be chosen based solely on their availability and evaluated only on the volume of applicants they produce. Staffing is typically treated not as a process, but as a set of isolated activities (recruiting, selecting, offering/closing, and so forth).

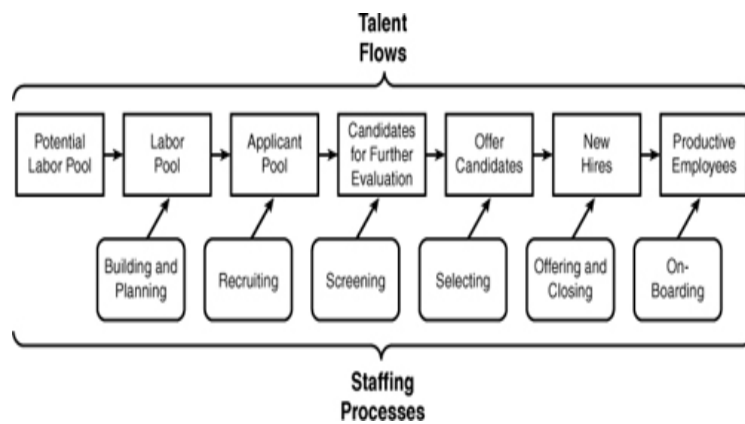
Fixing these problems requires a systematic approach to staffing that treats it as a set of decisions and processes

that begins with a set of outcomes, identifies key processes, and then integrates outcomes with processes. Consider outcomes, for example. We know that the ultimate value of a staffing system is reflected in the quality of talent that is hired or promoted and retained. In fact, a wide variety of measures exists to examine staffing quality, but generally these measures fall into seven categories:

- **Cost:** Cost per hire, cost of assessment activities (tests, interviews, background checks)
- **Time of activities:** Time to fill vacancies, time elapsed from interview to offer
- **Volume and yield:** Total number of applicants, yield of hires from applicants
- **Diversity and EEO compliance:** Demographic characteristics of applicants at each stage of the hiring process
- **Customer/constituent reactions:** Judgments about the quality of the process and impressions about its attractiveness
- **Quality attributes of the talent:** Pre-hire predictive measures of quality (selection tests, interviewer ratings), as well as post-hire measures of potential and competency
- **Value impact of the talent:** Measures of actual job performance and overall contribution to the goals of a unit or organization

This chapter focuses primarily on two of these measures: the quality and value impact of talent. At the same time, it is important not to lose sight of the broader staffing processes within which screening and selection of talent

takes place. Figure 8-1 is a graphic illustration of the logic of the staffing process and talent flows.



**Figure 8-1. Logic of staffing processes and talent flows.**

Groups of individuals (talent pools) flow through the various stages of the staffing process, with each stage serving as a filter that eliminates a subset of the original talent pool. The top row of Figure 8-1 shows the results of the filtering process, beginning with a potential labor pool that is winnowed through recruitment and selection to a group that receives offers and then is winnowed further as some accept offers and remain with the organization.

The “staffing processes” in the lower row show the activities that accomplish the filtering sequence, beginning with building and planning (forecasting trends in external and internal labor markets, inducing potential applicants to develop qualifications to satisfy future talent demands), and ending with on-boarding (orientation, mentoring, removing barriers to performance). Integrating measurement categories with the process steps shown in Figure 8-1 provides a decision-based framework for evaluating where staffing measures are sufficient and where they may be lacking.

Figure 8-1 might usefully be viewed as a supply-chain approach to staffing. To appreciate that analogy,

consider that the pipeline of talent is very similar to the pipeline of any other resource. At each stage, the candidate pool can be thought of in terms of the quantity of candidates, the average and dispersion of the quality of the candidates, and the cost of processing and employing the candidates. Quantity, quality, and cost considerations determine the monetary value of staffing programs. We have more to say about these ideas in [Chapter 10](#). Now that we have presented the “big picture” of the staffing process, let us focus more specifically on one component of that process: employee selection (specifically, on assessing the value of selection by means of utility analysis).

## **FRAMING HUMAN CAPITAL DECISIONS THROUGH THE LENS OF UTILITY ANALYSIS**

Utility analysis is a framework to guide decisions about investments in human capital.<sup>4</sup> It is the determination of institutional gain or loss (outcomes) anticipated from various courses of action. When faced with a choice among strategies, management should choose the strategy that maximizes the expected utility for the organization.<sup>5</sup> To make the choice, managers must be able to estimate the utilities associated with various outcomes. Estimating utilities traditionally has been the Achilles heel of decision theory<sup>6</sup> but is a less acute problem in business settings, where gains and losses may be estimated by objective behavioral or cost accounting procedures, often in monetary terms.

Our objective in this chapter is to describe three different models of staffing utility analysis, focusing on the logic and analytics of each one. [Chapter 9](#), “[The Economic Value of Job Performance](#),” [Chapter 10](#), and [Chapter 11](#) then build on these ideas, emphasizing measures and processes to communicate results to operating executives and to show how staffing, training, and other HR

programs can be evaluated from a return on investment (ROI) perspective.

## **OVERVIEW: THE LOGIC OF UTILITY ANALYSIS**

As noted above, utility analysis considers three important parameters: quantity, quality, and cost. A careful look at [Figure 8-1](#) shows that the top row refers to the characteristics of candidates for employment as they flow through the various stages of the staffing process. For example, the “applicant pool” might have a quantity of 100 candidates, with an average quality value of \$100,000 per year and a variability in quality value that ranges from a low of \$50,000 to a high of \$170,000. This group of candidates might have an anticipated cost (salary, benefits, training, and so on) of 70 percent of its value. After screening and selection, the “offer candidates” might have a quantity of 50 who receive offers, with an average quality value of \$150,000 per year, ranging from a low of \$100,000 to a high of \$160,000. Candidates who receive offers might require employment costs of 80 percent of their value, because we have identified highly qualified and sought-after individuals. Eventually, the organization ends up with a group of “new hires” (or promoted candidates, in the case of internal staffing) that can also be characterized by quantity, quality, and cost.

Similarly, the bottom row of [Figure 8-1](#) reflects the staffing processes that create the sequential filtering of candidates. Each of these processes can be thought of in terms of the *quantity* of programs and practices used, the *quality* of the programs and practices as reflected in their ability to improve the value of the pool of individuals that survives, and the *cost* of the programs and practices in each process. For example, the quality of selection procedures is often expressed in terms of their



validity, or accuracy in forecasting future job performance. Validity is typically expressed in terms of the correlation (see [Chapter 2](#)) between scores on a selection procedure and some measure of job performance, such as the dollar volume of sales. Validity may be increased by including a greater quantity of assessments (such as a battery of selection procedures), each of which focuses on an aspect of knowledge, skill, ability, or other characteristic that has been demonstrated to be important to successful performance on a job. Higher levels of validity imply higher levels of future job performance among those selected or promoted, thereby improving the overall payoff to the organization. As a result, those candidates who are predicted to perform poorly never get hired or promoted in the first place.

Decision makers naturally focus on the cost of selection procedures because they are so vividly depicted by standard accounting systems, but the cost of errors in selecting, hiring, or promoting the wrong person is often much more important. As explained in [Chapter 9](#), the difference in value between an average performer versus a superior performer is often much higher than the difference in the cost of improving the staffing process. In the case of executives, a company often has to pay large fees to headhunters, and poor performance can have serious consequences in terms of projects, products, and customers. That cost can easily run \$1 million to \$3 million.<sup>7</sup>

In summary, the overall payoff to the organization (utility) from the use of staffing procedures depends on three broad parameters: quantity, quality, and cost. Each of the three staffing utility models that we examine in this chapter addresses two or more of these parameters. The models usually focus on the selection part of the processes of [Figure 8-1](#), but they have implications for

the other staffing stages, too. Each model defines the quality of candidates in a somewhat different way, so we start with the models that make relatively basic assumptions and move to those that are increasingly sophisticated.

## **UTILITY MODELS AND STAFFING DECISIONS**

The utility of a selection device is the degree to which its use improves the quality of the individuals selected beyond what would have occurred had that device not been used.<sup>8</sup> In the context of staffing or employee selection, three of the best-known utility models are those of Taylor and Russell,<sup>9</sup> Naylor and Shine,<sup>10</sup> and Brogden, Cronbach, and Gleser.<sup>11</sup> Each of them defines the quality of selection in terms of one of the following:

- The proportion of individuals in the selected group who are considered successful
- The average standard score on a measure of job performance for the selected group
- The dollar payoff to the organization resulting from the use of a particular selection procedure

The remainder of this chapter considers each of these utility models and its associated measure of quality in greater detail.

## **The Taylor-Russell Model**

Many decision makers might assume that if candidate ratings on a selection device (such as a test or interview) are highly associated with their later job performance, the selection device must be worth investing in. After all, how could better prediction of future performance not be worth the investment?

However, if the pool of candidates contains very few unacceptable candidates, better testing may do little good. Or if the organization generates so few candidates that it must hire almost all of them, again, better testing will be of little use. Taylor and Russell translated these observations into a system for measuring the tradeoffs, suggesting that the overall utility or practical effectiveness of a selection device depends on more than just the validity coefficient (the correlation between a predictor of job performance and a criterion measure of actual job performance). Rather, it depends on three parameters: the validity coefficient ( $r$ ), the selection ratio (SR, the proportion of applicants selected), and the base rate (BR, the proportion of applicants who would be successful without the selection procedure).

Taylor and Russell defined the value of the selection system as the “success ratio,” which is the ratio of the number of hired candidates who are judged successful on the job divided by the total number of candidates that were hired. They published a series of tables illustrating the interactive effect of different validity coefficients, selection ratios, and base rates on the success ratio. The success ratio indicates the quality of those selected. The difference between the success ratio and the base rate (which reflects the success ratio without any added selection system) is a measure of the incremental value of the selection system over what would have happened if it had not been used. Let’s develop this logic and its

implications in more detail and show you how to use the tables Taylor and Russell developed.

#### **Analytics**

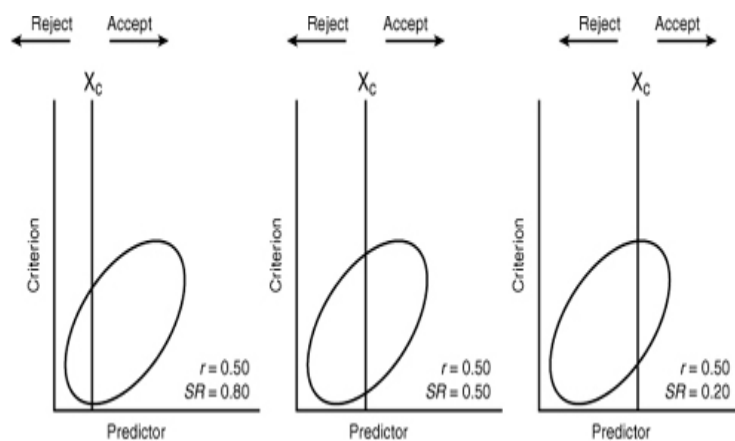
This model has three key, underlying assumptions:

1. It assumes fixed-treatment selection. (That is, individuals are chosen for one specified job, treatment, or course of action that cannot be modified.) For example, if a person is selected for Treatment A, a training program for slow learners, transfer to Treatment B, fast-track instruction, is not done, regardless of how well the person does in Treatment A.
2. The Taylor-Russell model does not account for the rejected individuals who would have been successful if hired (erroneous rejections). Because they are not hired, their potential value, or what they might contribute to other employers who now can hire them, is not considered.
3. The model classifies accepted individuals into successful and unsuccessful groups. All individuals within each group are regarded as making equal contributions. That means that being minimally successful is assumed to be equal in value to being highly successful, and being just below the acceptable standard is assumed to be equal in value to being extremely unsuccessful.

Of course, these assumptions may not hold in all situations; but even with these basic assumptions, Taylor and Russell were able to generate useful conclusions about the interplay between testing and recruitment. For example, the Taylor-Russell model demonstrates convincingly that even selection procedures with relatively low validities can increase substantially the percentage of those selected who are successful, when the selection ratio is low (lots of candidates to choose

from) and when the base rate is near 50 percent (about half the candidates would succeed without further testing, so there are lots of middle-level candidates who can be sorted by better selection). Let us consider the concepts of selection ratio and base rate in greater detail.

The selection ratio is simply the number of candidates who must be hired divided by the number of available candidates to choose from. A selection ratio (SR) of 1.0 means the organization must hire everyone, so testing is of no value because there are no selection decisions to be made. The closer the actual SR is to 1.0, the harder it is for better selection to pay off. The opposite also holds true; as the SR gets smaller, the value of better selection gets higher. (For example, a selection ratio of .10 means the organization has ten times more applicants than it needs and must hire only 10 percent of the available applicants.) Figure 8-2 illustrates the wide-ranging effect that the SR may exert on a predictor with a given validity. In each case,  $X_c$  represents a cutoff score on the predictor. As you can see in Figure 8-2, even predictors with low validities can be useful if the SR is so low that the organization needs to choose only the cream of the crop. Conversely, with high selection ratios, a predictor must possess very high validity to increase the percentage successful among those selected.

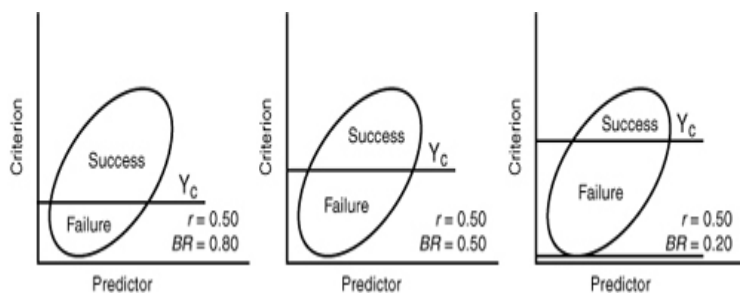


*Note:* The oval is the shape of a scatterplot corresponding to  $r = 0.50$ ;  $r$  = validity coefficient; SR = selection ratio;  $X_c$  = cutoff score.

**Figure 8-2. Effect of varying selection ratios on a predictor with a given validity.**

It might appear that, because a predictor that demonstrates a particular validity is more valuable with a lower selection ratio, one should always opt to reduce the SR (become more selective). However, the optimal strategy is not this simple.<sup>12</sup> When the organization must achieve a certain quota of individuals, lowering the SR means the organization must increase the number of available applicants, which means expanding the recruiting and selection effort. In practice, that strategy may be too costly to implement, as later research demonstrated convincingly.<sup>13</sup>

Utility, according to Taylor and Russell, is affected by the base rate (the proportion of candidates who would be successful without the selection measure). To be of any use in selection, the measure must demonstrate incremental validity by improving on the BR. That is, the selection measure must result in more correct decisions than could be made without using it. As [Figure 8-3](#) demonstrates, when the BR is either very high or very low, it is difficult it for a selection measure to improve upon it.



*Note:* The oval is the shape of a scatterplot corresponding to  $r = 0.50$ ;  $BR$  = base rate;  $r$  = validity coefficient;  $Y_c$  = minimum level of job performance.

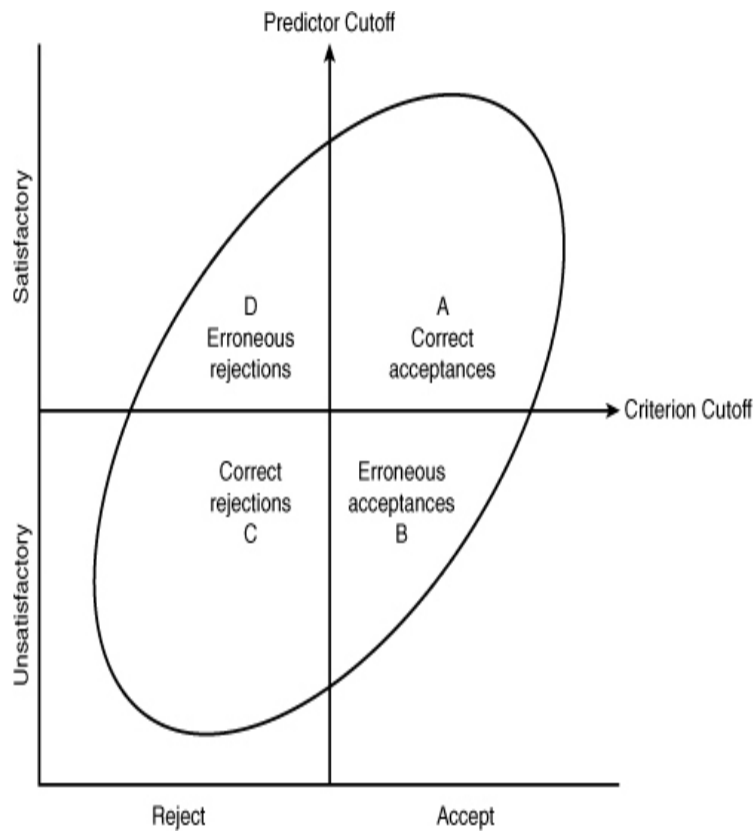
**Figure 8-3. Effect of varying base rates on a predictor with a given validity.**

In each panel of the figure,  $Y_c$  represents the minimum level of job performance (criterion cutoff score)

necessary for success. That value should not be altered arbitrarily. Instead, it should be based on careful consideration of the true level of minimally acceptable performance for the job.<sup>14</sup> Figure 8-3 illustrates that, with a BR of 0.80, it would be difficult for any selection measure to improve on the base rate. In fact, when the BR is 0.80 and half of the applicants are selected, a validity of 0.45 is required to produce an improvement of even 10 percent over base-rate prediction. This is also true at very low BRs (as would be the case, for example, in the psychiatric screening of job applicants). Given a BR of 0.20, an SR of 0.50, and a validity of 0.45, the percentage successful among those selected is 0.30 (once again representing only a 10 percent improvement in correct decisions). Selection measures are most useful when BRs are about 0.50.<sup>15</sup> Because the BR departs radically in either direction from this value, the benefit of an additional predictor becomes questionable. The lesson is obvious: Applications of selection measures to situations with markedly different SRs or BRs can result in quite different predictive outcomes. If it is not possible to demonstrate significant incremental utility by adding a predictor, the predictor should not be used, because it cannot improve on current selection procedures.

Figure 8-4 presents all of the elements of the Taylor-Russell model together. In this figure, the criterion cutoff ( $Y_c$ ) separates the present employee group into satisfactory and unsatisfactory workers. The predictor cutoff ( $X_c$ ) defines the relative proportion of workers who would be hired at a given level of selectivity. Areas A and C represent correct decisions—that is, if the selection measure were used to select applicants, those in area A would be hired and become satisfactory employees. Those in area C would be rejected correctly because they scored below the predictor cutoff and would have performed unsatisfactorily on the job. Areas B and D represent erroneous decisions; those in area B would be

hired because they scored above the predictor cutoff, but they would perform unsatisfactorily on the job, and those in area D would be rejected because they scored below the predictor cutoff, but they would have been successful if hired.



*Note:* The oval is the shape of the scatterplot that shows the overall relationship between predictor and criterion scores.

**Figure 8-4. Effect of predictor and criterion cutoffs on selection decisions.**

Taylor and Russell used the following ratios in developing their tables:

**8-1.**

$$\text{Base rate} = \frac{A+D}{A+B+C+D}$$

**8-2.**



$$\text{Selection ratio} = \frac{A+B}{A+B+C+D}$$

**8-3.**

$$\text{Success ratio} = \frac{A}{A+B}$$

By specifying the validity coefficient, the base rate, and the selection ratio, and making use of Pearson's "Tables for Finding the Volumes of the Normal Bivariate Surface,"<sup>16</sup> Taylor and Russell developed their tables (see [Appendix A](#)). The usefulness of a selection measure thus can be assessed in terms of the success ratio that will be obtained if the selection measure is used. To determine the gain in utility to be expected from using the instrument (the expected increase in the percentage of successful workers), subtract the base rate from the success ratio ([Equation 8-3](#) minus [Equation 8-1](#)). For example, given an SR of 0.10, a validity of 0.30, and a BR of 0.50, the success ratio jumps to 0.71 (a 21 percent gain in utility over the base rate—to verify this figure, see [Appendix A](#)).

The validity coefficient referred to by Taylor and Russell is, in theory, based on present employees who have already been screened using methods other than the new selection procedure. It is assumed that the new procedure will simply be added to a group of selection procedures used previously, and the incremental gain in validity from the use of the new procedure most relevant.

Perhaps the major shortcoming of this utility model is that it reflects the quality of the resulting hires only in terms of success or failure. It views the value of hired employees as a dichotomous classification—successful or unsuccessful—and as the tables in [Appendix A](#) demonstrate, when validity is fixed, the success ratio increases as the selection ratio decreases. (Turn to [Appendix A](#), choose any particular validity value, and

note what happens to the success ratio as the selection ratio changes from 0.95 to 0.05.) Under those circumstances, the success ratio tells us that more people are successful, but not *how much more* successful.

In practice, situations may arise in which one would not expect the average level of job performance to change as a function of higher selection standards, such as food servers at fast-food restaurants. Their activities have become so standardized that there is little opportunity for significant improvements in performance after they have been selected and trained. The relationship between the value of such jobs to the organization and variations in performance demonstrates essentially flat slopes. In such situations, it may make sense to think of the value of hired candidates as either being above the minimum standard or not.

For many jobs, however, one would expect to see improvements in the average level of employee value from increased selectivity. In most jobs, for example, a very high-quality employee is more valuable than one who just meets the minimum standard of acceptability. When it is reasonable to assume that the use of higher cutoff scores on a selection device will lead to higher levels of average job performance by those selected, the Taylor-Russell tables underestimate the actual amount of value from the selection system. That observation led to the development of the next framework for selection utility, the Naylor-Shine Model.

### **The Naylor-Shine Model**

Unlike the Taylor-Russell model, the Naylor and Shine utility model does not require that employees be split into satisfactory and unsatisfactory groups by specifying an arbitrary cutoff on the criterion (job performance) dimension that represents minimally acceptable performance.<sup>17</sup> The Naylor-Shine model defines utility as the increase in the average criterion score (for example, the average level of job performance of those selected) expected from the use of a selection process with a given validity and SR. The quality of those selected is now defined as the difference in average level of quality of the group that is hired, versus the average quality in the original group of candidates.

Like Taylor and Russell, Naylor and Shine assume that the relationship between predictor and criterion is bivariate normal (both scores on the selection device and performance scores are normally distributed), linear, and homoscedastic. The validity coefficient is assumed to be based on the concurrent validity model.<sup>18</sup> That model reflects the gain in validity from using the new selection procedure *over and above* what is presently available using current information.

In contrast to the Taylor-Russell utility model, the Naylor-Shine approach assumes a linear relationship between validity and utility. That is, the higher the validity, the greater the increase in the average criterion score of the selected group compared to the average criterion score that the candidate group would have achieved. Equation 8-4 shows the basic equation underlying the Naylor-Shine model:

**8-4.**

$$\bar{Z}_{yi} = r_{xy} \frac{\lambda_i}{\phi_i}$$

Here,  $\bar{Z}_{yi}$  is the average criterion score (in standard-score units)<sup>19</sup> of those selected,  $r_{xy}$  is the validity coefficient,  $\lambda_i$  is the height of the normal curve at the predictor cutoff,  $Z_{xi}$  (expressed in standard-score units), and  $\phi_i$  is the selection ratio. Equation 8-4 applies whether  $r_{xy}$  represents a correlation between two variables or it is a multiple-regression coefficient.<sup>20</sup>

Using Equation 8-4 as a basic building block, Naylor and Shine present a series of tables (see Appendix B) that specify, for each SR, the standard (predictor) score that produces that SR, the ordinate of the normal curve at that point, and the quotient  $\lambda_i/\phi_i$ . The quotient  $\lambda_i/\phi_i = \bar{Z}_x$ , the average predictor score of those selected. The tables can be used to answer several important HR questions:

- Given a specified SR, what will be the average criterion level (for example, performance level) of those selected?
- Given a certain minimum cutoff score on the selection device above which everyone will be hired, what will be the average criterion level ( $\bar{Z}_{yi}$ )?
- Given a desired improvement in the average criterion score (for example, performance) of those selected, and assuming a certain validity, what SR and/or predictor cutoff value (in standard score units) should be used?

Let's work through some examples, using the tables in Appendix B.

In each of the following examples, assume that  $r_{xy}$ , the validity of our predictor, is positive and equal to 0.40. Of

course, it is also possible that the validity of a predictor could be negative (for example, higher levels of job satisfaction related systematically to lower intentions to quit). Under these circumstances, the general rule is to reverse the sign of  $r_{xy}$  and  $Z_{xi}$  everywhere in the calculations.

1. With a selection ratio of 50 percent ( $\phi_i = 0.50$ ), what will be the average performance level of those selected?

*Solution:* Enter the table at  $\phi_i = 0.50$  and read  $\lambda_i/\phi_i = 0.80$ .

$$\bar{Z}_{yi} = r_{xy} \lambda_i / \phi_i = (0.40)(0.80) = 0.32$$

Thus, the average criterion score of those selected, using an SR of 0.50, is 0.32 Z-units (roughly one third of a standard deviation) better than the unselected sample.

2. With a desired cutoff score set at .96 standard deviations below the average of the applicant pool ( $Z_{xi} = -0.96$ ), what will be the standardized value of the criterion ( $\bar{Z}_{yi}$ )?

*Solution:* Enter the table at  $Z_{xi} = -0.96$  and read  $\lambda_i/\phi_i = 0.30$ .

$$\bar{Z}_{yi} = r_{xy} \lambda_i / \phi_i = (0.40) (0.30) = 0.12$$

Thus, using this cutoff score on our predictor results in an average criterion score of about one eighth of a standard deviation (0.12 Z-units) higher than the average of the unselected applicant pool.

3. If we want to achieve an average standardized level of performance on our criterion (such as job performance) among those selected that is half a standard deviation higher than the average of the applicant pool ( $\bar{Z}_{yi} = 0.50$ ), and assuming a validity of .40, what SR do we need to achieve? What predictor cutoff value will achieve that SR?

Solution: Because  $\bar{Z}_{yi} = r_{xy} \lambda_i / \phi_i$  then

$$\lambda_i / \phi_i = \bar{Z}_{yi} / r_{xy} = 0.50 / 0.40 = 1.25$$

Enter the table at  $\lambda_i / \phi_i = 1.25$  and read  $\phi_i = 0.2578$  and  $Z_{xi} = 0.65$ . Thus, to achieve an average improvement of 0.50 (one half) standard deviation in job performance, an SR of 0.2578 is necessary (we must select only the top 25.78 percent of applicants). To achieve that, we must set a cutoff score on the predictor of 0.65 standard deviations above the average among our applicants.

The Naylor-Shine utility approach is more generally applicable than Taylor-Russell because, in many, if not most, cases, an organization could expect an increase in average job performance as it becomes more selective, using valid selection procedures. However, “average job performance” is expressed in terms of standard (Z) scores, which are more difficult to interpret than are outcomes more closely related to the specific nature of a business, such as dollar volume of sales, units produced or sold, or costs reduced. With only a standardized criterion scale, one must ask questions such as “Is it worth spending \$10,000 to select 50 people per year, to obtain a criterion level of 0.50 standard deviations (SDs) greater than what we would obtain without the predictor?”<sup>21</sup> Some HR managers may not even be familiar with the concept of a standard deviation and

would find it difficult to attach a dollar value to a 0.50 SD increase in criterion performance.

Neither the Taylor-Russell nor the Naylor-Shine models formally integrates the concept of selection system cost, nor the monetary gain or loss, into the utility index. Both describe differences in the percentage of successful employees (Taylor-Russell) or increases in average criterion score (Naylor-Shine), but they tell us little about the benefits to the employer in monetary terms. The Brogden-Cronbach-Gleser model, discussed next, was designed to address these issues.

### **The Brogden-Cronbach-Gleser Model**

Brogden showed that, under certain conditions, the validity coefficient is a direct index of “selective efficiency.” That means that if the criterion and predictor are expressed in standard score units,  $r_{xy}$  represents the ratio of the average criterion score made by persons selected on the basis of their

predictor scores ( $\bar{Z}_x$ ) to the average score made if one had selected them based on their criterion scores ( $\bar{Z}_y$ ). Of course, it is usually not possible to select applicants based on their criterion scores (because one cannot observe their criterion scores before they are hired), but Brogden’s insight means that the validity coefficient represents the ratio of how well an actual selection process does, compared to that best standard. Equation 8-5 shows this algebraically:

**8-5.**

$$r_{xy} = \frac{\bar{Z}_y}{\bar{Z}_{y'}}$$

The validity coefficient has these properties when (1) both the predictor and criterion are continuous (that is, they can assume any value within a certain range and are not divided into two or more categories), (2) the predictor and criterion distributions are identical (not necessarily normal, but identical), (3) the regression of the criterion on the predictor is linear, and (4) the selection ratio (SR) is held constant.<sup>22</sup>

As an illustration, suppose that a firm wants to hire 20 people for a certain job and must choose the best 20 from 85 applicants. Ideally, the firm would hire all 85 for a period of time, collect job performance (criterion) data, and retain the best 20, those obtaining the highest criterion scores. The average criterion score of the 20 selected this way would obviously be the highest obtainable with any possible combination of 20 of the 85 applicants.

Such a procedure is usually out of the question, so organizations use a selection process and choose the 20 highest scorers. Equation 8-5 indicates that the validity coefficient may be interpreted as the ratio of the average criterion performance of the 20 people selected on the basis of their predictor scores compared to the average performance of the 20 who would have been selected had the criterion itself been used as the basis for selection. To put a monetary value on this, if selecting applicants based on their actual behavior on the job, would save an organization \$300,000 per year over random selection, a selection device with a validity of 0.50 could be expected to save \$150,000 per year. Utility is therefore a direct linear function of validity, when the conditions noted previously are met.

Equation 8-5 does not include the cost of selection, but Brogden later used the principles of linear regression to demonstrate the relationships of cost of selection,



validity, and selection ratio to utility, expressed in terms of dollars.<sup>23</sup>

Recall that our ultimate goal is to identify the monetary payoff to the organization when it uses a selection system to hire employees. To do this, let's assume we could construct a criterion measure expressed in monetary terms. We'll symbolize it as  $y_{\$}$ . Examples of this might include the sales made during a week/month/quarter by each of the salespersons on a certain job, or the profit obtained from each retail operation managed by each of the store managers across a country, or the outstanding customer debts paid during a week/month/quarter for the customers handled by each of a group of call-center collection agents. If we call that criterion measure  $y$ , then here is a plain-English and mathematical description of Brogden's approach.<sup>24</sup>

**Step 1: Express the Predictor-Criterion Relationship As a Formula for a Straight Line**

Recall the formula for a straight line that most people learn in their first algebra class, shown here as Equation 8-6.

**8-6.**

$$y = a + bx$$

where:

$y$  = dependent variable, or criterion (such as a job performance measure)

$x$  = independent variable that we hope predicts our criterion (such as job performance)

$a$  =  $y$ -intercept, or where the line crosses the  $y$ -axis of a graph when  $x = 0$

$b$  = slope, or “rise over the run” of the line—that is, the change in  $y$  (for example, change in sales) for every one-unit change in  $x$  (score on a sales-aptitude test).

First, let’s change this equation slightly. Let’s substitute the symbol  $b_0$  for  $a$ ,  $b_1$  for  $b$ , and  $y_s$  for  $y$ . In this way, we go from Equation 8-6 above to Equation 8-7.

**8-7.**

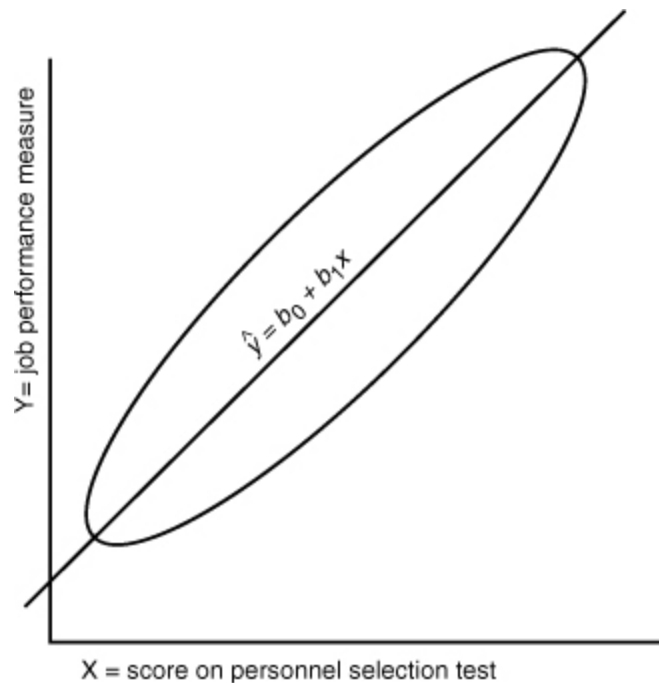
$$\hat{y}_s = b_0 + b_1x$$

Then let’s add an  $e$  after the  $x$ , to reflect that there is some random fluctuation or “error” in any straight-line estimate, and we get Equation 8-8.

**8-8.**

$$\hat{y}_s = b_0 + b_1x + e$$

Our original formulas (Equations 8-6 and 8-7) described the points that fall *exactly on* a straight line, but Equation 8-8 describes points that fall *around* a straight line. Figure 8-5 shows this idea as a straight line passing through an ellipse. The ellipse represents the cloud of score combinations that might occur in an actual group of people, and the line in the middle is the one that gets as close as possible to as many of the points in the cloud. Some people describe this picture as a hot dog on a stick.



**Figure 8-5. Dispersion of actual criterion and predictor scores.**

In the context of staffing,  $x$  would be each employee's score on some selection process, and  $y$  would be the same employee's subsequent criterion score (such as performance on the job). If we don't know yet how someone is going to perform on the job (which we can't know before the person is hired), a best guess or estimate of how the employee might perform on the job would be the  $\hat{y}_{\$}$  value obtained from plugging the applicant's  $x$  score into [Equation 8-7](#).

The letter  $e$  in [Equation 8-8](#) is called “error,” because although our estimate  $\hat{y}_{\$}$  from [Equation 8-7](#) might be a good guess, it is not likely to be exactly the level of job performance obtained by that applicant later on the job. Note that because  $y$  is the actual performance attained by that applicant, then  $y - \hat{y}_{\$} = e$ . The “error” by which our original predicted level of job performance,  $\hat{y}_{\$}$ , differed from the applicant's actual job performance,  $y$ , is equal to  $e$ .

Ordinary least-squares regression analyses can be used to calculate the “best”-fitting straight line (that is, Equation 8-7), where *best* means the formula for the straight line  $\hat{y}_s = b_o + b_1x$  (Equation 8-7) that minimizes the sum of all squared errors ( $e^2$ ). This is where the “least-squares” portion of the “ordinary least-squares” label comes from.

**Step 2: Standardize x**

To get back to the validity coefficient, we need to convert the actual, or “raw,” scores on our predictor and criterion to standardized form. Starting with Equation 8-7, reprinted here as Equation 8-9, let’s see how this works.

**8-9.**

$$\hat{y}_s = b_o + b_1x$$

Let’s first standardize all the applicants’ selection process scores (that is, take their original scores, subtract the average, and divide by the standard deviation), as shown in Equation 8-10:

**8-10.**

$$z_i = \frac{x_i - \bar{x}}{SD_x}$$

Where:

$x_i$  = selection process score earned by applicant  $i$

$z_i$  = “standard” or Z score corresponding to the  $x_i$  score for applicant  $i$

$\bar{x}$  = average or mean selection process score, typically of all applicants, obtained in some sample

$SD_x$  = standard deviation of  $x_i$  around  $\bar{x}$ , or

$$SD_x = \sqrt{\frac{\sum_{i=1}^n (x_i - \bar{x})^2}{n - 1}}$$

When Equation 8-9 is modified to reflect the fact that  $x$  is now standardized, it becomes Equation 8-11.

**8-11.**

$$\hat{y}_s = b_0 + b_1 z$$

**Step 3: Express the Equations in Terms of the Validity Coefficient**

Finally, let's modify Equation 8-11 to show the role of the validity coefficient using this selection process.

We want to know the expected value (or the most likely average value) of  $y_s$  for the hired applicants.

Modifying Equation 8-11 to express all the elements with a capital  $E$  for expected value, we have this:

**8-12.**

$$E(y_s) = E(b_0) + E(b_1)E(z_s)$$

Thus,  $E(y_s)$  means the “expected value of the criterion,  $y$ , in monetary terms.” Also note that the letter  $s$  is now subscripted to the letter  $z$ , to show that the criterion scores are from the group of applicants who are actually selected (subscript  $s$  stands for “selected”).

Remember that “expected value” typically means

“average,” so  $E(y_s) = \bar{y}_s$  and  $E(z_s) = \bar{z}_s$ . Substituting these values into Equation 8-11 yields the following:

**8-13.**

$$\bar{y}_s = E(b_0) + E(b_1)\bar{z}_s$$

We can calculate  $\bar{z}_s$  simply by standardizing the selection test scores of all applicants, averaging just the scores of the individuals who were actually selected (hence the subscript  $s$ ). When no selection system is used (that is, if applicants had been chosen at random),  $\bar{z}_s$  is expected to be the same as the average of  $z$  scores for all applicants. By definition, the average of all  $z$  scores in a sample is always 0. So when  $\bar{z}_s = 0$ , then  $E(b_1) \bar{z}_s = 0$  also, and  $E(b_0)$  will be the average monetary value of the criterion for individuals selected at random from the applicant pool. The symbol for the expected or average monetary criterion score for all applicants is  $\$$ , so we can substitute  $\$$  for  $E(b_0)$  in Equation 8-13.

Finally, the value of  $E(b_1)$  is obtained using multiple-regression software (for example, the regression function in Excel). This is the regression coefficient or beta weight associated with  $x$  (as opposed to the “constant,” which is the estimate of  $E(b_0)$ ). By definition, the regression coefficient can also be defined as in Equation 8-14.

**8-14.**

$$b_1 = r_{xy} \left( \frac{SD_y}{SD_x} \right)$$

where:

$r_{xy}$  = simple correlation between test scores on the personnel selection test  $x$  and the criterion measure  $y$ .

$SD_y$  = standard deviation of the monetary value of the criterion (such as job performance).

$SD_x$  = standard deviation of all applicants' selection-test scores.

Recall, however, that we standardized applicant test scores in using Equation 8-10 to create the  $z$  variable used in Equation 8-11. The standard deviation of  $z$  scores is always 1.0. So substituting 1 for  $SD_x$ , Equation 8-14 becomes  $b_1 = r_{xy}SD_y$ .

Substituting  $\mu_\$$  for  $E(b_0)$  and  $r_{xy}SD_y$  for  $b_1$  in Equation 8-13, we get this:

**8-15.**

$$\bar{y}_s = \mu_\$ + r_{xy}SD_y \bar{z}_s$$

Equation 8-15 describes the total expected monetary value of each selected applicant. To calculate the expected average improvement in utility, or the improvement in the monetary value produced by using the staffing system, we can subtract the expected value without using the system, which is  $\mu_\$$ , from both sides of equation. Because  $\mu_\$$  is the monetary value of criterion performance the organization expects when it chooses applicants at random,  $\bar{y}_\$ - \mu_\$$  is equal to the expected gain in monetary-valued performance from using the staffing process, as shown in Equation 8-16.

**8-16.**

$$\bar{y}_\$ - \mu_\$ = \mu_\$ + r_{xy}SD_y \bar{z}_s$$

#### Step 4: Subtract the Costs of the Selection Process

Selecting applicants requires resources. If we use the letter  $C$  to stand for the cost of applying the selection process to one applicant, and the term  $N_a$  to stand for the total number of applicants to whom the selection process is applied, then the total cost of the selection process is the product of  $N_a$  and  $C$ . If we divide that by the number of applicants actually selected, that gives us the average cost of the selection process per selected applicant. Finally, if we subtract the average selection process cost per selected applicant from the average value expressed in Equation 8-15, we get Equation 8-17.

**8-17.**

$$\bar{y}_s - \mu_s = r_{xy}SD_y\bar{z}_s - \frac{N_a C}{N_s}$$

Finally, the left side of Equation 8-17 is often symbolized as  $\Delta U$ , to stand for the “change in utility” per applicant selected, as shown in Equation 8-18.

**8-18.**

$$\Delta U = r_{xy}SD_y\bar{z}_s - \frac{N_a C}{N_s}$$

Cronbach and Gleser elaborated and refined Brogden’s derivations with respect to utility in fixed-treatment selection, and they arrived at the same conclusions regarding the effects of  $r$ ,  $SD_y$ , the cost of selection, and the selection ratio on utility in fixed-treatment selection. Utility properly is regarded as linearly related to validity and, if cost is zero, is proportional to validity.<sup>25</sup> They also adopted Taylor and Russell’s interpretation of the validity coefficient for utility calculations (that is, concurrent validity). The validity coefficient based on present employees assumes a population that has been



screened using information other than the new selection measure. The selection ratio is applied to this population.

Cronbach and Gleser argued, as did Taylor and Russell and Naylor and Shine, that selection procedures should be judged on the basis of their contribution over and above the best strategy available that makes use of prior, existing information. Thus, any new procedure must demonstrate incremental utility before it is used. Suppose, however, that an organization wants to replace its old selection procedures with new ones. Under such circumstances, the appropriate population for deriving a validity coefficient,  $SD_y$ , and  $SR$ , should be the *unscreened* population.<sup>26</sup> Figure 8-6 presents a summary of the three utility models that we have discussed.

<i>Models</i>	<i>Utility Index</i>	<i>Data Requirements</i>	<i>Distinctive Assumptions</i>
Taylor-Russell (1939)	Increase in percentage successful in selected group	Validity, base rate, selection ratio	All selectees classified as either successful or unsuccessful. Equal criterion performance by all members of each group; cost of selection = \$0.
Naylor-Shine (1965)	Increase in mean criterion score of selected group	Validity, selection ratio	Validity linearly related to utility; cost of selection = \$0.
Brogden-Cronbach-Gieser (1965)	Increase in dollar payoff of selected group	Validity, selection ratio, criterion standard deviation in dollars	Validity linearly related to utility; cost of selection ≠ \$0, criterion performance evaluated in dollars.

*Note: All three models assume a validity coefficient based on present employees (concurrent validity).*

Source: W. F. (1980). *Responding to the demand for accountability: A critical analysis of three utility models*. *Organizational Behavior and Human Performance*, 25, p.42.

**Table 8-6. Summary of the utility indexes, data requirements, and assumptions of three utility models.**

## **PROCESS: SUPPLY-CHAIN ANALYSIS AND STAFFING UTILITY<sup>27</sup>**

In this chapter, we have focused exclusively on the utility of staffing decisions, but look carefully again at Figure 8-1. In the conventional approach to staffing, activities like sourcing, recruitment, initial screening, selection, offers, on-boarding of new hires, performance management, and retention tend to be viewed as independent activities, each separate from the others. Such a micro-level, or “silo” orientation, has dominated the field of HR almost from its inception, and within it, the objective has been to maximize payoffs for each element of the overall staffing process. We believe that there is a rich opportunity for HR professionals to develop and apply an integrative framework whose objective is to optimize investments across the various elements of the staffing process, not simply to maximize payoffs within each element.

To do that, we believe there is much to learn from the field of supply-chain analysis. Supply-chain analysis pays careful attention to the ultimate quality of materials and components. Reframing utility analysis within that framework makes optimization opportunities more apparent. Perhaps more important, the supply-chain framework may help solve one of the thorniest issues in utility analysis: the disturbingly stubborn difficulty in getting key decision makers to embrace it. How? By relating utility analysis to a framework that is familiar to decision makers outside of HR, and one that they already use.

Essentially, the decision process involves optimizing costs against price and time, to achieve levels of expected quality/quantity and risks associated with variations in quality/quantity. If the quality or quantity of acquired resources falls below standard or exhibits excessive

variation, decision makers can evaluate where investments in the process will make the biggest difference.

When a line leader complains that he or she is getting inferior talent, or not enough talent for a vital position, HR too often devises a solution without full insight into the broader supply chain. HR often responds by enhancing interviews or tests and presenting evidence about the improved validity of the selection process. Yet a more effective solution might be to retain the original selection process with the same validity, but to recruit from sources where the average quality of talent is higher.

Likewise, consider what happens when business leaders end up with too few candidates, and instruct HR to widen the recruitment search. HR is often too eager to respond with more recruiting activities, when, in fact, the number of candidates presented to business leaders is already sufficient. The problem is that some leaders are better at inducing candidates to accept offers. The more prudent response may be to improve the performance of the leaders who cause candidates to reject offers.

Leaders are accustomed to a logical approach that optimizes all stages of the supply chain when it comes to raw materials, unfinished goods, and technology. Why not adopt the same approach to talent? Consider an example of one company that did just that.

Valero Energy, the 20,000-employee, \$70 billion energy-refining and marketing company, developed a new recruitment model out of human capital metrics based on applying supply-chain logic to labor. According to Dan Hilbert, Valero's manager of employment services, "Once you run talent acquisition as a supply chain, it allows you to use certain metrics that you couldn't use in a staffing function .... We measure every single source of

labor by speed, cost, and efficiency.”<sup>28</sup> Computer-screen “dashboards” show how components in the labor supply chain, such as ads placed on online job boards, are performing according to those criteria. If the dashboard shows “green,” performance is fine. If it shows “yellow” or “red,” Valero staffing managers can intervene quickly to fix the problem.<sup>29</sup> By doing that, the company can identify where it can recruit the best talent at the most affordable price. From a strategic perspective, it also can identify whether it is better to recruit full-time or part-time, to contract workers, or to outsource the work entirely.

We have more to say in later chapters about applying supply-chain logic to decisions about talent, but for now, the important point to emphasize is that talent flows and staffing processes are parts of a larger system. Our objective should be to optimize overall decisions regarding quantity, quality, and cost against price and time.

## **CONCLUSION**

This chapter presents some complex but elegant statistical logic. It’s sometimes hard to follow at first, but as [Figure 8-1](#) shows, it is actually rather intuitive. The idea of each of the three “selection utility” models is to estimate how much higher the quality of the selected employees will be, compared to the quality of the candidates for selection. That change in quality depends on how selective the organization can be, how well it predicts future performance, and how much differences in performance quality translate into differences in value to the organization.

The utility models are best used with an understanding of their logic, assumptions, and data requirements. If you make that investment, you have a logical system for making wiser and more strategically relevant decisions

about how to select talent both from the outside and within the organization.

These equations would be fine if we actually had a monetarily valued criterion to use in estimating  $SD_y$ . When a job produces very clear monetarily valued outcomes such as sales, waste, or profit, we might associate these values with each individual on the job and calculate the standard deviation of those values. Still, that would not reflect the standard deviation we might have seen in the pool of applicants, because the people on the job have already been screened in the course of the selection process. Also, even in jobs with obvious monetary outcomes, such as sales, other elements of the job may be quite important but are not reflected in individual monetary results (such as when salespeople actually sell less because they are training their colleagues). In short, the value and the process for estimating  $SD_y$  address a fundamental question in all of human resources and talent management: “How much are differences in performance worth?”

At this point, you might be wondering how organizations can actually estimate the dollar value of differences in performance quality. Indeed,  $SD_y$  has been the subject of much debate, and there are several methods for estimating it. We discuss those in the next chapter. You might also wonder whether this same kind of logic (estimating how much better quality our employees are after a certain HR program, compared to their quality without it) might apply to programs other than selection. We have much more to say about the strategic use of utility analysis in guiding investment decisions about human capital in Chapters 10 and 11.

## EXERCISES

Software that calculates answers to one or more of the following exercises can be found at <http://hrcosting.com/hr/>.

1. Use the Taylor-Russell tables (see [Appendix A](#)) to solve these problems by filling in the following table:

Validity	SR	BR	Success Ratio
0.25	0.20	0.30	
0.55	0.70	0.80	
0.20	0.70	0.80	
0.10	0.50	0.50	
0.55	0.50	0.50	

2. Use the Naylor-Shine tables (see [Appendix B](#)) to solve these problems by filling in the following table:

$r_{xy}$	$\phi_i$	$z_{xi}$	$z\text{-bar}_{ji}$
0.35	0.7019		
0.22		-0.30	
0.47			0.65
-0.47			0.65

3. Using the Brogden-Cronbach-Gleser continuous-variable utility model, what is the net gain over random selection ( $\Delta U$  overall and per selectee), given the following information?

Quota for selection: 20

SR: 0.20

$SD_y$  (standard deviation of job performance expressed in dollars): \$30,000

$r_{xy}$ : 0.25

$C_y$ : \$35

*Hint:* To find  $N$ , the number recruited, divide the quota for selection by the SR.

4. Given the following information on two selection procedures, and using the Brogden-Cronbach-Gleser model, what is the relative *difference* in payoff (overall and per selectee) between the two procedures? For both procedures, quota = 50, SR = 0.50, and  $SD_y = \$45,000$ .

$r_{y1}$ : 0.20  $c_1$ : \$200

$r_{y5}$ : 0.40  $c_2$ : \$700

6. You are a management consultant whose task is to do a utility analysis using the following information regarding secretaries at Inko, Inc. The validity of the Secretarial Aptitude Test (SAT) is 0.40, applicants must score 70 or better to be hired, and only about half of those who apply actually are hired. Of those hired, about half are considered satisfactory by their bosses. How selective should Inko be to upgrade the average criterion score of those selected by  $\bar{Z}_y = 0.5$ ? What utility model did you use to solve the problem? Why?

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18. This means that the new selection procedure is administered to present employees who already have been screened using other methods. The correlation (validity coefficient) between scores on the new procedure and the employees’ job performance scores is then computed.

19. To transform raw scores into standard scores, we used the following formula :  $x - \bar{x} \div SD$ , where  $x$  is the raw score,  $\bar{x}$  is the mean of the distribution of raw scores, and  $SD$  is the standard deviation of that distribution. Assuming that the raw scores are distributed normally, about 99 percent of the standard scores will lie within the range  $-3$  to  $+3$ . Standard scores (Z-scores) are expressed in standard deviation units.

20. A multiple-regression coefficient represents the correlation between a criterion and two or more predictors.

21. Boudreau, 1991.

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24. The authors would like to thank Professor Craig J. Russell for allowing us to adapt the framework that he developed.

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26. Boudreau, 1991.

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## 9. The Economic Value of Job Performance

Consider this single question: Where would a change in the availability or quality of talent have the greatest impact on the success of your organization? Talent pools that have great impact are known as pivotal talent pools. Alan Eustace, Google's vice president of engineering, told *The Wall Street Journal* that one top-notch engineer is worth 300 times or more than the average and that he would rather lose an entire incoming class of engineering graduates than one exceptional technologist.<sup>1</sup>

This estimate was probably not based on precise numbers, but the insight it reveals regarding where Google puts its emphasis is significant. Recasting performance management to reflect where differences in performance have large impact allows leaders to engage the logic they use for other resources and make educated guesses that can be informative.<sup>2</sup> In defining pivotal talent, an important distinction is often overlooked. That distinction is between average value and variability in value. When strategy writers describe critical jobs or roles, they typically emphasize the average level of value (for example, the general importance, customer contact, uniqueness, or power of certain jobs). Yet a key question for managers is not which talent has the greatest average value, but rather, in which talent pools performance variation creates the biggest strategic impact.<sup>3</sup>

*Impact* (discussed in Chapter 1, "Making HR Measurement Strategic") identifies the relationship between improvements in organization and talent performance, and sustainable strategic success. The pivot point is where differences in performance most affect success. Identifying pivot points often requires

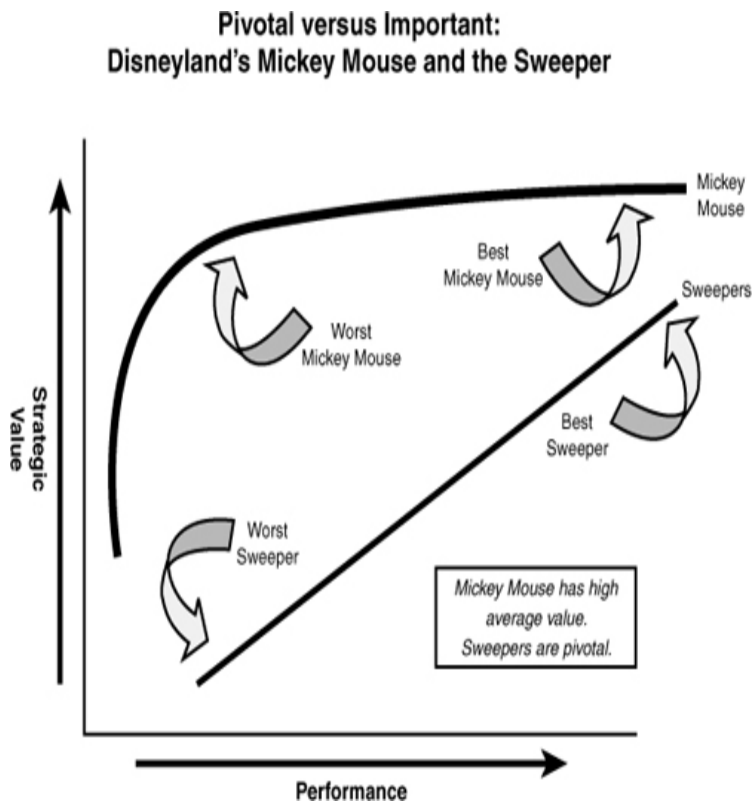
digging deeply into organization- or unit-level strategies to unearth specific details about where and how the organization plans to compete, and about the supporting elements that will be most vital to achieving that competitive position. These insights identify the areas of organization and talent that make the biggest difference in the strategy's success.<sup>4</sup>

## **PIVOTAL TALENT AT DISNEY THEME PARKS**

Consider a Disney theme park. Suppose we ask the question the usual way: What is the important talent for theme park success? What would you say? There's always a variety of answers, and they always include the characters. Indeed, characters such as the talented people inside the Mickey Mouse costumes are very important. The question of talent impact, however, focuses on pivot points. Consider what happens when we frame the question differently, in terms of impact: Where would an improvement in the quality of talent and organization make the biggest difference in our strategic success? Answering that question requires looking further to find the strategy pivot points that illuminate the talent and organization pivot points.

One way to find the pivot points in processes is to look for constraints. These are like bottlenecks in a pipeline: If you relieve a constraint, the entire process works better. For a Disney theme park, a key constraint is the number of minutes a guest spends in the park. Disney must maximize the number of "delightful" minutes. Disneyland has 85 acres of public areas, many different "lands," and hundreds of small and large attractions. Helping guests navigate, even delighting them as they navigate, defines how Disney deals with this constraint. Notice how the focus on the constraint allows us to see beneath the customer delight strategy and identify a pivotal process that supports it.

Figure 9-1 applies this concept to two talent pools in the Disney theme park: Mickey Mouse and the park sweeper.



Source: John W. Boudreau and Peter M. Ramstad (2007). *Beyond HR: The New Science of Human Capital*. Boston: Harvard Business School Publishing.

**Figure 9-1. Performance-yield curves for sweepers versus Mickey Mouse.**

Mickey Mouse is important but not necessarily pivotal. The top line represents the performance of the talent in the Mickey Mouse role. The curve is very high in the diagram because performance by Mickey Mouse is very valuable. However, the variation in value between the best-performing Mickey Mouse and the worst-performing Mickey Mouse is not that large. In the extreme left side of the figure, if the person in the Mickey Mouse costume engaged in harmful customer interactions, the consequences would be strategically devastating. That is shown by the very steep downward slope at the left. That's why the Mickey Mouse role has

been engineered to make such errors virtually impossible. The person in the Mickey Mouse costume is never seen, never talks, and is always accompanied by a supervisor who manages the guest encounters and ensures that Mickey doesn't fall down, get lost, or take an unauthorized break. What is often overlooked is that because the Mickey Mouse job is so well engineered, there is also little payoff to investing in *improving* the performance of Mickey Mouse once the person meets the high standards of performance. Mickey should not improvise or take too long with any one guest, because Mickey must follow a precise timetable so that everyone gets a chance to "meet" Mickey and so that guests never see two Mickeys at the same time.

If performance differences that most affect the guest experience are not with Mickey Mouse, then where are they? When a guest has a problem, folks such as park sweepers and store clerks are most likely to be nearby in accessible roles, so guests approach them. People seldom ask Cinderella where to buy a disposable camera, but hundreds a day ask the street sweeper. The lower curve in [Figure 9-1](#) represents sweepers. The sweeper curve has a much steeper slope than Mickey Mouse because variation in sweeper performance creates a greater change in value. Disney sweepers are expected to improvise and make adjustments to the customer service process on-the-fly, reacting to variations in customer demands, unforeseen circumstances, and changes in the customer experience. These make pivotal differences in Disney's theme park strategy to be the "Happiest Place on Earth." To be sure, these pivot points are embedded in architecture, creative settings, and the brand of Disney magic. Alignment is key. In fact, it is precisely because of this holistic alignment that interacting with guests in the park is a pivotal role and the sweeper plays a big part in that role. At Disney, sweepers are actually front-line customer representatives with brooms in their hands.<sup>5</sup>

## LOGIC: WHY DOES PERFORMANCE VARY ACROSS JOBS?

Performance is more (or less) variable across jobs for two main reasons.<sup>6</sup> One of these is the nature of the job, or the extent to which it permits individual autonomy and discretion. For example, when job requirements are specified rigidly, as in some fast-food restaurants, important differences in ability or motivation have less noticeable effects on performance. If one's job is to cook French fries in a restaurant, and virtually all the variables that can affect the finished product are preprogrammed—the temperature of the oil in which the potatoes are fried, the length and width of the fries themselves, the size of a batch of fries, and the length of time that the potatoes are fried—there is little room for discretion. That is the objective, of course: to produce uniform end products. As a result, the variability in performance across human operators (what the utility analysis formulas in [Chapter 8, “Staffing Utility: The Concept and Its Measurement,”](#) symbolized as  $SD_y$ ) will be close to zero.

On the other hand, the project leader of an advertising campaign or a salesperson who manages all the accounts in a given territory has considerable discretion in deciding how to accomplish the work. Variation in individual abilities and motivation can lead to large values of  $SD_y$  in those jobs, and also relative to other jobs that vary in terms of the autonomy and discretion they permit. Empirical evidence shows that  $SD_y$  increases as a function of job complexity.<sup>7</sup> As jobs become more complex, it becomes more difficult to specify precisely the procedures that should be used to perform them. As a result, differences in ability and motivation become more important determinants of the variability of job performance.

A second factor that influences the size of  $SD_y$  is the relative value to the organization of variations in performance. In some jobs, performance differences are vital to the successful achievement of the strategic goals of an organization (for example, software engineers who design new products for leading-edge software companies) and others that are less so (for example, employees who send out bills in an advertising agency). Even though there is variability in performance of employees in the billing department, that variability is not as crucial to the success of the firm as is the variability in the performance of project leaders at the agency. In short, pivotalness—and, thus,  $SD_y$ —is affected by the relative position of a job in the value chain of an organization.<sup>8</sup>

In the Disney example shown in [Figure 9-1](#), the sweeper role has a higher  $SD_y$  than Mickey Mouse because variations in sweeper performance (particularly when they respond to guests) cause a larger change in strategic value than variations in Mickey Mouse performance. Mickey Mouse is vital to the Disney value chain, however. So it is important to understand the difference between average value of performance and pivotalness, the latter being reflected in  $SD_y$ . High pivotalness and high average value often occur together, but not always.

The impact of performance variation in jobs requires considering the strategy of the organization (sustainability, strategic success, pivotal resources and processes, and organization and talent pools).<sup>9</sup> The same job can have very different implications for performance differences, depending on the strategy and work processes of the organization. Consider the role of front-line associates at two different fast-food organizations: McDonald's and Starbucks. Both roles involve preparing the product, interacting with customers, taking payments, working with the team, keeping up good



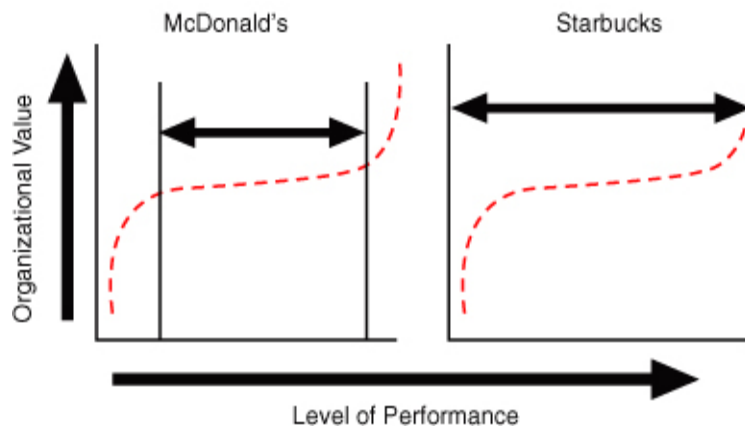
attendance, and executing good job performance. The description for these roles might look similar at both Starbucks and McDonald's, yet McDonald's and Starbucks choose to compete differently.

McDonald's is known for consistency and speed. Its stores automate many of the key tasks of food preparation, customer interaction, and team roles. Each McDonald's product has an assigned number so that associates need only press the number on the register to record the customer order. Indeed, it is not unusual to hear customers themselves ordering by saying, "I'll take a number 3 with a Coke, and supersize it." Contrast that with Starbucks. Starbucks baristas are a highly diverse and often multit talented group. The allure of Starbucks as a "third place" (home, work, and Starbucks) is predicated, in part, on the possibility of interesting interactions with Starbucks baristas. Blogs, tweets, and Facebook pages are devoted to the Starbucks baristas. Some of them are opera singers and actually sing out the orders. Their personal styles are clearly on display and range from Gothic to country to hipster. Few online pages are devoted to McDonald's associates. Starbucks counts on that diversity as part of its image.<sup>10</sup> This means that it needs to give its baristas wide latitude to sing, joke, and chat with customers.

Figure 9-2 shows this relationship graphically, with McDonald's on the left and Starbucks on the right.

McDonald's designs its systems to limit both the downside of performance mistakes and the upside of too-creative improvising. Starbucks encourages innovation and "style" to get the upside (at the extreme right side is a barista whose style goes "viral," drawing Internet attention to the brand), accepting the downside on the left (sometimes a barista may do something that offends a few customers).

**Value of Job Performance for Front-Line Workers at McDonald's  
versus Starbucks**



Adapted from Boudreau, John W., *Retooling HR: Using Proven Business Tools to Make Better Decisions About Talent* (Boston: Harvard Business Publishing, 2010).

**Figure 9-2. Value of job performance for front-line workers at McDonald's vs. Starbucks.**

Graphic depictions of performance-yield curves, such as the ones in [Figures 9-1](#) and [9-2](#), can help identify where decisions should focus on achieving a minimum standard level of performance (as with billers in an advertising agency or French fries cooks in a fast-food restaurant) versus improving performance (as with sweepers in a theme park or software designers). Such depictions also provide a way to think about the risks and returns to performance at different levels. This helps people avoid making decisions based on well-meaning but potentially simplistic rules, such as “Find the best candidate for every position.”<sup>11</sup>

Indeed, the idea that performance variation in certain areas has greater impact than performance variation in others is a fundamental premise of engineering, where different components of a product, project, or software program are held to different tolerances, depending on the role they play. The upholstery in a commercial aircraft can vary from its ideal standard by quite a lot, but the hydraulics cannot. This is often called *Kano*

*analysis*, named after Noriaki Kano, who coined the term in the 1980s. He showed how improved performance has widely differing effects.<sup>12</sup> Thus, approaching work performance in this way allows human resource leaders, I/O psychologists, and business leaders to communicate about work performance using proven business tools, which John Boudreau has termed “retooling HR.”<sup>13</sup>

In terms of measurement, the value of variation in employee performance is an important variable that determines the likely payoff of investments in HR programs. Most HR programs are designed to improve performance. All things equal, such programs have a higher payoff when they are directed at organizational areas where performance variation has a large impact on processes, resources, and, ultimately, strategic success. A 15 percent improvement in performance is not equally valuable everywhere. Ideally, we would like to translate performance improvements into monetary values. If we can do that, we can measure whether the performance improvement we expect from a program, such as more accurate selection, improved training, or more effective recruitment, justifies the cost of the program.

As yet no perfect measure of the value of performance variation exists, but a great deal of research has addressed the issue. We provide a guide to the most important findings in the later sections. First, we show how the value of performance variation (in the form of  $SD_y$ ) fits into the formulas for the utility, or monetary value, of staffing programs that we discussed in Chapter 8.

## **ANALYTICS: THE ROLE OF $SD_y$ IN UTILITY ANALYSIS**

As Equations 8-14 through 8-18 showed in Chapter 8,  $SD_y$  (the monetary value of a difference of one standard deviation in job or criterion performance) translates the improvement in workforce quality from the use of a more valid selection procedure into economic terms.

Without  $SD_y$ , the effect of a change in criterion performance could be expressed only in terms of standard Z-score units. However, when the product, Z-score units are multiplied by the monetary-valued  $SD_y$ , the gain is expressed in monetary units, which are more familiar to decision makers. As you will see in Chapter 11, “Costs and Benefits of HR Development Programs,” and in Equation 11-1, the same  $SD_y$  variable can also be used to translate the statistical effects of training and development programs into monetary terms.

Note again that we often refer to dollar-valued performance or use the dollar sign as a subscript, but the conclusions are valid for any other currency.

Most parameters of the general utility equation for staffing and for development can be obtained from records. For staffing, this includes such variables as the number of people tested, the cost of testing, and the selection ratio. For development, this includes the number of people trained, the cost of training, and the duration of the training effects. However,  $SD_y$  usually cannot be obtained from existing records. Traditionally,  $SD_y$  has been the parameter of the utility equation that is the most difficult to obtain.<sup>14</sup> Originally,  $SD_y$  was estimated using complicated cost-accounting methods that are both costly and time-consuming. Those procedures involve first costing out the dollar value of the job behaviors of each employee<sup>15</sup> and then

computing the standard deviation of these values. The complexity of those approaches led to newer approaches that rely on estimates from knowledgeable persons. The next section describes alternative approaches for measuring  $SD_y$ .

### **MEASURES: ESTIMATING THE MONETARY VALUE OF VARIATIONS IN JOB PERFORMANCE ( $SD_y$ )**

In general, two types of methods are used for estimating the standard deviation of job performance in monetary terms. The first is cost accounting, which uses accounting procedures to estimate the economic value of the products or services produced by each employee in a job or class of jobs, and then calculates the variation in that value across individuals. The second method is sometimes called “behavioral” and combines the judgments from knowledgeable people about differences in the value of different performance levels. Several alternative judgment-based approaches are used. Table 9-1 lists the cost-accounting and judgment-based alternatives.

Estimation Approach Description	
Cost accounting	Calculate the accounting value of each person's accounting outcomes, such as production or sales, and calculate the standard deviation of those values across individuals.
Judgment-Based Approaches	
40 percent rule	Multiply the average total remuneration of the group by 40 percent.
Global estimation	Ask experts to estimate the value of performance at the average, 85th percentile and 15th percentile, of the performance distribution, and calculate the differences between the pairs of percentile estimates.
CREPID	Identify the individual elements of performance, weight them by contribution to economic value, multiply average remuneration by the importance weight of each element, rate individual performance on each element, multiply performance by monetary value for each dimension for each individual, and sum to get a monetary value for each individual. Calculate the standard deviation of those values across individuals.
System effectiveness technique	Estimate the percentage difference in performance effectiveness between a superior and an average performer, and multiply that percentage by the cost of the system and capital used on the job.
Superior equivalents technique	Estimate how many fewer employees would be required to achieve a certain level of performance if the employees were one standard deviation better. Calculate the average cost of employees, and multiply that by the difference in the number of superior employees required, compared to the number of average employees, to determine the employment-cost savings of having superior versus average employees.

**Table 9-1. Alternative Approaches for Estimating  $SD_y$**

The remainder of the chapter discusses each of these approaches in more detail.

## **Cost-Accounting Approach**

If you could determine the economic value of each employee's performance, you could calculate directly the standard deviation of performance value simply by taking the standard deviation of those values.

That's the idea behind the cost-accounting approach.

In a job that is purely sales, it may be reasonable to say that each person's sales level, minus the cost of the infrastructure and remuneration he or she uses and receives, would be a reasonable estimate of the economic value of his or her performance.

Unfortunately, aside from sales positions, most cost-accounting systems are not designed to calculate the economic value of each employee's performance, so adapting cost accounting to that purpose proved complex for most jobs.

Cost-accounting estimates of performance value require considering elements such as the following:<sup>16</sup>

- Average value of production or service units.
- Quality of objects produced or services accomplished.
- Overhead, including rent, light, heat, cost depreciation, or rental of machines and equipment.
- Errors, accidents, spoilage, wastage, damage to machines or equipment due to unusual wear and tear, and so on.
- Such factors as appearance, friendliness, poise, and general social effectiveness in public relations. (Here, some approximate value would have to be assigned by an individual or individuals having the required responsibility and background.)
- The cost of spent time of other employees and managers. This includes not only the time of supervisors,

but also that of other workers.

Researchers in one study attempted to apply these ideas to the job of route salesperson in a Midwestern soft-drink bottling company that manufactures, merchandises, and distributes nationally known products.<sup>17</sup> This job was selected for two reasons: There were many of individuals in the job, and variability in performance levels had a direct impact on output. Route salespersons were paid a small weekly base wage, plus a commission on each case of soft drink sold. The actual cost-accounting method to compute  $SD_y$  involved eight steps:

1. Output data on each of the route salespersons was collected from the records of the organization on the number of cases sold and the size and type of package, for a one-year period (to eliminate seasonality).
2. The weighted average sales price per case unit ( $SP_u$ ) was calculated using data provided by the accounting department.
3. The variable cost per case unit ( $VC_u$ ) was calculated and subtracted from the average price. Variable costs are costs that vary with the volume of sales, such as direct labor, direct materials (syrup cost, CO<sub>2</sub> gas, crowns, closures, and bottles), variable factory overhead (state inspection fees, variable indirect materials, variable indirect labor), and selling expenses (the route salesperson's commission).
4. Contribution margins per case unit ( $CM_u$ ) were calculated as the sales price per unit minus the variable cost per unit.
5. The contribution margins calculated in step 4 were multiplied by the output figures (step 1), producing a total one-year dollar-valued contribution margin for each



route salesperson. This figure represents the total amount (in dollars and cents) each salesperson contributed toward fixed costs and profit.

6. Not all differences in sales were assumed to be due to differences in route salespersons' performance. Other factors, such as the type of route, partially determined sales, so it was important to remove these influences. To accomplish this, the sales of each route were partitioned into two categories: home market and cold bottle. Home market represents sales in large supermarkets and chain stores, in which the product is purchased and taken home to consume. Cold bottle represents sales such as those from small convenience stores and vending operations, in which the product is consumed on location. Top management agreed that home market sales are influenced less by the efforts of the route salesperson, but the route salesperson exercises greater influence over the relative sales level in the cold-bottle market because the route salesperson has a greater degree of flexibility in offering price incentives, seeking additional display space, and so forth. The critical question was, "How much influence does the route salesperson have in each of the respective sectors?" The percentage of sales or contributions attributable to the efforts of the route salesperson was determined by a consensus of six top managers, who estimated the portions of home-market sales and cold-bottle sales attributable to the efforts of the route salesperson at 20 percent and 30 percent, respectively.

7. The percentages calculated in step 6 were multiplied by the total contribution margins calculated in step 5, yielding a total contribution margin for each route salesperson. Figure 9-3 shows an example calculation. This served as the cost accounting-based estimate of each route salesperson's worth to the organization.

Product	$SP_u - VC_u = CM_u$	$\times$	Sales Output <sup>a</sup>	=	GCM
1	$\$5.00 - \$2.75 = \$2.25$	$\times$	40,000	=	\$90,000
2	$\$7.60 - \$4.85 = \$2.75$	$\times$	20,000	=	\$55,000
3	$\$8.30 - \$5.65 = \$2.65$	$\times$	15,000	=	\$39,750
Gross Contribution Generated by RSA					= \$184,750
SP <sub>u</sub> = sales price per unit of product; VC <sub>u</sub> = variable cost per unit of product;					
CM <sub>u</sub> = contribution margin per unit of product; GCM = gross contribution margin.					
<sup>a</sup> = Numbers of cases.					

**Figure 9-3. Sample of the total contribution attributable to route Salesperson A (RSA) using cost-accounting procedures.**

8. The standard deviation of these values was the cost accounting-based estimate of  $SD_y$ . This approach, called contribution costing, is generally not used for external reporting purposes, but it is generally recommended for internal, managerial reporting purposes.<sup>18</sup>

### THE ESTIMATE OF $SD_y$

The cost accounting-based procedure produced an estimate of  $SD_y$  of \$32,982 (all figures in 2010 dollars)<sup>19</sup>, with an average value of job performance of \$93,522. Estimates of average worth ranged from \$27,107 to \$240,163. These values were skewed positively ( $Q3 - Q2 = \$29,370$ , greater than  $Q2 - Q1 = \$12,742$ ), meaning that the difference between high and average was greater than the difference between average and low. This makes sense, because the values were calculated for experienced job incumbents, among whom very low performers would have been eliminated.

Cost-accounting systems focus on determining the costs and benefits of units of product, not units of performance, and thus require a good deal of translation

to estimate performance value. So although the accounting data on which the estimates are based is often trusted by decision makers, the array of additional estimates required often creates doubt about the objectivity and reliability of the cost-accounting estimates. Over the past few decades, several alternative approaches for estimating the economic value of job performance have been developed that require considerably less effort than the cost-accounting method. Comparative research has made possible some general conclusions about the relative merits of these methods.

### **The 40 Percent Rule**

Some researchers have recommended estimating  $SD_y$  as 40 percent of average salary.<sup>20</sup> They noted that wages and salaries average 57 percent of the value of goods and services in the U.S. economy, implying that 40 percent of average salary is the same as 22.8 percent ( $0.40 \times 0.57$ ), or roughly 20 percent, of the average value of production. Thus, they suggested using 40 percent of salary to estimate  $SD_y$ <sup>21</sup> is about the same as using 20 percent of average output for  $SD_y$ . They symbolized this productivity-based estimate as  $SD_p$ . In other words, if you knew the average output, you could calculate the value of a one-standard-deviation performance difference as 20 percent of that average output.

To examine whether the standard deviation of output was about 20 percent of average output, a summary of the results of 68 studies that measured work output or work samples found that low-complexity jobs such as routine clerical or blue-collar work had  $SD_p$  values that averaged 15 percent of output. Medium-complexity jobs such as first-line supervisors, skilled crafts, and technicians had average  $SD_p$  values of 25 percent, and high-complexity jobs, such as managerial/professional, and complex technical jobs had average  $SD_p$  values of 46

percent. For life-insurance sales jobs,  $SD_p$  was very large (97 percent of average sales), and it was 39 percent for other sales jobs.<sup>22</sup> It appears that there are sizable differences in the amounts of performance variation in different jobs (recall how different the performance variation was among sweepers versus Mickey Mouse), and the 20 percent rule may underestimate or overestimate them.

Based on this evidence, some have suggested that  $SD_p$  might be directly estimated from the complexity of the job. In other words, use a value of 39 percent for sales jobs, 15 percent for clerical jobs, and so on. A drawback is that  $SD_p$  is expressed as the percentage of average output, not in monetary values.<sup>23</sup> Getting a monetary value thus would require multiplying the percentage by the money value of average output. You could try to estimate the monetary value of average output in a job, but that has many of the same difficulties as the cost-accounting approach described earlier in this chapter.

No estimate is perfect, but fortunately, utility estimates need not be perfectly accurate, just as with any estimate of business effects. For decisions about selection procedures, only errors large enough to lead to incorrect decisions are of any consequence. Moreover, the jobs with the largest  $SD_y$  values—often those involving leadership, management, or intellectual capital—often have many opportunities for individual autonomy and discretion, and are handled least well by cost-accounting methods. So to some degree, subjective estimates are virtually unavoidable. Next, we examine some of the most prominent methods to gather judgments that can provide  $SD_y$  estimates.

## Global Estimation

The global estimation procedure for obtaining rational estimates of  $SD_y$  is based on the following reasoning: If the monetary value of job performance is distributed as a normal curve, the difference between the monetary value of an employee performing at the 85th percentile (one standard deviation above average) versus an employee performing at the 50th percentile (average) equals  $SD_y$ .<sup>24</sup>

In one study, the supervisors of budget analysts were asked to estimate both 85th and 50th percentile values.<sup>25</sup> They were asked to estimate the average value based on the costs of having an outside firm provide the services.  $SD_y$  was calculated as the average difference across the supervisors. Taking the average of the values provided by multiple raters may cancel out the idiosyncratic tendencies, biases, and random errors of each single individual.

In the budget analyst example, the standard error of the  $SD_y$  estimates across judges was \$4,149, implying that the interval \$35,126 to \$48,817 should contain 90 percent of such estimates (all results expressed in 2010 dollars). Thus, to be extremely conservative, one could use \$35,126, which is statistically 90 percent likely to be less than the actual value.

#### **An Example of Global $SD_y$ Estimates for Computer Programmers**

The following is a detailed explanation of how the global estimation procedure has been used to estimate  $SD_y$ . The application to be described used supervisors of computer programmers in ten federal agencies.<sup>26</sup>

The actual study was published in 1979, but the technique has been used in many studies since that time, across many different jobs, with similar results.<sup>27</sup> To test the hypothesis that dollar outcomes are normally distributed, the supervisors were asked to estimate values for the 15th percentile (low-performing programmers), the 50th percentile (average programmers), and the 85th percentile (superior programmers). The resulting data thus provides two estimates of  $SD_y$ . If the distribution is approximately normal, these two estimates will not differ substantially in value. Here is an excerpt of the instructions presented to the supervisors:<sup>28</sup>

The dollar utility estimates we are asking you to make are critical in estimating the relative dollar value to the government of different selection methods. In answering these questions, you will have to make some very difficult judgments. We realize they are difficult and that they are judgments or estimates. You will have to ponder for some time before giving each estimate, and there is probably no way you can be absolutely certain your estimate is accurate when you do reach a decision. But keep in mind [that] your estimates will be averaged in with those of other supervisors of computer programmers. Thus, errors produced by too high and too low estimates will tend to be averaged out, providing more accurate final estimates.

Based on your experience with agency programmers, we would like for you to estimate the yearly value to your agency of the products and services produced by the average GS 9-11 computer programmer. Consider the

quality and quantity of output typical of the average programmer and the value of this output. In placing an overall dollar value on this output, it may help to consider what the cost would be of having an outside firm provide these products and services.

Based on my experience, I estimate the value to my agency of the average GS 9-11 computer programmer at \_\_\_\_\_ dollars per year.

We would now like for you to consider the “superior” programmer. Let us define a superior performer as a programmer who is at the 85th percentile. That is, his or her performance is better than that of 85% of his or her fellow GS 9-11 programmers, and only 15% turn in better performances. Consider the quality and quantity of the output typical of the superior programmer. Then estimate the value of these products and services. In placing an overall dollar value on this output, it may again help to consider what the cost would be of having an outside firm provide these products and services.

Based on my experience, I estimate the value to my agency of a superior GS 9-11 computer programmer to be \_\_\_\_\_ dollars per year.

Finally, we would like you to consider the “low-performing” computer programmer. Let us define a low-performing programmer as one who is at the 15th percentile. That is, 85% of all GS 9-11 computer programmers turn in performances better than the low-performing programmer, and only 15% turn in worse performances. Consider the quality and quantity of the output typical of the low-performing programmer. Then estimate the value of these products and services. In placing an overall dollar value on this output, it may again help to consider what the cost would be of having an outside firm provide these products and services.

Based on my experience, I estimate the value to my agency of the low-performing GS 9-11 computer programmer at \_\_\_\_\_ dollars per year.

The wording of these questions was developed carefully and pretested on a small sample of programmer supervisors and personnel psychologists. None of the programmer supervisors who returned questionnaires in the study reported any difficulty in understanding the questionnaire or in making the estimates.

The two estimates of  $SD_y$  were similar. The mean estimated difference in value (in 2010 dollars) of yearly job performance between programmers at the 85th and 50th percentiles in job performance was \$40,281 (SE = \$6,199). The difference between the 50th and 15th percentiles was \$36,886 (SE = \$3,835). The difference of \$3,395 was roughly 8 percent of each of the estimates and was not statistically significant. The distribution was at least approximately normal. The average of these two estimates, \$38,583, was used as the final  $SD_y$  estimate.



#### Modifications to the Global Estimation Procedure

Later research showed that the global estimation procedure produces downwardly biased estimates of utility.<sup>29</sup> This appears to be so because most judges equate average value with average wages despite the fact that the value of the output as sold of the average employee is larger than average wages. However, estimates of the coefficient of variation of job performance ( $SD_y / \bar{Y}$  or  $SD_p$ ) calculated from supervisory estimates of the three percentiles (50th, 85th, and 15th) were quite accurate. This led the same authors to propose a modification of the original global estimation procedure.<sup>30</sup> The modified approach estimates  $SD_y$  as the product of estimates of the coefficient of variation ( $SD_y / \bar{Y}$ ) and an objective estimate of the average value of employee output ( $\bar{Y}$ ). In using this procedure, one first estimates  $\bar{Y}$  and  $SD_p$  separately and then multiplies these values to estimate  $SD_y$ .

$SD_p$  can be estimated in two ways: by using the average value found for jobs of similar complexity<sup>31</sup> or by dividing supervisory estimates of  $SD_y$  by supervisory estimates of the value of performance of the 50th-percentile worker. Researchers tested the accuracy of this method by calculating supervisory estimates of  $SD_p$  from 11 previous studies of  $SD_y$  estimation and then comparing these estimates with objective  $SD_p$  values.<sup>32</sup> Across the 11 studies, the mean of the supervisory estimates was 44.2 percent, which was very close to the actual output-based mean of 43.9 percent. The correlation between the two sets of values was .70. These results indicate that supervisors can estimate quite accurately the magnitude of relative (percent of average output) differences in employee performance.

With respect to calculating the average revenue value of employee output ( $\bar{Y}$ ), the researchers began with the

assumption that the average revenue value of employee output is equal to total sales revenue divided by the total number of employees.<sup>33</sup> However, total sales revenue is based on contributions from many jobs within an organization. Based on the assumption that the contribution of each job to the total revenue of the firm is proportional to its share of the firm's total annual payroll, they calculated an approximate average revenue value for a particular job (A) as follows:

**9-1.**

$$\text{Job A value} = \text{Total revenue} \times (\text{Job A payroll} / \text{Total payroll})$$

**9-2.**

$$\bar{Y} = \text{Job A value} / \text{Job A number of employees}$$

SD<sub>y</sub> then can be estimated as (SD<sub>p</sub>), where SD<sub>p</sub> is computed using one of the two methods described earlier. An additional advantage of estimating SD<sub>y</sub> from estimates of SD<sub>p</sub> is that it is not necessary that estimates of SD<sub>y</sub> be obtained from dollar-value estimates. Although the global estimation procedure is easy to use and provides fairly reliable estimates across supervisors, we offer several cautions regarding the logic and analytics on which it rests.

Empirical findings support the assumption of linearity between supervisory performance ratings and annual worth ( $r = .67$ ),<sup>34</sup> but dollar-valued job performance outcomes are often not normally distributed.<sup>35</sup> Hence, comparisons of estimates of SD<sub>y</sub> at the 85th–50th and 50th–15th percentiles may not be meaningful.

We do not know the basis for each supervisor's estimates. Using general rules of thumb, such as job complexity, has merit, but this can be enhanced by using a more well-developed framework, such as the “actions and interactions” component of the HC BRidge model to

identify and clarify underlying relationships.<sup>36</sup> This means describing those challenges and resulting actions that the best employees might do versus actions of the average employees. This can help leaders and employees visualize the actual work differences.

Supervisors often find estimating the dollar value of various percentiles in the job performance distribution rather difficult. Moreover, the variation among each rater's  $SD_y$  estimates is usually as large as or larger than the average  $SD_y$  estimate. In fact, one study found both the level of agreement among raters and the stability over time of their  $SD_y$  estimates to be low.<sup>37</sup>

To improve consensus among raters, two strategies have been used:

- Provide an anchor for the 50th percentile.<sup>38</sup>
- Have groups of raters provide consensus judgments of different percentiles

Despite these problems, several studies have reported close correspondence between estimated and actual standard deviations when output measured as the value of sales<sup>39</sup> or cost-accounting estimates were used.

However, when medical claims cost data was used, the original global estimation procedure overestimated the actual value of  $SD_y$  by 26 percent.<sup>40</sup>

The methods discussed so far require that we assume that the monetary value of job performance is distributed normally, and they require experts to make an overall estimate of value across often widely varying job performance elements. An alternative procedure that makes no assumption regarding the underlying normality of the performance distribution and that identifies the components of each supervisor's estimate is described next.

### **The Cascio-Ramos Estimate of Performance in Dollars (CREPID)**

The Cascio-Ramos estimate of performance in dollars (CREPID) was developed under the auspices of the American Telephone and Telegraph Company and was tested on 602 first-level managers in a Bell operating company.<sup>41</sup> The rationale underlying CREPID is as follows. Assuming that an organization's compensation program reflects current market rates for jobs, the economic value of each employee's labor is reflected best in his or her annual wage or salary. As we discussed earlier in this chapter, this is probably a low estimate, as the average value produced by an employee must be more than average wages to offset the costs of wages, overhead, and necessary profit. Later, we will see that this assumption indeed leads to conservatively low estimates of  $SD_y$ . CREPID breaks down each employee's job into its principal activities, assigns a proportional amount of the annual salary to each principal activity, and then requires supervisors to rate each employee's job performance on each principal activity. The resulting ratings then are translated into estimates of dollar value for each principal activity. The sum of the dollar values assigned to each principal activity equals the economic value of each employee's job performance to the company. Let us explain each of these steps in greater detail.

1. Identify principal activities. To assign a dollar value to each employee's job performance, first we must identify what tasks each employee performs. In many job analysis systems, principal activities (or critical work behaviors) are identified expressly. In others, they can be derived, under the assumption that to be considered "principal," an activity should comprise at least 10 percent of total work time. To illustrate, let us assume

that the job description for an accounting supervisor involves eight principal activities.

2. Rate each principal activity in terms of time/frequency and importance. It has long been recognized that rating job activities simply in terms of the time or frequency with which each is performed is an incomplete indication of the overall weight to be assigned to each activity. For example, a nurse may spend most of the workweek performing the routine tasks of patient care. However, suppose the nurse must respond to one medical emergency per week that requires, on an average, one hour of his or her time. To be sure, the time/frequency of this activity is short, but its importance is critical. Research shows that simple 0–7 point Likert-type rating scales provide results that are almost identical to those derived from more complicated scales.<sup>42</sup>

3. Multiply the numerical ratings for time/frequency and importance for each principal activity. The purpose of this step is to develop an overall relative weight to assign each principal activity. The ratings are multiplied. Thus, if an activity never is done, or if it is totally unimportant, the relative weight for that activity should be zero. The following illustration presents hypothetical ratings of the eight principal activities identified for the accounting supervisor's job.

Principal Activity	Time/ Frequency	× Importance	= Total	Relative Weight
1	4.0	4	16.0	16.8
2	5.0	7	35.0	36.8
3	1.0	5	5.0	5.3
4	0.5	3	1.5	1.6
5	2.0	7	14.0	14.7
6	1.0	4	4.0	4.2
7	0.5	3	1.5	1.6
8	3.0	6	18.0	19
			95.0	100%

After doing all the multiplication, sum the total ratings assigned to each principal activity (95 in the preceding example). Then divide the total rating for each principal activity by sum, or all the ratings, to derive the relative weight for the activity (for example,  $16 \div 95 = 0.168$ , or 16.8 percent). Knowing each principal activity's relative weight allows us to allocate proportional shares of the employee's overall salary to each principal activity, as is done in step 4.

4. Assign dollar values to each principal activity. Take an average (or weighted average) annual rate of pay for all participants in the study (employees in a particular job class) and allocate it across principal activities according to the relative weights obtained in step 3.

To illustrate, suppose that the annual salary of each accounting supervisor is \$50,000.

Principal Activity	Relative Weight (%)	Dollar Value (\$)
1	16.8	8,400
2	36.8	18,400
3	5.3	2,650
4	1.6	800
5	14.7	7,350
6	4.2	2,100
7	1.6	800
8	19	9,500
		50,000

5. Rate performance on each principal activity on a 0–200 scale. Note that steps 1–4 apply to the job, regardless of who does that job. The next task is to determine how well each person in that job performs each principal activity. This is the performance appraisal phase. The higher the rating on each principal activity, the greater the economic value of that activity to the organization.

CREPID uses a modified magnitude-estimation scale to obtain information on performance.<sup>43</sup> To use this procedure, a value (say, 1.0) is assigned to a referent concept (for example, the average employee, one at the 50th percentile on job performance), and then all comparisons are made relative to this value. In the study of accounting supervisors, operating managers indicated that even the very best employee was generally not more than twice as effective as the average employee. Thus, a continuous 0–2.0 scale was used to rate each employee on each principal activity.

6. Multiply the point rating (expressed as a decimal number) assigned to each principal activity by the activity's dollar value. To illustrate, suppose that the following point totals are assigned to accounting supervisor C. P. Ayh:

Principal Activity	Performance (0 to 2 scale)	Dollar Value	Dollar-Weighted Performance
1	1.35	8,400	11,340.00
2	1.00	18,400	18,400.00
3	1.25	2,650	3,312.50
4	2.00	800	1,600.00
5	1.00	7,350	7,350.00
6	0.50	2,100	1,050.00
7	0.75	800	600.00
8	1.50	9,500	14,250.00

7. Compute the overall economic value of each employee's job performance by adding the last column of step 6. In our example, the overall economic value of Mr. Ayh's job performance is \$57,902.50, or \$7,902.50 more than he is being paid.

8. Over all employees in the study, compute the mean and standard deviation of dollar-valued job performance. When CREPID was tested on 602 first-level managers at a Bell operating company, the mean of dollar-valued job

performance was only \$2,340 (3.4 percent) more than the average actual salary of all employees in the study. However, the standard deviation ( $SD_y$ ) was almost \$23,791 (all figures in 2010 dollars), which was more than three and a half times larger than the standard deviation of the actual distribution of salaries. Such high variability suggests that supervisors recognized significant differences in performance throughout the rating process.

It is important to point out that CREPID requires only two sets of ratings from a supervisor:

- A rating of each principal activity in terms of time/frequency and importance (the job analysis phase)
- A rating of a specific subordinate's performance on each principal activity (the performance appraisal phase)

CREPID has the advantage of assigning each employee a specific value that can be analyzed explicitly for appropriateness and that may also provide a more understandable or credible estimate for decision makers. Focusing attention on elements of a job allows leaders to discuss the relative pivotalness of those elements. This idea has proven useful in considering how to apply engineering concepts such as Kano analysis to calculate the value of employee performance.<sup>44</sup> For example, consider the engineers at a Disney theme park. Unlike typical thrill-ride parks, the designers of Disney rides must be much more attuned to imagery, songs, and stories, because Disney uses the songs, characters, and stories of its rides across its full gamut of products. Consider that the hit film *Pirates of the Caribbean* began as a ride at Disneyland.

Hence, for a Disney ride designer (or “imagineer,” as they are called at Disney), the difference between being good and great at songs may be much more pivotal than



being good versus great at ride physiology. The ride *It's A Small World* has a song that is immediately recognizable all across the world, but its engineering sophistication is not that high. Thus, for Disney, ride engineers might be hired and rewarded more for great songs and stories than for the most advanced thrill-ride capability.

CREPID would assign a much higher weight to the music than the physiology design elements of Disney engineers. At a more traditional thrill-ride park, such as Cedar Point in Ohio, the opposite might be true.<sup>45</sup>

However, as noted earlier, CREPID assumes that average wage equals the economic value of a worker's performance. This assumption is used in national income accounting to generate the GNP and labor-cost figures for jobs where output is not readily measurable (for example, government services). That is, the same value is assigned to both output and wages. Because this assumption does not hold in pay systems that are based on rank, tenure, or hourly pay rates, CREPID should not be used in these situations.<sup>46</sup>

### **System Effectiveness Technique**

This method was developed specifically for situations in which individual salary is only a small percentage of the value of performance to the organization or of the equipment operated (for example, an army tank commander or a fighter pilot, or a petroleum engineer on an oil rig).<sup>47</sup>

## Logic

In essence, it calculates the difference in system effectiveness between the average performer and someone who is one standard deviation better than average. It multiplies that value by the cost of the system, assuming that the superior performer achieves higher performance using the same cost, or that the superior performer achieves the same performance level at less cost. For example, suppose we estimate that a superior performer (one standard deviation better than average) is 20 percent better than an average performer and that it costs \$100,000 to run the system for a month. We multiply the 20 percent by \$100,000 to get \$20,000 per month as the monetary difference between superior and average performers. The assumption is that the superior performer saves us \$20,000 per month to achieve the same results, or that he or she achieves \$20,000 more per month using the same cost of capital.

This approach distinguishes the standard deviation of performance in dollars, from the standard deviation of output units of performance (for example, number of hits per firing from an army tank commander). It is based on the following equation.

### 9-3.

SD of performance in monetary units =  $C_u$  (SD of performance in output units/  $Y_1$ )

Here,  $C_u$  is the cost of the unit in the system. (It includes equipment, support, and personnel rather than salary alone.)  $Y_1$  is the mean performance in output units.

Equation 9-3 indicates that the SD of performance in monetary units equals the cost per unit times the ratio of the SD of performance in output units to the average level of performance,  $Y_1$ . However, estimates from Equation 9-3 are appropriate only when the performance

of the unit in the system is largely a function of the performance of the individual in the job.

#### **Measures**

To assess the standard deviation of performance in monetary units, using the system-effectiveness technique, researchers collected data on U.S. Army tank commanders.<sup>48</sup> They obtained these data from technical reports of previous research and from an approximation of tank costs. Previous research indicated that meaningful values for the ratio  $SD_y/Y_1$  range from 0.2 to 0.5. Tank costs, consisting of purchase costs, maintenance, and personnel, were estimated to fall between \$739,674 and \$1.23 million per year (in 2010 dollars). For purposes of Equation 9-1,  $C_u$  was estimated at \$739,674 per year, and the ratio of SD of performance in output units/ $Y_1$  was estimated at 0.2. This yielded the following:

$$\text{SD of performance in dollars} = \$739,674 \times 0.2 = \$147,935$$

#### **Superior Equivalents Technique**

An alternative method, also developed by the same team of researchers for similar kinds of situations, is the superior equivalents technique. It is somewhat like the global estimation procedure, but with one important difference. Instead of using estimates of the percentage difference between performance levels, the technique uses estimates of how many superior (85th-percentile) performers would be needed to produce the output of a fixed number of average (50th-percentile) performers. This estimate, combined with an estimate of the dollar value of average performance, provides an estimate of  $SD_y$ .

#### Logic

The first step is to estimate the number (N85) of 85th-percentile employees required to equal the performance of some fixed number (N50) of average performers. Where the value of average performance (V50) is known or can be estimated,  $SD_y$  may be estimated by using the ratio  $N_{50} / N_{85}$  times V50 to obtain V85, and then subtracting V50. That reduces as follows:

**9-4.**

$$SD_y = V_{85} - V_{50}$$

But by definition, the total value of performance at a certain percentile is the product of the number of performers at that level times the average value of performance at that level, as follows:

**9-5.**

$$V_{85} = (V_{50} \times N_{50}) / N_{85}$$

Combining Equations 9-4 and 9-5 yields this:

**9-6.**

$$SD_y = V_{50} [(N_{50} / N_{85}) - 1]$$

#### Measures

The researchers developed a questionnaire to obtain an estimate of the number of tanks with superior tank commanders needed to equal the performance of a standard company of 17 tanks with average commanders.<sup>49</sup> A fill-in-the-blanks format was used, as shown in the following excerpt.

For the purpose of this questionnaire an “average” tank commander is an NCO or commissioned officer whose performance is better than about half his fellow TCs. A

“superior” tank commander is one whose performance is better than 85% of his fellow tank commanders.

The first question deals with relative value. For example, if a “superior” clerk types ten letters a day and an “average” clerk types five letters a day then, all else being equal, five “superior” clerks have the same value in an office as ten “average” clerks. In the same way, we want to know your estimate or opinion of the relative value of “average” vs. “superior” tank commanders in combat. I estimate that, all else being equal, \_\_\_\_\_ tanks with “superior” tank commanders would be about equal in combat to 17 tanks with “average” tank commanders.

Questionnaire data was gathered from 100 tank commanders enrolled in advanced training at a U.S. Army post. N50 was set at 17 as a fixed number of tanks with average commanders, because a tank company has 17 tanks. Assuming that organizations pay average employees their approximate worth, the equivalent civilian salary for a tank commander was set at \$73,535 (in 2010 dollars).

The median response given for the number of superior TCs judged equivalent to 17 average TCs was 9, and the mode was 10. The response 9 was used as most representative of central tendency. Making use of Equation 9-3, V85 was calculated as follows:

$$(\$73,535 \times 17) / 9 = \$138,899$$

In terms of Equation 9-4:

$$SD_y = \$73,535 [(17 \div 9) - 1] = \$65,364$$

This is considerably less than the SD\$ value (\$136,800) that resulted from the system effectiveness technique. SD<sub>y</sub> also was estimated using the global estimation

procedure. However, there was minimal agreement either within or between groups for estimates of superior performance, and the distributions of the estimates for both superior performance and for average performance were skewed positively. Such extreme response variability illustrates the difficulty of making these kinds of judgments when the cost of contracting work is unknown, equipment is expensive, or other financially intangible factors exist. Such is frequently the case for public employees, particularly when private-industry counterparts do not exist. Under these circumstances, the system effectiveness technique or the superior equivalents technique may apply.

One possible problem with both of these techniques is that the quality of performance in some situations may not translate easily into a unidimensional, quantitative scale. For example, a police department may decide that the conviction of one murderer is equivalent to the conviction of five burglars. Whether managers do, in fact, develop informal algorithms to compare the performance of different individuals, perhaps on different factors, is an empirical question. Certainly, the performance dimensions that are most meaningful and useful will vary across jobs.

This completes our examination of five different methods for estimating the economic value of job performance. Researchers have proposed variations of these methods,<sup>50</sup> but at this point, the reader might naturally ask whether any one method is superior to the others. Our final section addresses that question.

## **PROCESS: HOW ACCURATE ARE $SD_y$ ESTIMATES, AND HOW MUCH DOES IT MATTER?**

In terms of applying these ideas in actual organizations, the logical idea that there are systematic differences in the value of improving performance across different roles or jobs is much more important than the particular estimate of  $SD_y$ . When business leaders ask HR professionals how much a particular HR program costs, often they are actually wondering whether the improvement in worker quality it will produce is worth it. The distinction between the average value of performance versus the value of improving performance is often extremely helpful in reframing such discussions to uncover very useful decisions.

As discussed in Chapter 2, “Analytical Foundations of HR Measurement,” if the question is reframed from “How much is this program worth?” to “How likely is it that this investment will reach at least a minimum acceptable level of return?,” the process of making the correct decision is often much more logical, so better decisions are more likely. In terms of  $SD_y$ , this means that it is often the case that even a wide range of  $SD_y$  values will yield the same conclusion—namely, that what appeared to be very costly HR program investments are actually quite likely to pay off. In fact, the break-even level of  $SD_y$  (the level needed to meet the minimal acceptable level of return) is often lower than even the most conservative  $SD_y$  estimates produced by the techniques described here.

A review of 34 studies that included more than 100 estimates of  $SD_y$  concluded that differences among alternative methods for estimating  $SD_y$  are often less than 50 percent.<sup>51</sup> Even though differences among methods for estimating  $SD_y$  may be small, those

differences can become magnified when multiplied by the number of persons selected, the validity, and the selection ratio. Without any meaningful external criterion against which to compare  $SD_y$  estimates, we are left with little basis for choosing one method over another. This is what led the authors of one review to state, “Rather than focusing so much attention on the estimation of  $SD_y$ , we suggest that utility researchers should focus on understanding exactly what Y represents.”<sup>52</sup>

In terms of the perceived usefulness of the utility information, research has found that different  $SD_y$  techniques influence managers’ reactions differently (the 40 percent rule was perceived as more credible than CREPID), but these differences accounted for less than 5 percent of the variance in the reactions.<sup>53</sup> At a broader level, another study found that managers preferred to receive information about the financial results of HR interventions rather than anecdotal information, regardless of the overall impact of such programs (low, medium, or high).<sup>54</sup>

Utility analyses should reflect the context in which decisions are made.<sup>55</sup> For example, is the task to choose among alternative selection procedures? Or is it to decide between funding selection program or buying new equipment? All utility analyses involve uncertainty and risk, just like any other organizational measurement. By taking uncertainty into account through sensitivity or break-even analysis (see [Chapter 2](#)), any of the  $SD_y$  estimation methods may be acceptable because none yields a result so discrepant as to change the decision in question. Instead of fixating on accuracy in estimating  $SD_y$ , HR and business leaders should use the logic of performance variability to understand where it matters. If a wide range of values yields the same decision, debating the values is not productive.

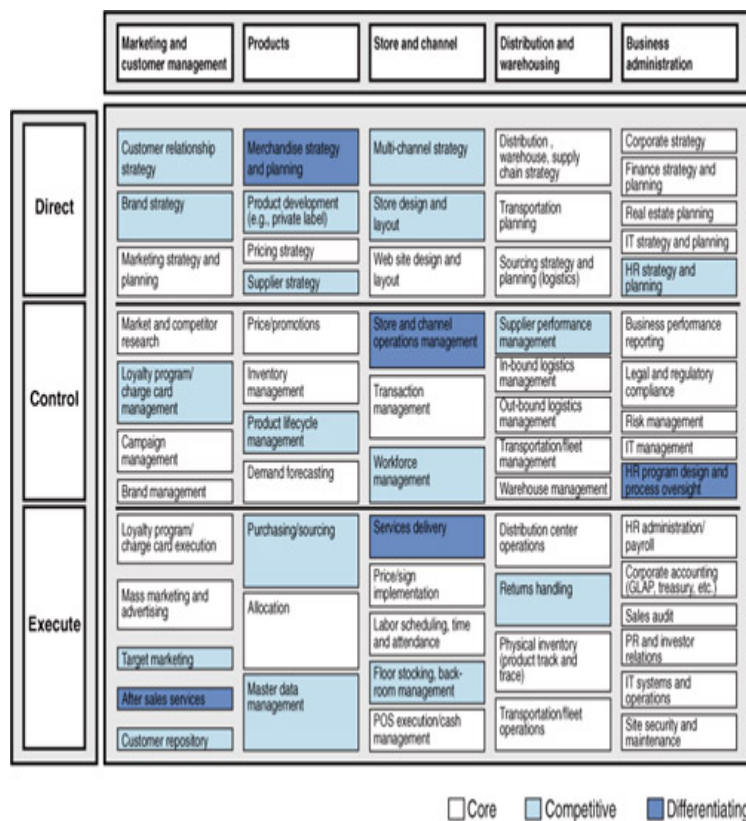


The broader issue requires answers to questions such as the following: Where would improvements in talent, or how it is organized, most enhance sustainable strategic success? We began this chapter by focusing on performance-yield curves and the notion of pivotal talent. We emphasized that it is important to distinguish average value from variability in value, and that a key question for managers is not which talent has the greatest average value, but rather, in which talent pools performance variation creates the biggest strategic impact. The estimation of  $SD_y$  provides an answer to one important piece of that puzzle.

It is important that HR and business leaders also attend to the larger question. Beyond simply the slope of the performance-value curve (reflected in  $SD_y$ ), the shape of the curves can be informative. In what jobs or roles is performance at standard good enough? In what jobs or roles is the issue to reduce risk, not necessarily to improve performance levels (such as airline pilots, and nuclear plant operators)? Conversely, in what jobs or roles can downside risk be accepted, for the chance that innovation and creativity create great value (such as Starbucks baristas)? Traditional approaches to job analysis, goal setting and performance management tend to overlook these questions. Yet it is within these processes that HR and business leaders often have the greatest opportunity to understand deeply not only the dollar value of performance differences ( $SD_y$ ), but the very nature of how work performance contributes to organizational value.<sup>56</sup>

Sometimes it is best to start at a less complex high level. For example, the IBM Institute for Business Value interpreted the idea of “pivotal roles” to recommend that organizations define and distinguish *focal jobs* defined as “positions that make a clear and positive difference in a company’s ability to succeed in the marketplace.” The

Institute authors suggest developing “heat maps” that identify which parts of a business are *core* (necessary to stay in business but not differentiating in the marketplace), *competitive* (gets the organization considered by a potential customer), and *differentiating* (significantly influences the buying decisions of customers). The idea is that performance variation in the “competitive” and “differentiating” parts of the organization is likely to be more valuable than in the “core.”<sup>57</sup> Figure 9-4 is an example of such a heat map.



Source: Lesser, Eric, Denis Brousseau, and Tim Ringo, *Focal Jobs: Viewing Talent Through a Different Lens*. (Somers, N.Y.: IBM Institute for Business Value, 2009).

**Figure 9-4. Heat map showing what organization processes are most differentiating.**

Even such a simple categorization can start a valuable conversation about performance variation and what it means. Then the tools described here can be used to get

more specific, attaching consequences and perhaps even monetary values to such performance differences. The next chapter provides an example of embedding the value of performance within a specific decision framework, by applying utility analyses to employee selection. The chapter will also show the role of economic factors, employee flows, and break-even analysis in interpreting such results.

## EXERCISES

Software that calculates answers to one or more of the following exercises can be found at <http://hrcosting.com/hr/>.

1. Divide into four- to six-person teams and do either A or B, depending on feasibility.

A. Choose a production job at a fast-food restaurant and, after making appropriate modifications of the standard-costing approach described in this chapter, estimate the mean and standard deviation of dollar-valued job performance.

B. The Tiny Company manufactures components for word processors. Most of the work is done at the 2,000-employee Tiny plant in the Midwest. Your task is to estimate the mean and standard deviation of dollar-valued job performance for Assemblers (about 200 employees). You are free to make any assumptions you like about the Tiny Assemblers, but be prepared to defend your assumptions. List and describe all the factors (along with how you would measure each one) that your team would consider in using standard costing to estimate  $SD_y$ .

2. Jim Hill is the manager of subscriber accounts for the Prosper Company. The results of a job analysis indicate that Jim's job includes four principal activities. A

summary of Jim's superior's ratings of the activities and Jim's performance of each of them follows:

Principal Activity	Manager Importance Rating	Jim's Performance (0 to 2)
1	4.5	1.00
2	3.0	2.00
3	6.0	0.50
4	1.0	1.00

Assuming that Jim is paid \$62,000 per year, use CREPID to estimate the overall economic value of his job performance.

3. Assume that an average SWAT team member is paid \$55,000 per year. Complete the following questionnaire. Then use the results to estimate  $SD_y$  by means of the superior equivalents technique.

For purposes of this questionnaire, a "superior" SWAT team member is one whose performance is better than about 85 percent of his fellow SWAT team members. Please complete the following item:

I estimate that, all else being equal, \_\_\_\_\_  
"superior" SWAT team members would be about equal to  
20 "average" SWAT team members.

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## 10. The Payoff from Enhanced Selection

Have you ever made a profit from a catering business or dog walking? Do you prefer to work alone or in groups? Have you ever set a world record in anything? The right answer might help you get a job at Google, Inc. Google received more than 100,000 job applications every month in 2007, and to deal with that volume of applications, Google created an algorithm that sifts through answers to an elaborate online survey. The answers are fed into a series of formulas created by Google's mathematics experts that calculate a score between 0 and 100 to "predict how well a person will fit into its chaotic and competitive culture." Lazlo Bock, Google's vice president for people operations, joined Google in spring 2006 and found the selection process rejecting candidates with engineering GPAs of less than 3.7 out of 4.0, and taking two months to consider candidates because each one was submitted to more than half a dozen interviews. After analyzing survey questions as diverse as pet ownership, magazine subscriptions, and introversion, and comparing them with work performance factors as diverse as job rating and organizational citizenship, Google found that "too much schooling can be a detriment" in some jobs. The company created different surveys for candidates in different areas, such as engineering, sales, finance, and human resources.<sup>1</sup>

Is it worth it to invest so much time and energy into this system? Are the cost savings from the online approach actually worth it, or does Google give up lots of value by foregoing the half-dozen interviews? Recall from Chapter 9, "The Economic Value of Job Performance," that Alan Eustace, Google's vice president of engineering, told *The Wall Street Journal* that one top-notch engineer is worth

300 times or more than the average and that he would rather lose an entire incoming class of engineering graduates than one exceptional technologist.<sup>2</sup> Should Google be selecting more carefully for its technologists than engineers? The tools in this chapter are designed to answer questions like these.

Chapter 8, “Staffing Utility: The Concept and Its Measurement,” provided you with the logical and mathematical models for calculating the utility of staffing. Chapter 9 showed how to estimate an important element of staffing utility models: the monetary value of the standard deviation of performance. When you put the models of Chapter 8 together with the estimates of Chapter 9, you end up with powerful analytical frameworks that help predict when investments in enhanced selection will pay off. Lacking the frameworks provided here, organization leaders often see only the costs of such programs. Or, well-meaning psychologists present leaders with statistics such as validity coefficients out of context. Decision makers may ignore the difficult-to-understand value of improved selection and instead focus only on the costs, which often causes them to forego valuable opportunities.

By the same token, staffing professionals often become so focused on improving the elegance of staffing systems that they lose sight of the need to balance costs and benefits. Improved validity in employee selection is not always worth the cost, and it is certainly not equally valuable in every situation. The logic of Chapter 8 and the estimation methods of Chapter 9 combine to provide clues about where staffing investments have the greatest payoff.

Employee selection is quite similar to other business processes. In essence, investing in employee selection is an example of gathering information to improve our

ability to predict the performance of a risky asset. In this case, the “asset” is a new hire, but the logic of the decision is the same logic that supports decisions to invest in research on financial investments, mineral exploration, consumer preferences, and any other uncertain resource.

In [Chapter 8 \(Figure 8-1\)](#), we introduced the idea of a supply chain approach to staffing, showing that the pipeline of talent is very similar to the pipeline of any other resource. At each stage, the candidate pool can be thought of in terms of the quantity of candidates, the average and dispersion of the quality of the candidates, and the cost of processing and employing the candidates. Quantity, quality, and cost considerations determine the monetary value of staffing programs, and the utility models of [Chapter 8](#) showed how to calculate and combine these factors.

In this chapter, we tie these ideas together to show how to actually calculate the value of improved employee selection and other aspects of the talent supply chain.<sup>3</sup> We show how valid selection procedures (for external and internal candidates) can pay off handsomely for organizations. Moreover, we show how the basic utility formulas can incorporate important financial considerations, to make utility estimates more comparable with estimates of investment returns for other resources such as technology, advertising, and so on.

To date, utility analysis has not been used widely. Yet it has the potential to provide an answer to the increasing calls for greater rigor and economic justification for HR investments (see [Chapter 1, “Making HR Measurement Strategic”](#)). This chapter shows how to make utility analysis estimates compatible with other financial estimates, which we believe will make it easier for HR

leaders to “retool” utility analysis within the logic of proven business tools.<sup>4</sup> Thus, business leaders will develop shared mental models and make better decisions about staffing and other HR programs.

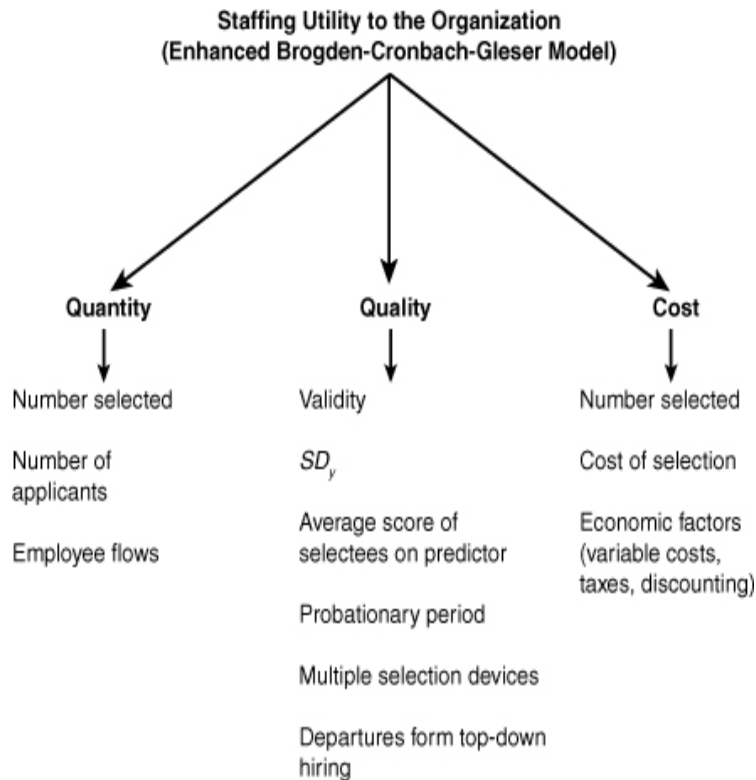
We begin with an example of tangible results from improved staffing, estimated with the Brogden-Cronbach-Gleser model described in Chapter 8.<sup>5</sup> Then we consider the effects of five considerations that help make staffing payoffs more realistic and better connected to traditional financial logic:

- Economic factors (variable costs, taxes, and discounting)
- Employee flows
- Probationary periods
- The use of multiple selection devices
- Departures from top-down hiring

Then we address the issue of risk and uncertainty in utility analysis and offer several tools to aid in decision making. We conclude the chapter by focusing on processes used to communicate the results of utility analyses to decision makers.

## **THE LOGIC OF INVESTMENT VALUE CALCULATED USING UTILITY ANALYSIS**

Figure 10-1 presents the logic of utility analysis, along with some situational factors that may affect quantity, quality, and cost.



**Figure 10-1. The logic of utility analysis and factors that can affect payoffs.**

We discussed several of these factors in [Chapters 8 and 9](#). In [Chapter 8](#), [Equation 8-17](#) showed how the Brogden-Cronbach-Gleser model combines several of these factors, namely the selection ratio (SR), the validity of the selection procedure ( $r$ ), the variability or standard deviation of job performance expressed in monetary terms ( $SD_y$ ), the average score of those hired on the predictor, and the average cost per selectee of applying the selection process to all applicants  $[(N_a \times C)/N_s]$ , to determine an unadjusted estimate of the utility of a selection process. The remaining factors shown in [Figure 10-1](#) may increase or decrease the unadjusted utility estimate. We discuss each of them after we illustrate the computation of the unadjusted estimate in the following section.



#### Example: A Selection Test for Computer Programmers

A 1979 study of computer programmers in the federal government examined the productivity implications of a more valid selection procedure, called the Programmer Aptitude Test (PAT).<sup>7</sup> The PAT demonstrated high validity for predicting the performance of computer programmers (the estimated true validity is 0.76), and that validity was essentially constant across many organizations. Thus, it was reasonable to use this validity estimate to examine the payoffs from using the PAT in the federal government and in the economy as a whole. The cost of administering the PAT per examinee was \$36 (all figures are adjusted to 2010 dollars).<sup>8</sup>

The study focused on the selection of federal government computer programmers at the GS-5 through GS-9 levels, with GS-5 being the lowest level in this occupational series. Beyond GS-9, it was unlikely for an aptitude test such as the PAT to be used in selection. Applicants for higher-level programmer positions were required to have considerable expertise in programming and were selected on the basis of achievement and experience instead of directly based on programming aptitude.

Although this 1979 example is somewhat dated, it is the example with the most complete data needed to calculate the monetary value of selection. The logic used here applies to any selection decision.

## MEASURING THE UTILITY COMPONENTS

In terms of quantity, the average number of GS-5 through GS-9 programmers selected was 618 per year. Estimating on the basis of U.S. census data in 1979, 10,210 computer programmers could be hired each year in the U.S. economy using the PAT. The average tenure for government programmers was found to be 9.69 years; in the absence of other information, this tenure figure was assumed for the private sector as well. The average gain in utility per selectee per year was multiplied by 9.69 to yield a total employment period gain in utility per selectee.

It was not possible to determine the prevailing selection ratio (SR) for computer programmers either in the general economy or in the federal government, so the utility analysis formula was used to do sensitivity analysis using an SR of 0.05 and then substituting SRs in intervals of 0.10 from 0.10 to 0.80.

In terms of validity, it's possible for the PAT to replace a prior procedure with zero validity in some cases, but in

other situations, the PAT replaced a procedure with lower but nonzero validity. Thus, utilities were calculated assuming previous-procedure true validities of 0.20, 0.30, 0.40, and 0.50, as well as zero.

SD<sub>y</sub> was calculated as the average of the two estimates obtained from experts, using the global estimation procedure described in Chapter 9. The estimate was \$38,613 per person per year (in 2010 dollars).

When the previous procedure was assumed to have zero validity, its associated testing cost also was assumed to be zero. When the previous procedure was assumed to have a nonzero validity, its associated cost was assumed to be the same as that of the PAT (that is, \$36 per applicant). Cost of testing was charged only to the first year, as if the procedure was used only once, to select the first group of programmers.

The Brogden-Cronbach-Gleser general utility equation was modified to obtain the equation actually used in computing the utilities.

#### **10-1.**

$$\Delta U = tN_s(r_1 - r_2)SD_y\lambda/\phi - N_s(c_1 - c_2)/\phi$$

Here,  $\Delta U$  is the gain in productivity in dollars from using the new selection procedure for one year;  $t$  is the tenure in years of the average selectee (here 9.69);  $N_s$  is the number selected in a given year (this figure was 618 for the federal government and 10,210 for the U.S. economy);  $r_1$  is the validity of the new procedure, here the PAT ( $r_1 = 0.76$ );  $r_2$  is the validity of the previous procedure ( $r_2$  ranges from 0 to 0.50);  $c_1$  is the cost per applicant of the new procedure, here \$36; and  $c_2$  is the cost per applicant of the previous procedure, here zero or \$36. The terms  $SD_y$ ,  $\lambda$ , and  $\phi$  are as defined previously in Chapter 8. This equation gives the productivity gain that

results from one year's use of the new (more valid) selection procedure, but not all these gains are realized the first year; they are spread out over the 9.69-year tenure of the new employees.

## **ANALYTICS: RESULTS OF THE UTILITY CALCULATION**

The estimated gains in productivity in (2010) dollars varied from \$19.5 million to \$334 million. Those gains would result from one year's use of the PAT to select computer programmers in the federal government for different combinations of selection ratios and previous-procedure validity. When the SR is 0.05 (the government is assumed to be very selective) and the previous procedure has no validity (the maximum relative value for the PAT), use of the PAT for one year produces an aggregate productivity gain of \$334 million. At the other extreme, if the SR is 0.80 (relatively unselective) and the validity of the procedure the PAT replaces is 0.50, the estimated gain is only \$19.5 million.

To illustrate how those figures were derived, assume that the SR = 0.20 and the previous procedure has a validity of 0.30. All other terms are as defined previously.

$$\Delta U = 9.69(618)(0.76 - 0.30)(\$38,613)(0.2789 \div 0.20) - 618(\$36 - \$36)/0.20$$

$$\Delta U = 9.69(618)(0.46)(\$38,613)(1.3945) - 0$$

$$\Delta U = \$148,327,660$$

The gain per selectee can be obtained by dividing the value of total utility by 618, the assumed yearly number of selectees. When this is done for our example (\$148,327,660 / 618), the gain per selectee is \$240,012. That figure is still quite high, but remember that not all

of those gains are realized during the first year. They are spread out over the entire tenure of the new employees. Gains per year per selectee can be obtained by dividing the total utility first by 618 and then by 9.69, the average tenure of computer programmers. In our example, this produces a per-year gain of \$24,769 per selectee—or, to carry it even further, a \$12 gain per hour per year per selectee (assuming 2,080 hours per work year). Other research has often produced equally stunning estimates of the monetary value of improved selection.<sup>8</sup>

### **PROCESS: MAKING UTILITY ANALYSIS ESTIMATES MORE COMPARABLE TO FINANCIAL ESTIMATES**

Evidence presented in the studies we have described leads to the inescapable conclusion that how people are selected makes an important, practical difference. The implications of valid selection procedures for workforce productivity are clearly much greater than most of us might have suspected, but are they as high as these studies suggest? Standard investment analysis would suggest that considerations such as the costs of improved performance, inflation and risk, and the tax implications of higher profits from better selection should all be accounted for, to make these estimates comparable to investment calculations for more traditional resources. This translation may be essential to the process of gaining support from business leaders outside of HR. The idea is that, by using proven business logic and applying it to the question of selection utility, the results will be more credible and more easily understood.

Figure 10-1 showed that the cost of a selection program depends not only on the number of individuals selected and the cost of selection, but also on several additional economic factors. These include variable costs, taxes, and discounting. Why are these important? By taking them

into account, decision makers can evaluate the soundness of HR investments more comparably with other investments. Other financial investments routinely account for these factors, so failing to consider them in estimating the value of staffing produces utility estimates that are overstated compared to other investments. Decision makers will want to compare HR investments on compatible terms with other investments, so these adjustments help make HR utility estimates more comparable.

### **Logic: Three Financial Adjustments**

Failing to adjust utility estimates creates overestimates under any or all of three conditions.<sup>9</sup> First, where variable costs (for example, incentive- or commission-based pay, benefits, variable raw materials costs, and variable production overhead) rise with productivity, a portion (V) of the gain in value calculated using Equation 10-1 will go to pay such costs. Second, organizations must pay a portion of the profit as tax liabilities (TAX). Third, where costs and benefits accrue over time, the values of future costs and benefits are worth less than present costs and benefits, so future values must be discounted to reflect the opportunity costs of returns foregone. Benefits received in the present or costs delayed into the future would be invested to earn returns. A dollar received today at a 10 percent annual return would be worth \$1.21 in two years. A future benefit worth \$1.21 in two years has a “present value” of \$1.00.

### **Analytics: Calculating the Economic Adjustments**

The following utility formula takes these three economic factors into account.<sup>10</sup>

$$\Delta U = (N) \left\{ \sum_{t=1}^T \left[ \frac{1}{(1+i)^t} \right] \right\} (SD_{sv})(1+V)(1-TAX)(r_{x,sv})(\bar{Z}_x) - C_T(1-TAX)$$

Here,  $\Delta U$  is the change in overall worth or utility after variable costs, taxes, and discounting;  $N$  is the number of employees selected;  $t$  is the time period in which an increase in productivity occurs;  $T$  is the total number of periods (for example, years) that benefits continue to accrue to an organization;  $i$  is the discount rate;  $SD_{sv}$  is the standard deviation of the sales value of productivity among the applicant or employee population (this is similar to  $SD_y$  in previous utility models but is called sales value to reflect the idea of translating productivity into the sales revenue it would generate, and to distinguish it from profits);  $V$  is the proportion of sales value represented by variable costs;  $TAX$  is the organization's applicable tax rate;  $r_{x,sv}$  is the validity coefficient between predictor ( $x$ ) and sales value (similar to  $r_{x,y}$  in previous utility models); and  $C_T$  is the total selection cost for all applicants (equal to the number selected divided by the selection ratio).

Those economic considerations suggest large potential reductions in unadjusted utility estimates. For example, researchers computed an  $SD_{sv}$  value of \$38,613 (in 2010 dollars) in their utility analysis of the PAT.<sup>11</sup> Although this may have been appropriate for federal government jobs because the federal government is not taxed, it would not be appropriate for private-sector organizations that face variable costs and taxes.

Assuming that the net effect of variable costs is to reduce gains by 5 percent,  $V = -0.05$ . Assuming a marginal tax rate (the tax rate applicable to changes in reported profits generated by a decision) of 45 percent, the after-cost, after-tax, one-year  $SD_y$  value is as follows:

$$(SD_{sv}) \times (1 + V) \times (1 - TAX)$$

$$(\$38,613) \times (1 - 0.05) \times (1 - 0.45) = \$20,175$$

This is 52 percent of the original value.

Now, assuming a financial discount rate of 10 percent, if the average tenure of computer programmers in the federal government was just two years, the appropriate discount factor (DF) adjustment would be as shown in Equation 10-3.

**10-3.**

$$DF = \sum_{t=1}^T 1/(1+i)^t = 1/(1+0.10)^1 + 1/(1+0.10)^2 = 1.74$$

Over 10 years, DF = 6.14, but the average tenure of computer programmers in the federal government (at the time of the study) was computed to be 9.69 years. Hence, the appropriate adjustment needed to discount the computed utility values 6.03. So, to reflect discounting, the per-year utility should be multiplied by 6.03, instead of 9.69.

When all three of those factors—variable costs, taxes, and discounting—are considered, the per-selectee utility values over 9.69 years that were reported in the study of computer programmers range from \$10,210 (which is [\$19.5 million / 618 = \$31,553 per selectee  $\times$  (6.03/9.69)  $\times$  0.52]) to \$174,886 (\$334 million / 618 = \$540,453 per selectee  $\times$  (6.03/9.69)  $\times$  0.52).

These values still are substantial, but they are 67 percent lower than the unadjusted values. Such significant effects argue strongly that HR leaders should be careful to make their monetary payoff estimates as compatible as possible with standard investment calculations. Note that the adjustments above multiplied the total to adjust for the discount factor (6.03/9.69) and the combination of variable costs and taxes (52 percent of the unadjusted

value). This is because the cost difference was zero. If it was non-zero, the added value elements would be adjusted as shown here, but the cost should be adjusted by the tax rate.

## **HOW TALENT CREATES “COMPOUND INTEREST:” EFFECTS OF EMPLOYEE FLOWS ON UTILITY ESTIMATES**

The idea of compound interest is one of the most important principles in investing. Compound interest refers to the fact that if you make an investment that earns interest in the first year, and you add that interest to your original investment, then in the second year, you earn interest on the original investment as well as the first-year interest, and so on. It turns out that when organizations select better employees, the benefits of their improved performance also “compound” over time. This significantly increases the value of improved employee quality over time, just as compound interest significantly increases the returns on investments over time.

Employee flows into, through, and out of an organization influence the value of a staffing program or any other HR intervention.<sup>12</sup> We showed earlier that failure to consider the effects of variable costs, taxes, and discounting tends to overstate utility estimates. Conversely, failure to consider the effect of employee flows may understate utility estimates. The utility analysis formulas originally introduced reflected a selection program used to hire a single group and often reflected only the first-year effect of those better-selected employees. They expressed the utility of adding one new, better-selected cohort to the existing workforce. Yet in any investment, the cumulative benefit over time is relevant. One would not evaluate an investment in improved quality control for raw materials merely on the first order received. In the same way,



selection utility should reflect the cumulative effects on all employees selected over time.

### **Logic: Employee Flows**

Earlier we multiplied the one-year selection benefit obtained by using the PAT by the average tenure (9.69 years) of the better-selected programmers.<sup>13</sup> Yet this still reflects the effects of hiring only one group whose members stay for several years.

In practice, valid selection programs are reapplied year after year, as employees flow into and out of the workforce. A program's effects on cohorts hired in later years will occur in addition to its lasting effects on previously hired cohorts. These are additive cohort effects.<sup>14</sup> By altering the terms  $N$  and  $T$  in Equation 10-2, we can account for the effect of employee flows.

Employee flows generally affect utility through the period-to-period changes in the number of *treated* employees in the workforce. Note that we use the term “treated employees” to mean employees that are affected by an improved HR program, such as the group hired with an improved test. Such employees are added to a workforce containing existing or untreated employees. The number of treated employees in the workforce  $k$  periods in the future ( $N_k$ ) may be expressed as shown in Equation 10-4.

#### **10-4.**

$$N_k = \sum_{t=1}^k (N_{a_t} - N_{s_t})$$

Here,  $N_{a_t}$  is the number of treated employees added to the workforce in period  $t$ , and  $N_{s_t}$  is the number of treated employees subtracted from the work force in period  $t$ . For example, consider the makeup of the

workforce in the fourth year, after a new selection procedure was applied for four years ( $k = 4$ ); that 100 persons were hired in each of the four years; and that 10 of them left in Year 2, 15 in Year 3, and 20 in Year 4. The following results are observed from the inception of the program ( $t = 1$ ) to year 4 ( $t = 4$ ):

$$N_4 = (100 - 0) + (100 - 10) + (100 - 15) + (100 - 20)$$

$$N_4 = 355$$

Thus, the term  $N_k$  reflects both the number of employees treated in previous periods and their expected separation pattern. The formula for the utility ( $\Delta U_k$ ) occurring in the  $k$ th future period that includes the economic considerations of Equation 10-2 may be written as shown in Equation 10-5.

**10-5.**

$$\Delta U_k = \left[ \sum_{t=1}^k (N_{a_t} - N_{s_t}) \right] \left\{ \left[ 1/(1+i)^k \right] (r_{x,sv}) (\bar{Z}_x) (SD_{sv}) (1+V) (1-TAX) \right\} - C_k (1-TAX) \left[ 1/(1+i)^{(k-1)} \right]$$

This formula modifies the quantity element by keeping track of how many treated employees are in the workforce in each year. Then, after multiplying that number by the increased productive value of the treated employees, the relevant discount rate, cost, tax, and other factors are applied for that particular year.

For simplicity, the utility parameters  $r_{x,sv}$ ,  $V$ ,  $SD_{sv}$ , and  $TAX$  are assumed to be constant over time. This assumption is not necessary, and sometimes the factors may vary. Note also that the cost of treating (for example, selecting) the  $N_{ak}$  employees added in period  $k$  ( $C_k$ ) is now allowed to vary over time. However,  $C_k$  is not simply a constant multiplied by  $N_{ak}$ . Some programs (for

example, assessment centers) have high initial startup costs of development, but these costs do not vary with the number treated in future periods. Also, the discount factor for costs  $[1/(1 + i)^{(k-1)}]$  reflects the exponent  $k - 1$ , assuming that such costs are incurred one period prior to receiving benefits. Where costs are incurred in the same period as benefits are received,  $k$  is the proper exponent.<sup>15</sup>

### **ANALYTICS: CALCULATING HOW EMPLOYEE FLOWS AFFECT SPECIFIC SITUATIONS**

For illustration, let's use an  $SD_y$  value of \$25,000 and calculate the Year 4 utility, assuming the flow pattern described previously. We calculated  $N_4 = 355$ . If the discount rate is 10 percent, then the discount factor is .683 for year-4 benefits and .751 for year-3 selection costs. The validity of the procedure is 0.40; the selection ratio is 0.50 (and, therefore, the average standardized test score of those selected is  $0.3989 / 0.50 = 0.80$ , from earlier chapters);  $SD_{sv}$  per person-year is \$25,000; variable costs =  $-0.05$ ; taxes =  $0.45$ ; and  $C_k$ , the cost of treating the 100 employees added in Year 4, is  $(100/.5) \times \$36 = \$7,200$ .

$$\Delta U_4 = (355 \times .683 \times .40 \times .80 \times \$25,000 \times .95 \times .55) -$$

$$(\$7,200 \times .751 \times .55)$$

$$\times 0.55)] - (\$7,200 \times .751 \times 0.55)$$

$$\Delta U_4 = \$1,013,504 - \$2,974 = \$1,010,530$$

$$\$1,013,504 - \$2,974 = \$1,010,530$$

This figure equals the total one-year value of the improved performance of all the better selected employees who are still with the organization in the fourth year.

To express the utility of a program's effects over  $F$  periods, the one-period utility estimates ( $\Delta U_k$ ) are summed. Thus, the complete utility model reflecting employee flows through the workforce for a program affecting productivity in  $F$  future periods may be written as shown in Equation 10-6.

**10-6.**

$$\Delta U = \sum_{k=1}^F \left[ \sum_{t=1}^k (N_{a_t} - N_{s_t}) \right] \left\{ \left[ \frac{1}{(1+i)^k} \right] (r_{s,w}) \times (\bar{Z}_s) (SD_w) (1+V) (1-TAX) \right\} - \sum_{k=1}^F \left\{ C_k (1-TAX) \left[ \frac{1}{(1+i)^{(k-1)}} \right] \right\}$$

The duration parameter  $F$  in Equation 10-6 is not employee tenure, but rather how long a program affects the workforce. Now, let's apply employee flows to the programmer example, where average tenure was 9.69 years, which we'll round up to 10 years. Assume that the PAT in the computer programmer study is applied for 15 years, and, for simplicity, assume that each hired group of programmers stays for 10 years. If 618 programmers are added each year, for the first 10 future periods  $N_k$  will increase by 618 in each period. For example, in Year 10, 6,180 programmers selected using the PAT have been added to the workforce, and none have left:

**10-7.**

$$N_{10} = \sum_{t=1}^{10} (618 - 0)$$

Beginning in future period 11, however, one PAT-selected cohort leaves in each period ( $N_{s_t} = 618$ ). However, in Years 11 through 15, by continuing to apply the PAT to select 618 new replacements (that is,  $N_{a_t} = 618$ ), the number of treated programmers in the workforce is maintained. Thus, in Years 11–15,  $N_{a_t}$  and  $N_{s_t}$  offset each other and  $N_k$  remains unchanged at 6,180. Assuming that the government stops using the test in Year 15, starting in future period 16, the cost and number added

( $C_k$  and  $N_{s_t}$ ) become zero, assuming that the organization returns to random selection. However, the treated portion of the workforce does not disappear immediately. Earlier-selected cohorts continue to separate (that is,  $N_{s_t} = 618$ ), and  $N_k$  falls by 618 each period until the last-treated cohort (selected in future period 15) separates in future period 25. Figure 10-2 shows  $N_k$  for each of the 25 periods. (In Figure 10-2,  $F = 25$  periods.)

Period (k)	$N_k$
1	618
2	1,236
3	1,854
4	2,472
5	3,090
6	3,708
7	4,326
8	4,944
9	5,562
10	6,180
11	6,180
12	6,180
13	6,180
14	6,180
15	6,180
16	5,562
17	4,944
18	4,326
19	3,708
20	3,090
21	2,472
22	1,854
23	1,236
24	618
25	0

Note:  $N_k$  = number of employees receiving a given treatment who remain in the workforce:

Source: Adapted from Boudreau, J. W. (1983). *Effects of employee flows on utility analysis of human resource productivity improvement programs*. Journal of Applied Psychology 68, 400. Copyright © 1983 by the American Psychological Association. Reprinted with permission.

**Table 10-2. Example of employee flows over a 25-year period.**

Now we can add the economic factors to the utility model that reflects employee flows. Assuming, as we did in our

earlier example, that  $V = -0.05$ ,  $TAX = 0.45$ , and the discount rate is 10 percent, the total expected utility of the 15-year application of PAT (the sum of the 25 one-period utility estimates,  $\Delta U_k$  in Equation 10-5) was estimated to be \$286.2 million (in 2010 dollars).<sup>16</sup> This is considerably higher than the estimate in the original study of \$148.3 million (in 2010 dollars), even after reflecting variable costs, taxes, and discounting.

The most important lesson to learn from the principle of employee flows is that one-cohort utility models often understate actual utility because they reflect only the first part of a larger series of outcomes.

These numbers imply very high payoffs to improved employee selection, when we consider the impact on many employee cohorts over time. It is the same idea as the high cumulative impact of quality control in supply chains, when applied to many years of receiving raw materials orders. The reason the numbers are so high in this case is that the cost of the selection improvement is modest (a test costing less than \$50 per applicant), and the difference in value between a good and a very good computer programmer is high (\$38,613 per year).

Clearly, this can vary across situations. In the case of Google, at the beginning of this chapter, the cost of developing the algorithm, gathering the online data, analyzing the data, and so on would likely be much higher than \$50 per applicant. That said, if the estimate of the value of performance variation among engineers is anywhere near Alan Eustace's estimate of 300 times, Google can justify even multimillion-dollar selection systems. The point is not so much the precision of the calculation, but the logic and analysis that motivate more productive conversations.

## **LOGIC: THE EFFECTS OF A PROBATIONARY PERIOD**

At Whole Foods Market, new employees are selected by a process that looks a lot like the Survivor television show. A new employee is hired provisionally, works side by side with his or her future team members, and at the end of four weeks is offered a permanent job only if at least two thirds of the team votes to hire him or her. A powerful way to augment the accuracy of staffing systems is to allow new employees to actually do the job for a while—keep the employees who work out and dismiss those who don't.<sup>17</sup> This can be expensive, because Whole Foods has to pay probationary employees their salaries and benefits, and it involves the time and effort of the other employees who observe and rate the probationary workers. At the same time, the added accuracy and value of the better-screened work force may offset the increased costs. The utility formulas we have developed can diagnose the conditions that determine when such a probationary period will pay off.

The utility effect of a probationary period is reflected by modifying the utility equation to reflect the difference in performance between the pool of employees hired initially and those who survive the probationary period.<sup>18</sup> Whether a new hire is considered successful depends on his or her performance rating at the end of the probation period.

Because lower performers are dismissed, the average performance of a given selected cohort increases after the probationary period. The actual amount of the improvement depends on two things: the validity of the selection process used to weed out low performers, and the performance cutoff that determines success during probation. The costs of paying and training employees

who are later dismissed, together with any separation costs, must also be taken into account among the overall costs of a probationary-hiring program.

Interestingly, a probationary period reduces the harmful effect of selection errors, because they are corrected very quickly. Poor-performing employees are weeded out consistently and early instead of being retained longer in “permanent” positions that require a longer process of formal dismissal. So the value of selection procedures used with a probationary period is less than would be the case if the same selection process were used without the probationary period. Improved selection has value when it reduces hiring errors, but when a probationary period catches those errors, the value of avoiding them is less. Overall, the combined value of improved selection and a probationary period can be higher or lower than using either one alone. It depends on their relative validity, the severity of selection errors, and the variability in the applicant population. All of this is elegantly reflected in the utility model, which can be used to examine these factors in combination to identify the optimum combination.

Another way to look at probationary periods is as a special case of the employee movement model that we described in Chapter 4, “The High Cost of Employee Separations,” in Figure 4-1. In essence, the probationary period is a “controlled turnover” process, in which the validity of the dismissal decision determines the value of turnover to the organization. Finally, when seen this way, it is clear that the combination of selection and probation is much like the supply chain model of Chapter 8, with probation being similar to quality control after raw materials have been accepted and placed into the production process.



A combination of screening raw materials when they arrive and then monitoring their quality as they enter the production process may add great value if the cost of errors is quite high and if a lot of valuable information can be gathered after the materials are in the production process. That's the same logic Whole Foods is using. By selecting applicants carefully and then having the team observe them as they enter the workplace, Whole Foods is behaving as if the cost of an error is very high and assumes that the team members can see things that the selection process might miss.

### **LOGIC: EFFECTS OF JOB OFFER REJECTIONS**

Does it matter whether top-scoring applicants reject your offers and you must move on to lower-scoring applicants? In a tight labor market, organizations may be forced to lower their minimum hiring requirements to fill vacancies.<sup>19</sup> Should organizations work harder to land their best candidates? What are the monetary implications of offer rejections? The logical and analytical selection utility models described here can help answer such questions.

Rejecting job offers produces the same effect as reducing hiring standards. It increases SRs and lowers the gains from more valid selection. For example, if an organization needs to select 20 percent of its applicants to fill its positions, but half of its offers get rejected, that is the same as having a 40 percent selection ratio.

In general, offer rejections reduce the value of better selection more when:

- There is a higher correlation between the quality of the applicants and their probability of rejecting the offer.
- There is a larger proportion of rejected job offers.<sup>20</sup>

How large are the potential losses? One study found, that under realistic circumstances, unadjusted utility formulas could overestimate gains by 30 to 80 percent. To some extent, these utility losses caused by job offer rejection can be offset by additional recruiting efforts that increase the size of the applicant pool and, therefore, restore smaller SRs. Yet if the probability of accepting a job offer is negatively correlated with applicant quality (the better applicants are more likely to reject an offer), increasing the number of applicants may not be as effective as increasing the attractiveness of the organization to the better ones.

Again, the supply chain analogy applies. This is the same tradeoff that must be considered when bidding on scarce production inputs (such as oil field rights and rare components). The organization can increase the number of sellers, make itself more attractive to the sellers (perhaps through pricing or other perks), or a combination of both. As with a supply-chain, the right answer is found by better understanding the variables that determine the value of improved selection and recruitment.

## **LOGIC: THE EFFECT OF MULTIPLE SELECTION DEVICES**

Our example assumed that the organization implemented one new selection procedure, a test for computer programmers. Most organizations use multiple selection devices, such as application forms, interviews, background checks; aptitude, ability, personality, or work sample tests; medical exams; and assessment centers. Although the validity of some of these devices may be low, each has demonstrated validities greater than zero.<sup>21</sup> Essentially, when multiple selection devices are combined, the overall validity of the combination may be higher, assuming that each of them provides unique and valid information. If the costs of using multiple devices are relatively low and the value of performance variability is high, the higher costs are often offset by the increased predictive power of the combination of predictors.

## **PROCESS: IT MATTERS HOW STAFFING PROCESSES ARE USED**

Similar to the effect of rejected offers is the situation in which an organization decides to deviate from the practice of making job offers to the top-scoring candidates. To test this, researchers examined the impact on the productivity of forest rangers of three approaches:

1. Using top-down selection
2. Selecting those who meet a minimum required test score equal to the average
3. Selecting those who meet a minimum required score set at one SD below the average<sup>22</sup>

Top-down selection produced a productivity increase of about 13 percent (which translated into millions of dollars) compared to random selection. Under option 2, the value of output gains was only 45 percent as large as the dollar value for top-down selection. Under option 3, the value of output gains was only 16 percent of the top-down figure. Employers who deviate from top-down selection when performance variation is significant do so at substantial economic cost.

### **CUMULATIVE EFFECTS OF ADJUSTMENTS**

At this point, you're probably asking yourself how adjustments for all five of these factors—economic variables, employee flows, probationary periods, multiple selection devices, and rejected job offers—affect estimates of utility. One study used computer simulation of 10,000 scenarios, each of which comprised various values of the five factors just noted. Utility estimates were then computed using the five adjustments applied independently.<sup>23</sup>

The study found that although the unadjusted utility values we've seen are quite substantial, the effects of economic factors, departures from top-down hiring, and probationary periods can reduce them substantially. Accounting for economic variables had the largest effect, followed, in rank order, by multiple selection devices, departures from top-down hiring, probationary period, and separations of high performers. The total set of adjustments reduced the utility values by a median level of 91 percent, with a minimum reduction of 71 percent. Thus, considering reasonable values of these adjustments, the remaining utility values might be between 9 percent and 29 percent as large as the unadjusted values. The simulation actually produced negative utility estimates (the costs of improved selection exceeded the benefits) in 16 percent of the cases.

These results suggest that although valid selection procedures may often lead to positive payoffs for the organization, actual payoffs depend significantly on organizational and situational factors that affect the quantity, quality, and cost of the selection effort. The message is that organizations should give careful consideration and analysis to such investments. There is significant potential payoff but also significant potential risk in a poor decision. The tools and formulas in this chapter, together with those in Chapters 8 and 9, provide a framework for improving those decisions.

Meta-analyses of multiple studies often show that the validity of such characteristics as intelligence or conscientiousness for predicting job performance is consistently positive. It is tempting to conclude that hiring based on these factors must invariably contribute to improvements in performance that are worth the investment. However, validity is only one consideration in determining the overall value of a selection system to an organization.

The hallmark of a decision science is its ability to apply consistent frameworks to diverse situations, obtaining different results depending on vital factors. The results of this chapter show that the payoff from improved selection is potentially, but not necessarily, very large. Wise organizations will use the frameworks to examine their particular situations and make sound decisions based on their unique opportunities and constraints.

## DEALING WITH RISK AND UNCERTAINTY IN UTILITY ANALYSIS

As you have seen through this chapter and the two previous ones, many factors might increase or decrease expected payoffs from utility analysis.<sup>24</sup>

Taking these factors into account often means making estimates or accepting that measures are imperfect.

Sometimes decision makers react to imperfect measures by ignoring rejected offers or economic conditions. Yet as we have seen, such factors may be quite significant in the payoff to improved selection. Uncertainty need not preclude doing utility analysis, however. Just as with any area of business, the answer to uncertainty can be to isolate it and analyze its effects. Researchers have used three techniques to deal with such uncertainty in selection utility analysis: break-even analysis, Monte Carlo analysis, and confidence intervals.

### Break-Even Analysis

We reviewed break-even analysis in [Chapter 2, “Analytical Foundations of HR Measurement.”](#) We noted two of its advantages:

- It shifts emphasis away from estimating a precise utility value toward making a good decision even with imperfect information.
- It pinpoints areas where controversy is important to decision making (that is, where there is doubt about whether the break-even value is exceeded), versus where controversy has little impact (because there is little risk of observing utility values below break-even).

One comprehensive review of the utility-analysis literature reported break-even values for 42 studies that estimated the parameter  $SD_y$ .<sup>25</sup> Without exception, the break-even values fell at or below 60 percent of the

estimated value of  $SD_y$ . In many cases, the break-even value was less than 1 percent of the estimated value of  $SD_y$ . This suggests that, in most studies, the precise value of  $SD_y$  was not a determining factor in whether better selection paid off. The break-even value is often very low for the choice of whether to implement a particular HR program. However, this simply shows that the HR program is better than nothing. In more realistic settings, when the HR program is compared to other organizational investments, differences in  $SD_y$  estimates could actually affect the ultimate decision.<sup>26</sup> Also, decision makers may consider uncertainty about other factors (such as validity or selection ratios) in addition to  $SD_y$  in making capital-budgeting decisions.<sup>27</sup> Nonetheless, break-even analysis can be used in all these situations, and it often helps to clarify what really matters, leading not only to better decisions, but to better logical analysis.

In summary, break-even analysis of the  $SD_y$  parameter (or any other single parameter in the utility model) seems to provide two additional advantages:

- It allows practicing managers to appreciate how little variability in job performance is necessary before valid selection procedures begin to pay positive dividends.
- Even if decision makers cannot agree on an exact point estimate of  $SD_y$ , they can probably agree that it is higher than the break-even value.

## Monte Carlo Analysis

A second approach to dealing with risk and uncertainty is computer-based (Monte Carlo) simulation to assess the extent of variability of utility values, and thus to provide a sound basis for decision making.<sup>28</sup> This technique is often used in operations management for decisions about processes such as manufacturing and supply chain, or in consumer research on issues such as the likely response to new marketing initiatives. In essence, Monte Carlo analysis creates a distribution of values for one or more elements of a calculation. For example, you might want to explore  $SD_y$  values ranging from \$1,000 per person to \$10,000 per person. You might assume that the number of applicants and the number hired in a given year will vary within some range of values.

To implement a Monte Carlo analysis, you draw a value for each of the variables from its assumed distribution, input that value into the utility equation, and then calculate the utility value. Doing this repeatedly for many values of the parameters in combination produces an array of utility outcomes. Computer technology permits researchers to run tens of thousands such experimental values. In examining the pattern of resulting utility values, it is possible to estimate the average, range, and likelihood that various utility values will occur.

By modeling and analyzing uncertainty within the Monte Carlo analysis, we can better predict the likely outcomes and the risks of observing very low or very high utility values. To illustrate, the study described earlier was a Monte Carlo analysis that varied all the elements of the utility model with employee flows and economic factors, by analyzing 10,000 scenarios that combined different elements.<sup>29</sup>



## Confidence Intervals

A third approach is to compute a standard error of the utility estimate and then to derive a 95 percent confidence interval around that estimate.<sup>30</sup> Because 2.5 percent of the normal distribution falls below a value that is 1.96 standard deviations below the average, and 2.5 percent of the distribution falls above a value that is 1.96 standard deviations above the average, we can calculate a 95 percent confidence interval surrounding a particular estimate of utility ( $U$ ), as shown in Equation 10-8.

**10-8.**

$$(U - 1.96 \times SE_u) \leq U \leq (U + 1.96 \times SE_u)$$

Although there are problems with the method used to compute the standard error of the utility estimate, especially the assumption that all components in the equation are independent and normally distributed, research suggests that it provides a serviceable approximation.<sup>31</sup> To illustrate this method, researchers applied it to the estimated utility of the PAT in predicting the performance of computer programmers in the federal government.<sup>32</sup> They found that the values of  $SE_u$  were very large, about half the size of the utility estimate itself. This means that the experts who estimated  $SD_y$  had less agreement than might have been predicted.

As one observer commented, “Ironically, the impressively large size of utility estimates per se have (sic) been almost overemphasized ... while the standard error of utility has been largely ignored. If we are to be impressed by the size of utility, we must similarly be impressed by the size of the uncertainty in these estimates.”<sup>33</sup> To date, we have tended to view utility values as point estimates rather than as predictions under uncertainty. Given the uncertainty of many of the parameters of the utility model, confidence intervals are

probably more appropriate and should be reported routinely.

## **PROCESS: COMMUNICATING THE IMPACT OF UTILITY ANALYSES TO DECISION MAKERS**

Research suggests that how utility results are presented makes a big difference. Presented in the wrong way, utility analysis results appear to actually *reduce* the support of managers for a valid selection procedure, even though the net benefits of the procedure are very large.<sup>34</sup> In one experiment, managers were presented with an unadjusted estimated payoff from a selection program of more than \$105 million (in 2010 dollars), representing a return on investment of 14,000 percent. Results this large strain credulity, and thus it is no surprise that the managers did not accept them. Moreover, a fundamental principle of financial economics is that high returns carry high risks. Thus, presenting business leaders with such extraordinary estimated returns understandably would cause them to assume that the investment is highly speculative.<sup>35</sup> Yet some controversy arises here, because two subsequent studies failed to replicate these findings, and their conclusions and implications have been challenged.<sup>36</sup>

As we noted earlier, in the section on Monte Carlo analysis, another approach is to provide leaders with a range of possible values. Recall the study described earlier that used a computer-based simulation to generate 10,000 scenarios based on prior research and adjusted for different levels of economic factors and other considerations. The estimates showed an average payoff of \$2,964,222 (in 2010 dollars), more than a 96 percent reduction from the unadjusted values. The median return was \$2,313,275. The smallest outcome was an estimated loss of \$3,428,601, and the largest predicted gain (after adjustment) was \$22,831,890. Even

this gain was still more than 71 percent smaller than the initial (unadjusted) estimate presented to the non-HR managers.<sup>37</sup>

Now, with ranges like this, it's little wonder that many HR leaders, I/O psychologists, and business leaders concluded that estimating the monetary value of enhanced employee selection is mostly guesswork. An investment with a range of values from negative \$3 million to positive \$23 million may seem like just rolling the dice. However, are business leaders prepared to forego an investment that may produce such a high payoff in fear of the downside?

These are precisely the sorts of decisions that leaders make about other resources. When such uncertainty exists in the face of potentially high payoffs, wise organizations often invest in studies that can make estimates more precise. Using Monte Carlo techniques can show leaders which variables in the utility framework contribute most to the variation in anticipated payoffs. Perhaps organizations could study those variables more deeply and reduce the uncertainty, just as they might do with an uncertain supply chain, customer response to a new product, or R&D pipeline.<sup>38</sup>

We actually know very little about how decision contexts or organizational characteristics affect the reactions of managers to the results of utility analyses. If we study the thought processes of leaders who make decisions about investments in improved selection or other HR programs, we can learn more about where their beliefs and impressions may be incorrect.<sup>39</sup>

Beyond those concerns is a genuine need for utility analysts to shift their focus. The fundamental question is not, "How do we construct the best HR measure?" Instead, it is, "How do we induce changes through HR measurement systems?" HR measurement is not an end

in and of itself, but rather a decision-support system that can have powerful effects if users pay careful attention to the sender, the receivers, the strategy they use to transmit their message, and the organization of their message.<sup>40</sup>

Evidence indicates that managers are quite receptive to utility analysis when analysts present conservative estimates, illustrate the choices and their advantages and disadvantages, do not overload the presentation with technical details, and emphasize the same concerns managers of operating departments pay attention to (reducing the overall cycle time of the staffing process, reducing costs while maintaining the validity of the overall staffing process).<sup>41</sup> Clearly, the “framing” of the message is critical and has a direct effect on its ultimate acceptability.<sup>42</sup>

## **EMPLOYEE SELECTION AND THE TALENT SUPPLY CHAIN**

In the spirit of connecting selection utility analysis to the mental models that leaders already use, it may be useful to depict the staffing process as a supply chain and “retool” utility analysis within the language of supply-chain optimization.<sup>43</sup> Table 10-1 shows how the typical questions posed in supply-chain management can be translated to apply to employee recruitment, selection, and retention. These questions reflect the logical models in Chapters 8, 9, and 10, combined to reflect a comprehensive logical model for understanding and measuring the talent supply chain.

	Supply-Chain Management	Employee Selection
Demand Planning and Forecasting	Predicting future resource needs in terms of quality, quantity, cost, and timing, based on business activity and other factors. Planning approaches to better forecast or smooth demand levels for better planning.	Predicting the needed quantity, quality, and timing of future job openings and vacancies. Utility analysis can show where better performance has the highest payoff. Selection data can show where having a longer lead-time can improve selection validity or applicant quality.
Production Planning and Scheduling	Predicting and establishing future production schedules or inventory-acquisition schedules. Optimizing production to fit quality and quantity needs.	Predicting and planning future recruitment and staffing processes. Utility analysis can show the payoff from increased applicant “production” that produces lower selection ratios, and the impact of longer tenure among new hires that reduces turnover and increases the timeframe of the payoff from improved selection.
Distribution and Logistics	Planning how goods will move through space and time, identifying where to place warehouses and transportation channels, and determining how to optimize choices about which sources to use.	Planning whether to recruit locally or more broadly. Locating workplaces near applicant sources. Utility analysis can show the relative quality of applicants from different sources, and the relative predictability of applicant quality. Utility analysis can compare the payoffs and costs from different applicant sources.
Inventory Management	Planning how much and where to hold inventory of goods, where shortages and surpluses should be tolerated, and how to optimize the risks of being out of stock, having too much stock, against the costs of ordering and holding inventory.	Planning how far in advance to build inventories of applicants and potential applicants. Planning where to hold a surplus of job-holders and where to allow shortages to occur. Utility analysis captures the ordering costs of improved selection, as well as the potential quality improvements from anticipating job openings to attract better candidates or select more carefully.

**Table 10-1. How Supply-Chain Management and Employee Selection Share Business Logic**

These questions are illustrative, and many more parallel ideas exist between traditional supply chains and utility analysis for employee staffing. The point of these illustrations is to encourage HR and business leaders to explore how existing and proven business frameworks can be applied to talent and human capital decisions. The utility analysis framework can seem like a foreign language to most business leaders, but it is largely the same language they already apply to other decisions. It's just a matter of translation.

## **EXERCISES**

Software that calculates answers to one or more of the following exercises can be found at <http://hrcosting.com/hr/>.

1. You are given the following information regarding the CAP test for clerical employees (clerk-2s) at the Berol Corporation:

Average tenure as a clerk-2: 7.26 years

Number selected per year: 120

Validity of the CAP test: 0.61

Validity of previously used test: 0.18

Cost per applicant of CAP: \$35

Cost per applicant of old test: \$18

SR: 0.50

Ordinate at SR: 0.399

SD, in first year: \$34,000

Use Equation 10-1 to determine (a) the total utility of the CAP test, (b) the utility per selectee, and (c) the per-year gain in utility per selectee.

2. Referring to Exercise 1, suppose that after consulting with the chief financial officer at Berol, you are given the following additional information: variable costs are – 0.08, taxes are 40 percent, and the discount rate is 8 percent. Use Equation 10-2 in this chapter to recompute the total utility of the CAP test, the utility per selectee, and the utility per selectee in the first year.

3. The Top Dollar Co. is trying to decide whether to use an assessment center to select middle managers for its consumer products operations. The following information has been determined: variable costs are – 0.10, corporate taxes are 44 percent, the discount rate is 9 percent, the ordinary selection procedure costs \$700 per candidate, the assessment center costs \$2,800 per candidate, the standard deviation of job performance is \$55,000, the validity of the ordinary procedure is 0.30, the validity of the assessment center is 0.40, the selection ratio is 0.20, the ordinate at that selection ratio is 0.2789, and the average tenure as a middle manager is 3 years. The program is designed to last 6 years, with 20 managers added each year. Beginning in Year 4, however, one cohort separates each year until all hires from the program leave.

Use Equation 10-6 in this chapter to determine whether Top Dollar Co. should adopt the assessment center to select middle managers. What payoffs can be expected in total, per selectee, and per selectee in the first year?

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## 11. Costs and Benefits of HR Development Programs

Organizations in Europe, the United States, and Asia spend billions each year on employee training—more than \$125 billion in the U.S. alone. At the level of the individual firm, Google is exemplary. It offers each employee 100 hours of professional development training per year.<sup>1</sup> These outlays reflect the cost of keeping abreast of technological and social changes, the extent of managerial commitment to achieving a competent and productive workforce, and the broad array of opportunities available for individuals and teams to improve their technical skills and their social skills. Indeed, the large amount of money spent on training in both public and private organizations is likely to increase in the coming years as organizations strive to meet challenges such as the following:<sup>2</sup>

- **Hypercompetition:** Such competition, both domestic and international, is largely due to trade agreements and technology (most notably, the Internet). As a result, senior executives will be required to lead an almost constant reinvention of business strategies/models and organizational structures.
- **A power shift to the customer:** Customers who use the Internet have easy access to databases that allow them to compare prices and examine product reviews; hence, there are ongoing needs to meet the product and service needs of customers.
- **Collaboration across organizational and geographic boundaries:** In some cases, suppliers are colocated with manufacturers and share access to inventory levels. Strategic international alliances often

lead to the use of multinational teams that must address cultural and language issues.

- **The need to maintain high levels of talent:**

Because products and services can be copied, the ability of a workforce to innovate, refine processes, solve problems, and form relationships becomes a sustainable advantage. Attracting, retaining, and developing people with critical competencies is vital for success.

- **Changes in the workforce:** Unskilled and undereducated youth will be needed for entry-level jobs, and currently underutilized groups of racial and ethnic minorities, women, and older workers will need training.

- **Changes in technology:** Increasingly sophisticated technological systems impose training and retraining requirements on the existing work force.

- **Teams:** As more firms move to employee involvement and teams in the workplace, team members need to learn such behaviors as asking for ideas, offering help without being asked, listening and providing feedback, and recognizing and considering the ideas of others.

Indeed, as the demands of the information age spread, companies are coming to regard training expenditures as no less a part of their capital costs than plant and equipment.

Training and development entail the following general properties and characteristics:<sup>3</sup>

1. They are learning experiences.
2. They are planned by the organization.
3. They occur after the individual has joined the organization.

4. They are intended to further the organization's goals.

Training and development activities are, therefore, planned programs of organizational improvement undertaken to bring about a relatively permanent change in employee knowledge, skills, attitudes, or social behavior.<sup>4</sup>

The analytical tools that we present here apply to programs as diverse as providing learning through job experiences, coaching, mentoring, formal training, e-learning (online instruction, mobile learning such as podcasts, and virtual classrooms), and off-site classes or degrees. We focus our examples on training programs because that is where most of the research and discussion has occurred. In the area of training, topics range from basic skills (technical as well as supervisory skills) to interpersonal skills, team building, and decision making for individuals or teams. Technologies used run the full gamut from lectures to interactive video, to Internet-based training, intranet-based training, social software applications, Web 2.0 tools (technologies that enable user-generated content, such as blogs and wikis), and intelligent tutoring systems.<sup>5</sup>

Unfortunately, although billions may be spent providing training and development programs, little is spent assessing the social and financial outcomes of these activities. Consider leadership-development programs as an example. Despite the economic downturn that began in December 2007, firms such as Philips Electronics, Estée Lauder, and Canon continued to invest in such programs, hoping not to be caught short of strong managers when the economy recovers.<sup>6</sup> One thorough review estimated, however, that only 10 percent of leadership-development programs evaluated their impact on the actual behaviors of managers. Most consider only the satisfaction of participants as an

indicator of the programs' effectiveness.<sup>7</sup> At a broader level, just 23 percent of companies in one recent survey reported that "measuring the impact of training" was a top priority.<sup>8</sup> The overall result is that little comparative evidence exists by which to generalize or to evaluate the impact of the various technologies. Decision makers thus remain unguided by systematic evaluations of past experiments and uninformed about the costs and benefits of alternative HRD programs when considering training efforts in their own organizations.

That said, meta-analytic evidence collected across many individual studies and in many different organizations does illustrate the positive benefits of different content, methods, and types of training, when designed and implemented properly, across different criteria, such as trainee reactions, substantive learning, behavior change, and organizational results.<sup>9</sup> The study we describe next asked a different question: Is there a relationship between firm-level investments in training and changes in those firms' stock prices?

## **THE RELATIONSHIP BETWEEN TRAINING EXPENDITURES AND STOCK PRICES**

At present, firms' investments in human capital—most notably, spending on employees' development—are treated as hidden costs that are buried in overhead, specifically in the accounting category "Selling, general, and administrative expenses," or SG&A. This treatment makes investments in human capital difficult to obtain.

Using a unique database, one study tested the hypothesis that firms that make unusually large investments in employee development subsequently enjoy higher stock prices than comparable firms that make smaller investments in employee development. To disentangle the effects of training, per se, from other potentially



confounding variables, the authors deployed a variety of multivariate techniques and control variables.<sup>10</sup>

The research revealed that four portfolios of 575 publicly traded companies that invested in employee training and development at roughly twice the industry average outperformed the S&P 500 by 4.6 percentage points over a 25-month period, and outperformed it in the year prior to the study by 17–35 percent.<sup>11</sup> In 2009, the same authors demonstrated in a sample of 30 banks that training expenditures remain a powerful predictor of subsequent stock prices, even through the market turbulence of 2008.<sup>12</sup>

Moreover, some forms of training yield superior benefits, relative to others. Specifically, training in technical skills yielded an effect that was 3.5 times higher than the effect for all types of training and 6 times higher than that for general business skills.

To assess the direction of causality, the researchers examined the relationship between training expenditures and stock returns in various years. The only significant relationship they found was between training expenditures in year  $t-1$  and stock return in year  $t$ . There was no significant relationship between training expenditures in year  $t-1$  and stock returns in either year  $t-1$  or  $t-2$ . This supports, but does not prove, that training investments help determine stock price performance, not the opposite.

In the absence of a true experimental design, however, it is impossible to rule out the possibility that the training measure is serving, at least in part, as a marker for other unmeasured, firm-level attributes that are correlated with a firm's long-term profitability (and thus equity market valuation). In other words, while on the surface it may appear that variables  $a$  and  $b$  are correlated, that relationship might be illusory, because both  $a$  and  $b$  are

correlated with variable  $c$ , which is unmeasured in the study. As the authors noted:

From the perspective of an individual investor, it is far less important whether the correlation between training and stock value represents a causal training effect on firm performance or whether training is instead simply a leading indicator for other productive firm activities or attributes. In the short run, so long as the underlying relationship between training and whatever firm characteristics that affect productivity continue to hold, investment portfolios that incorporate information about firm training expenditures will yield super-normal rates of return.<sup>13</sup>

While the researchers' analyses cannot determine *why* the relationship between training expenditures and stock price performance exists, three possible explanations seem plausible:

1. Training investments have their intended impact. Firms that make greater investments in this area subsequently perform better, as a result.
2. Training investments may well serve as a proxy for the degree to which a firm is willing and able to take a long-term perspective rather than focus excessively (and destructively) on quarterly earnings.
3. Expenditures on training (and, in particular, changes in those expenditures) may serve as a window into an organization's future financial health and prospects (or lack thereof).

Although the tools we describe in this chapter are certainly valuable for increasing the amount and effectiveness of development-program evaluation, the issue runs much deeper. Analytical decision tools are not just useful for evaluating programs after they are

complete. The lack of evaluation in HR development is a symptom of a more fundamental issue: a lack of systematic logic to plan and refine such programs.

### The Logic of Talent Development

Our intent in this chapter is not to present true experimental or quasi-experimental designs for evaluating HRD programs.<sup>14</sup> Instead, it is to illustrate how the economic consequences of HRD programs can be expressed. Let us begin, as we have in other chapters, by presenting the logic of talent development, as shown in Figure 11-1.

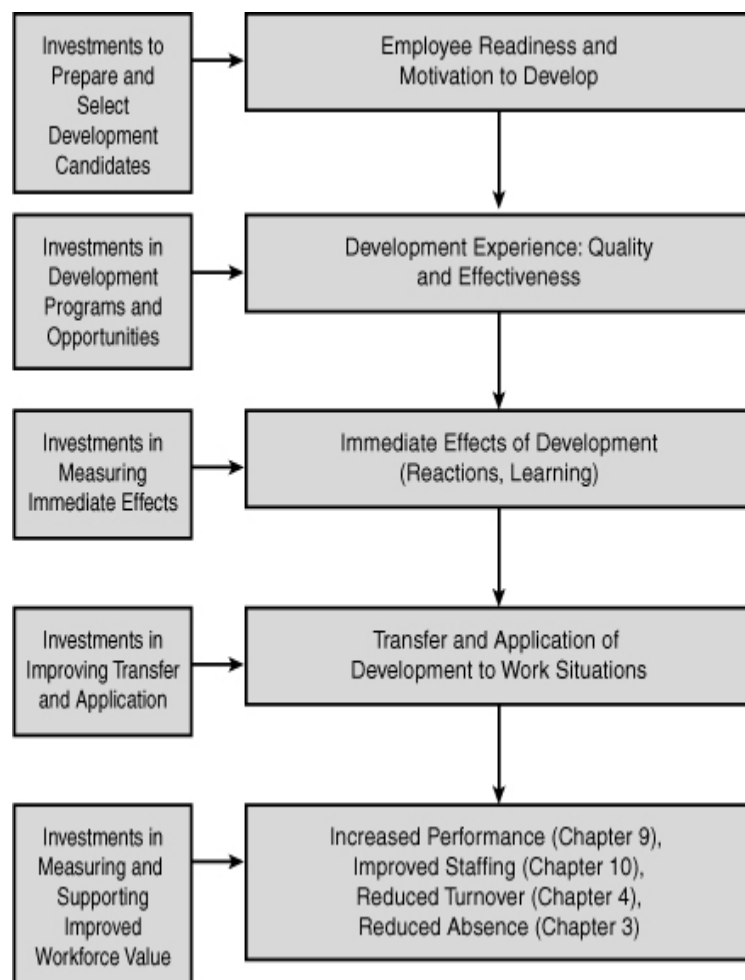


Figure 11-1. Logic of talent-development effects.

As Figure 11-1 shows, effectiveness of development is much more than sound design and effective implementation of HRD programs or experiences. These are necessary, but not sufficient by themselves, to ensure that what is learned in training is actually applied on the job.<sup>15</sup> For that to occur, other conditions must be satisfied. First, candidates for development must be prepared and motivated both to learn and to apply their learning at work. This requires investments by the organization both in the preparation of development candidates (for example, through challenging job assignments) and in careful selection of candidates for development experiences, such as jobs or training programs.

Second, after the development experience, there must be an environment that provides the opportunity and motivation for the newly developed individuals to apply or transfer their learning to their work. This second condition requires that supervisors and higher-level managers support employees' attempts to use on the job what they have learned in training or development. For example, if employees learn all about democratic leadership styles in training but then report back to autocratic leaders on the job, the effects of the training are not likely to have long-term effects. In addition, it is important to offer rewards and incentives to employees when they apply what they learned in training to improve their day-to-day job performance. This means that improved performance often carries with it increased costs of pay, incentives, or supervisory preparation.

The conditions shown in Figure 11-1 create "line of sight" for development candidates connecting their development, their on-the-job behaviors, improved unit performance, and the overall strategic success of the organization. Consider an illustrative example. In response to a shortage of trained service technicians,

Caterpillar, Inc., partnered with a network of vocational schools in six countries to develop a Caterpillar-approved curriculum. This ties the training directly to important business processes that Caterpillar must execute well to achieve its business strategy. Students enter the vocational schools with dealerships already committed to hiring them upon graduation. In fact, the trainees spend up to half of their time in apprenticeships at Caterpillar dealers, learning on the job.<sup>16</sup> Dealer (that is, management) support, coupled with rewards for completing the training program (guaranteed jobs), provides the kind of “line of sight” that links strategy, execution, and motivation to do well in training.

At the bottom of Figure 11-1, we connect employee development to several other topics covered in this book. Although the vast majority of attention to valuing employee development has focused on its immediate effects or its effects on job performance, it should also be noted that when employees have more tools and opportunities to perform well, they are often more motivated and engaged with their work. This can lead to reduced turnover and absence. In addition, opportunities for development are increasingly an important part of the “total rewards” proposition that employers offer to the labor market.<sup>17</sup> For example, Procter & Gamble is globally known for its effective career and training programs to develop great marketers. GE is well known for the effectiveness of its career and management systems in developing future leaders. Not only do these programs improve the performance of those who directly participate, but they also are powerful attractors to external candidates. Thus, enhanced development can also lead to more and better applicants for employment, which, as you saw in Chapters 8, “Staffing Utility: The Concept and Its Measurement”; 9, “The Economic Value of Job Performance”; and 10, “The Payoff from

Enhanced Selection,” is one element of enhanced workforce value through staffing.

The remainder of the chapter focuses on two broad themes:

1. Developing a framework that extends the utility-analysis logic we applied to staffing in Chapters 8, 9, and 10 to the evaluation of HRD programs
2. Illustrating cost analysis, comparing offsite versus web-based meeting costs

### **UTILITY ANALYSIS APPROACH TO DECISIONS ABOUT HRD PROGRAMS**

Faced with a bewildering array of alternatives, decision makers must select the programs that will have the greatest impact on pivotal talent pools—those where investments in HRD will have the largest marginal impact on activities, decisions, and ultimately, the value created for the firm. Recall that utility analysis specifically incorporates the idea of pivotalness by including the *quantity* of workers affected by an HR program, as well as  $SD_y$ , the pivotal value of enhanced worker *quality*. We saw in Chapters 8–10 that utility analysis is a powerful tool for staffing programs,<sup>18</sup> and now we show how it can be used to evaluate proposed or ongoing HRD programs.

The basic difference is that staffing programs create value through the quality of the choices they support regarding who joins. In contrast, programs such as HRD do not change the membership of the workforce. Instead, they change the quality of the intact pool of workers. So instead of deriving changes in quality based on who joins or leaves a workforce, we must derive changes in quality

based on the direct effect of a program on the individuals who participate in it.

### **Modifying the Brogden-Cronbach-Gleser Model to Apply to Training**

In the Brogden-Cronbach-Gleser model, the only difference between the basic equation for calculating staffing utility (Equation 8-17 in Chapter 8) and that for calculating utility from HRD programs is that the term  $d_t$  is substituted for the product  $r_{xy} \times x$  (that is, the validity coefficient times the average standard score on the predictor achieved by selectees).<sup>19</sup> The resulting utility formula is as follows:

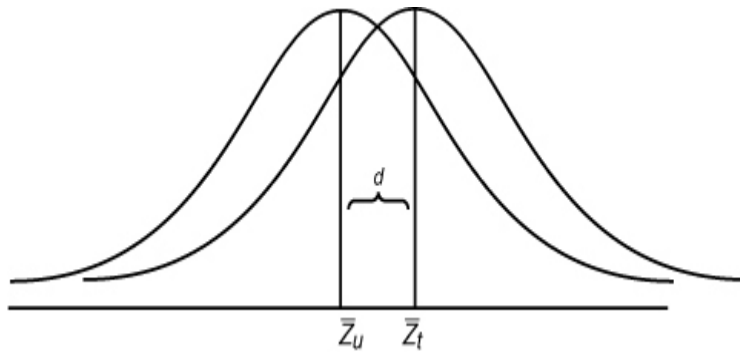
#### **11-1.**

$$\Delta U = (N)(T)(d_t)(SD_y) - C$$

Here,  $\Delta U$  is the gain to the firm in monetary units (such as dollars, euros, or yen) resulting from the program,  $N$  is the number of employees trained,  $T$  is the expected duration of benefits in the trained group,  $d_t$  is the true difference in job performance between the trained and untrained groups in SD units,  $SD_y$  is the standard deviation of dollar-valued job performance among untrained employees, and  $C$  is the total cost of training  $N$  employees.

The parameter  $d_t$  is the effect size. It reflects the difference in job-relevant outcomes between those who participate in a development opportunity and those who do not. It is expressed in standardized units, just as Z-scores were in the selection utility equation.

To illustrate that idea graphically, we plot the (hypothetical) distribution of job performance outcomes of the trained and untrained groups on the same baseline (expressed in Z-score units, with a mean of 0 and a standard deviation of 1.0), as shown in Figure 11-2.



**Figure 11-2. Standard score distributions of job performance outcomes among trained and untrained groups.**

*Note:*  $\bar{Z}_u$  is the average job performance score of the untrained group;  $\bar{Z}_t$  is the average job performance score of the trained group; and  $d$  is the effect size.

In [Figure 11-2](#),  $d$  represents the size of the effect of the training program. How is  $d$  computed? It is simply the difference between the means of the trained and untrained groups in standard Z-score units. This might be the difference in average job performance, time to competency, learning, and so on. Therefore:

#### **11-2.**

$$d = \bar{X}_t - \bar{X}_u / SD_x$$

Here,  $d$  is the effect size. If the effect is expressed in terms of job performance,  $\bar{X}_t$  is the average job performance score of the trained group,  $\bar{X}_u$  is the average job performance score of the untrained group, and  $SD_x$  is the standard deviation of the job-performance scores of the total group, trained and untrained. If the SDs of the two groups are unequal, the SD of the untrained group should be used because it is more representative of the incumbent employee population.

Hypothetically, suppose that we are evaluating the impact of a training program for quality-control inspectors. Let's say that job performance is evaluated in



terms of a work sample—that is, the number of defects identified in a standard sample of products with a known number (for example, 10) of defects. Suppose the average job performance score for employees in the trained group is 7 and for those in the untrained group is 6.5, and the standard deviation of the job-performance scores is 1.0. Equation 11-3 shows the effect size.

**11-3.**

$$d = 7 - 6.5 / 1 = 0.5 \text{ SD}$$

In other words, the performance of the trained group is half a standard deviation better than that of the untrained group. Because a perfectly reliable, objective measure of job performance was used in this case, the estimate of  $d$  need not be corrected for unreliability. In many, if not most, cases, managers will be using criteria that are less than perfectly reliable, such as supervisory ratings of the job performance of subordinates. In such cases,  $d$  must be corrected statistically for unreliability or measurement error in the criterion; otherwise, the estimate will be biased (too conservative).

If supervisory ratings are used as job-performance criteria, reliability probably will be estimated in terms of the extent of inter-rater agreement. A large-sample study that investigated the reliability of ratings of first-level supervisors found that average inter-rater reliabilities were 0.69 and 0.64, respectively, for ratings of supervisory abilities and ratings of the performance of specific job duties.<sup>20</sup> Regardless of how the reliability of job performance measures is estimated, Equation 11-4 shows the formula for computing the true difference in job performance between the trained and untrained groups.

**11-4.**

$$d_t = d / \sqrt{r_{yy}}$$

Alternatively, consider Equation 11-5:

**11-5.**

$$d_t = (\bar{X}_t - \bar{X}_u) / (SD_y)(\sqrt{r_{yy}})$$

All terms are as defined earlier, and is the square root of the reliability of the job performance measure.

To express that difference as a percentage change in output, assuming that performance is measured on a ratio scale, it is necessary to multiply  $d_t$  by the ratio of the pretest standard deviation to the pretest performance mean  $(SD/M) \times 100$ .<sup>21</sup> Thus, the percentage change in output equals this:

**11-6.**

$$d_t \times 100 \times SD_{pretest} / \bar{X}_{pretest}$$

### Issues in Estimating $d_t$

If an organization already has conducted a training program and possesses the necessary data, it can compute  $d_t$  on the basis of an empirical study. Pre- and post-measures of job performance in the trained and untrained groups should be collected systematically, with special care taken to prevent the ratings or other measures of job performance from being influenced by knowledge of who has or has not been trained. These are the same kinds of problems that bedevil all HRD evaluation research, not just research on  $d_t$ . Several thorough treatments of these issues are available.<sup>22</sup>

When several studies on the same topic have been done, or when  $d_t$  must be estimated for a new HRD program where there is no existing information,  $d_t$  is best

estimated by the cumulated results of all available studies, using the methods of meta-analysis. We noted earlier that such studies are available in the literature. As studies accumulate, managers will be able to rely on cumulative knowledge of the expected effect sizes associated with proposed HRD programs. Such a “menu” of effect sizes for HRD programs will allow HR professionals to compute the expected utilities of proposed HRD programs before the decision is made to allocate resources to them.

Sometimes the results of evaluation research are presented in terms of statistics such as  $r$ ,  $t$ , or  $F$ . Each of these can be transformed into  $d$  by means of the following formulas.<sup>23</sup> When two groups are compared (and, therefore,  $df = 1$ ), the  $F$  statistic is converted to a  $t$  statistic using [Equation 11-7](#).

**11-7.**

$$t = \sqrt{F}$$

The  $t$ -statistic then can be converted into the point-biserial correlation ( $r_{pb}$ ) between the dichotomous variable (training versus no training) and rated performance using [Equation 11-8](#).

**11-8.**

$$r_{pb} = t / \sqrt{t^2 + (N_t - 2)}$$

Here,  $N_t$  is the total number of persons in the study, the sum of the trained and untrained groups.

To transform  $r_{pb}$  into  $d$ , use [Equation 11-9](#).

**11-9.**

$$d = \frac{1}{\sqrt{pq}} \sqrt{\frac{N_t - 2}{N_t}} \times \frac{r}{\sqrt{1 - r^2}}$$

Here,  $p$  and  $q$  are the proportions of the total group in the trained and untrained groups, respectively.

For example, suppose that 100 employees are trained and 100 serve in a control group. Results of training are expressed as  $F = 6.0$ , using supervisors' ratings as criteria (assume that the reliability of the supervisors' ratings  $r_{yy} = 0.60$ ). Using Equation 11-7,

$$t = 2.45$$

Using Equation 11-8,

$$r_{pb} = 2.45 / \sqrt{6.0 + (200 - 2)}$$

$$r_{pb} = 0.17$$

So,

$$d = 1/0.5 (0.9950)(0.17/0.985)$$

$$d = 0.34$$

Therefore,  $d_t$  is

$$0.34 / \sqrt{0.60} = 0.44$$

### **What If Training Covers Less Than the Full Range of Job Skills?**

Different effect sizes can occur not because training is differentially effective, but because the evaluations differ in breadth of coverage of the outcomes. To be methodologically precise, evaluation should measure only training-related performance.<sup>24</sup> Training programs in first-level supervisory skills may encompass a large portion of the supervisor's job, whereas training programs designed to affect sales of a specific product may influence only a few tasks of a sales representative's job. In terms of impact, not all elements of the job are equally pivotal.<sup>25</sup>

Effect sizes measured using specific criteria will usually be larger than those based on a criterion of overall job performance because of the increased precision. When comparisons focus only on the elements that training affects, the observed effects are larger. However, there is a tradeoff. If the outcomes of training are very narrowly defined, a large effect size must be adjusted to reflect the fact that only part of the work outcomes are considered, so the proportion of total work value affected is smaller. At the limit, if training evaluations are so narrowly focused on esoteric training outcomes, even large training effects may be unimportant. Thus, it is vital to match the outcomes used to assess the effects of training to the decision context, and to ensure that training outcomes are comparable to allow meaningful comparisons of effect sizes.<sup>26</sup> The value of a change in performance will vary according to the percentage of pivotal tasks measured by criteria.

A large-scale study of the relative effects of HRD interventions in a major U.S.-based multinational firm adjusted overall utility estimates by recalculating the valuation base as the product of the percentage of job skills affected by training and the average full cost of employment. Thus, the utility estimates represented only the value of performance on specific job elements.<sup>27</sup>

## **BREAK-EVEN ANALYSIS APPLIED TO PROPOSED HRD PROGRAMS**

Having determined an expected value of  $d_t$ , we can use the Brogden-Cronbach-Gleser model (see Equation 11-1 in this chapter) to compute a break-even value of  $SD_y$  (the value at which benefits equal costs and  $\Delta U = \$0.00$ ; see Chapters 2, “Analytical Foundations of HR Measurement,” and 10). For example, suppose that 300 employees are trained, the duration of the training effect is expected to be 2 years,  $d_t = 0.55$ , and the per-person cost of training is \$1,500. Setting  $\Delta U = \$0.00$  yields the following:

$$\$0.00 = 2(300)(0.55)(SD_y) - 300 (\$1,500)$$

$$SD_y = \$1,364$$

Even if  $d_t$  is as low as 0.10, the break-even value of  $SD_y$  is still only \$7,500, well below the values of  $SD_y$  typically reported in the literature (for example, \$28,000–\$39,000 in 2010 dollars). To the extent that precise estimates of  $d_t$  and  $SD_y$  are unavailable, break-even analysis still allows a decision maker to use the general utility model to assess the impact of a proposed HRD program. If estimates of  $d_t$  and  $SD_y$  are available, utility can be computed, and the expected payoff from the program can be compared with the break-even values for  $d_t$  or  $SD_y$ . The comparison of “expected-case” and “worst-case” scenarios thus provides a more complete set of information for purposes of decision making.

### **Duration of the Effects of an HRD Program**

A key parameter in Equation 11-1 is  $T$ , the duration of the effect of a training or HRD program. We know that the effects of development will not last forever because the relevance of the learning has a half-life due to changing work situations. In most cases, this parameter is difficult to estimate. One approach that has proven useful is the Delphi method, often used in long-range forecasting. With this method, a group of subject matter experts is asked to provide judgments about the duration of the training effect. Each expert responds individually and anonymously to an intermediary. The intermediary's task is to collect and summarize the experts' opinions and redistribute that information back to the experts for another round of judgment. The cycle continues until the experts reach a consensus, often after three or four rounds of judgments.

In practice, we have little knowledge about the duration of training effects. To deal with this issue in the large-scale study described in the previous section, researchers computed break-even values in terms of time. Such values represent the amount of time that the training effect must be maintained for the value of training outcomes to offset the training investment. Across 18 training programs (managerial, sales, and technical), they found great variability in results, with break-even periods ranging from a few weeks to several years. In the extreme, two management-training courses were never expected to break even or to yield a financial gain, because they produced slight decreases in performance; effect sizes were negative. The lesson to be learned from those results is that if we do not understand how long training effects last, we do not really understand the effects of training on organizational performance.

## Economic Considerations and Employee Flows Applied to HRD Programs

Because training activities lead to diminishing returns over time (that is, training effects dissipate over time), a utility model that incorporates employee flows should be used to assess the net payoff of the program over time.<sup>28</sup> Beyond that, variable costs, taxes, and discounting must be considered to assess correctly the true impact of a proposed or ongoing HRD program. Because we considered these issues in Chapter 10, here we need consider only the summary model that incorporates all of these factors. Then we present a worked example to demonstrate how the utility analysis proceeds. Equation 11-10 shows the model. It is the same model used in Chapter 10, but here we have substituted the true effect size  $d_t$  for the product of the validity coefficient and standardized average predictor score of selectees that we used in Chapter 10.

### 11-10.

$$\Delta U = \sum_{k=1}^F \left[ \sum_{i=1}^k (N_{s_i} - N_{t_i}) \right] \left\{ \left[ \frac{1}{(1+i)^k} \right] \times (d_t)(SD_p)(1+V)(1-TAX) \right\} - \sum_{k=1}^F \left\{ C_k(1-TAX) \left[ \frac{1}{(1+i)^{(k-1)}} \right] \right\}$$

For purposes of illustration, we adopt the  $d_t$  value we computed earlier, 0.44. Assume that 100 employees are trained each year for five years and that, for each cohort, the training effect dissipates gradually at the rate of 25 percent annually. No employees separate during this period (therefore,  $N_{st} = 0$ ). That information allows us to compute a weighted average  $d_t$  value for the trained group each year, as a new cohort of trainees is added. Table 11-1 shows the weighted average  $d_t$  values.



Year	$N_k$	Weighted Average
1	100	$(100(0.44)) / 100$
2	200	$(100(0.44) + 100(0.44 - .25d_1)) / 200$
3	300	$(100(0.44) + 100(0.44 - .25d_1) + 100(0.44 - .50d_1)) / 300$
4	400	$(100(0.44) + 100(0.44 - .25d_1) + 100(0.44 - .50d_1) + 100(0.44 - .75d_1)) / 400$
5	500	$(100(0.44) + 100(0.44 - .25d_1) + 100(0.44 - .50d_1) + 100(0.44 - .75d_1) + 100(0.44 - 1.00d_1)) / 500$

Year	Weighted Average $d_i$ Values
1	0.44
2	0.385
3	0.33
4	0.275
5	0.22

Notes:  $d_i$  = The true difference in job performance between the trained and untrained groups in standard deviation units; HRD = human resources development;  $N_k$  = number of employees receiving training who remain in the workforce.

**Table 11-1. Diminishing Returns of an HRD Program over Five Years**

To use Equation 11-10, assume that  $SD_y = \$30,000$ , variable costs ( $V$ ) =  $-0.10$ , the tax rate is 45 percent, and the discount rate is 8 percent. Because costs (\$1,000 per person) are incurred in the same period that benefits are received, we use  $k$  as the exponent in the cost term in Equation 11-10. The total payoff of the HRD program is the sum of the utilities of each of the five periods:

$$\Delta U_1 = 100(0.926)(0.44)(\$30,000)(0.90)(0.55) - \$100,000(0.55)(0.926)$$

$$\Delta U_1 = \$554,118$$

$$\Delta U_2 = 200(0.857)(0.385)(\$30,000)(0.90)(0.55) - \$100,000(0.55)(0.857)$$

$$\Delta U_2 = \$932,802$$

$$\Delta U_3 = 300(0.794)(0.33)(\$30,000)(0.90)(0.55) - \$100,000(0.55)(0.794)$$

$$\Delta U_3 = \$1,123,629$$

$$\Delta U_4 = 400(0.735)(0.275)(\$30,000)(0.90)(0.55) - \$100,000(0.55)(0.735)$$

$$\Delta U_4 = \$1,160,198$$

$$\Delta U_5 = 500(0.681)(0.22)(\$30,000)(0.90)(0.55) - \$100,000(0.55)(0.681)$$

$$\Delta U_5 = \$1,074,959$$

The sum of those one-period utility estimates is \$4,845,706. This is the total expected payoff of the HRD program over the five-year period.

#### **Example: Skills Training for Bankers**

The utility-analysis concepts discussed thus far were illustrated nicely in a study of the utility of a supervisory skills training program applied in a large commercial bank.<sup>29</sup> The study incorporated the following features:

- Training costs were tabulated using cost-accounting techniques.
- The global estimation procedure was used to estimate  $SD_y$ .
- Pre- and post-training ratings of the job performance of (non-randomly assigned) experimental- and control-group subjects were compared to determine  $d_t$ .
- Utility-analysis results that included adjustments for economic factors (discounting, variable costs, and taxes) were compared to unadjusted utility results.

- Break-even analysis was used to assess the minimum change in  $SD_y$  required to recoup the costs invested in the program.
- The effect on estimated payoffs of employee flows, decay in training effects, and employee turnover was considered explicitly.

Results showed that the training program paid off handsomely over time, even under highly conservative assumptions. Training 65 bank managers in supervisory skills produced an estimated net payoff (after adjustment for the economic factors noted earlier) of \$79,000 (all figures in 2010 dollars), and \$338,736 by Year 5. Not surprisingly, the reductions in value associated with adjusting for economic factors tended to become greater the farther in time they were projected. In general, however, utility figures adjusted for economic factors were 60–80 percent smaller than unadjusted figures.

When break-even analysis was used, even assuming a 25 percent yearly reduction in the strength of the training effect, break-even values of  $SD_y$  were still less than 50 percent of the values used in the utility analysis. Finally, in terms of employee flows, the economic impact of training additional groups was also considerable. For example, the estimate for the tenth year of the utility of training 225 employees in the first five years was more than \$830,000 (in 2010 dollars), even after adjustment for economic factors. Information such as this is useful to decision makers, whether the focus is on the broad allocation of organizational resources across functional lines or on the choice of specific HR programs from a larger menu of possible programs.

## **COSTS: OFF-SITE VERSUS WEB-BASED MEETINGS**

Having illustrated methods and technology for assessing the value of employee-development efforts, this final section of the chapter focuses on identifying costs—specifically, the costs of offsite versus web-based meetings. Given the wide proliferation and continued growth of Internet-based technologies, many organizations have opted for a web-based or off-site approach to cut costs. What follows is a general costing framework that can be applied to many types of training and that can be used to compare relative costs.

Off-site meetings conducted away from organizational property are useful for a variety of purposes: for conducting HRD programs, for communicating information without the interruptions commonly found at the office, for strategic planning, and for decision making. In many cases, however, the true costs of an off-site meeting remain unknown because indirect attendee costs are not included along with the more obvious direct expenses. The method described here enables planners to compute the actual costs of each type of activity in an off-site meeting.<sup>30</sup> Then we consider web-based meeting costs.

We make the following assumptions about a hypothetical firm, Valco, Ltd. The firm has 500 employees, including 100 first-line supervisors and managers. Under the general planning and direction of Valco's training department (one manager and one secretary), Valco holds a total of ten days of off-site meetings per year (either training sessions or various types of meetings for managers). The firm retains outside speakers and consultants to develop and conduct the meetings. On the average, 20 managers attend each meeting, and the typical meeting lasts two full days.

Costs shown in Table 11-2 are based on those figures. The estimates we are using here are broad averages intended only to create a model for purposes of comparison. Note that, in this example, we make no attempt to place a monetary value on the loss of productive time from the job, although, if it is possible to estimate such costs reliably, do include them in the calculations. As with the illustrations in other chapters, we have attempted to make the numbers as realistic as possible, but the primary concern should be the methodology rather than the numbers.

Cost Element	Cost per Participant per Day	Total Cost
A. Development of programs (annual)		
Training dept. overhead		
Training staff salaries		
Outside consultants		
Equipment + meeting materials	\$1,750 <sup>a</sup>	\$350,000
B. Participant cost (annual)		
Salaries and benefits (average)	\$550 <sup>b</sup>	\$130,000
C. Delivery of one meeting for 20 people		
1. Facility costs		
a. Sleeping rooms	\$220	\$4,400
b. Three meals daily	\$109	\$2,180
c. Coffee breaks	\$30 <sup>d</sup>	\$600
d. Reception	\$20 <sup>e</sup>	\$400
2. Meeting charges		
a. Room rental	\$50	\$1,000
b. Audiovisual equipment rental	\$40	\$800
c. Business services	\$25 <sup>f</sup>	\$500
3. Transportation to the meeting	\$175 <sup>g</sup>	\$7,000
<b>Summary: Total cost per participant per day</b>		

A. Development of programs	\$1,750	
B. Participant cost	\$550	
C. Delivery of one meeting (hotel + transportation)	\$669	
	<b>Total: \$2,969</b>	

**Notes:** Meeting duration: 2 full days. Number of attendees: 20 people. Costs do not reflect an estimate of the value of the lost productive time by the people in the program. Adding it would increase the costs dramatically.

- <sup>a</sup> To determine the per-participant, per-day cost, divide \$350,000 by the number of meeting days per meeting (2) times the number of managers attending all meetings (100) = \$1,750 per day of a meeting.
- <sup>b</sup> To determine the per-day cost, divide the total of \$130,000 by 236 (average number of work days per year) = \$550 per day of the work year.
- <sup>c</sup> Assume the following daily costs per person: \$20 for breakfast, \$30 for lunch, \$40 for dinner + 21 percent service fee/gratuity = \$108.90.
- <sup>d</sup> Assumes a total cost of \$300 per coffee break, one morning + one afternoon = \$600 per day, divided by 20 attendees = \$30 per person per day.
- <sup>e</sup> Assumes a charge of \$100 to set up a bar + a \$300 minimum total charge = \$400 divided by 20 = \$20 per person per day.
- <sup>f</sup> Assumes a daily charge of \$500 for Internet access, photocopying, and facsimile services.
- <sup>g</sup> To determine the per-day cost, divide the group total (\$7,000) by the number of participants (20); then divide the resulting figure (\$350) by the number of meeting days (2) = \$175 per day.

**Table 11-2. Costs of an Off-Site Management Meeting**

As you can see in Table 11-2, the per-day, per-person cost of Valco's meeting comes to \$2,969. Actually, that figure probably does not represent the true cost of the meeting, because no distinction is made between recurring and nonrecurring costs.<sup>31</sup>

During the development of a program, organizations absorb nonrecurring costs such as equipment purchases and training designers' salaries. Recurring costs absorbed each time a program is presented include session expenses, such as facilities and trainers' salaries,

and costs that correspond to the number of participants in a program, such as training materials and trainees' salaries.

Separating costs into categories allows each set of costs to be incorporated into utility calculations for the time period in which each expense is incurred. Thus, the high initial expenses associated with a program may indicate that costs exceed benefits for some period of time or over a certain number of groups of trainees. However, at some point, an organization may begin to derive program benefits that signal the beginning of a payback period. Separating costs from benefits helps decision makers clarify information about the utility of HR programs and return on investment.<sup>32</sup> This is as important for off-site meetings as it is for web-based ones.

Web-based meetings incur all the costs shown in Table 11-2, with the exception of sleeping rooms (item 1a), the reception (item 1d), meeting charges (items 2a, b, and c), and transportation to the meeting (item 3). However, a premises-based license for web-based conferencing typically costs at least \$1,000 per year for unlimited usage.<sup>33</sup> Moreover, the emerging generation of unified communications platforms featuring integrated instant messaging, e-mail, video, and audio tools is making it easier for geographically dispersed attendees to exploit the full range of media.<sup>34</sup>

The very highest-level videoconferencing systems, such as Hewlett-Packard's Halo Collaboration Studio, Polycom's RPX product, and Cisco's Telepresence Meeting solution, include a set of technologies that allow people to feel as if they are present at a remote location, a phenomenon called telepresence.<sup>35</sup> To achieve the illusion that all attendees are in the same room, each vendor makes its videoconferencing rooms look alike, using the same semicircular conference tables

illuminated by the same type of light bulbs and surrounded by identical wall colors. Participants appear as life-size images and sit at the table facing video displays, which have cameras set just above or around the screen.<sup>36</sup>

Telepresence systems are not cheap. HP's system can cost as much as \$350,000, plus \$18,000 a month per conference room for operating costs. Cisco's TelePresence System 3200 product costs \$340,000 for the hardware itself (rich audio, high-definition video, and interactive elements), plus \$40,000 for planning and design, plus \$3,500 a month for maintenance. Those costs will likely limit the use of telepresence systems to large, deep-pocketed organizations. At the same time, however, IDC forecasts that the number of telepresence systems shipped annually will grow from 4,000 in 2009 to more than 49,000 in 2014 and will reach a global installed base of 127,000 systems by 2015.<sup>37</sup>

Why do so many meetings still occur in person all over the globe every year? Perhaps because 64 percent of communication is nonverbal,<sup>38</sup> and most lower-end web-based conferencing systems lose those cues. Hence, many organizations feel that there is no substitute for face-to-face contact and the opportunity for interpersonal interaction. The influence of the environment on training cannot be minimized. The task for decision makers is to consider whether facility costs or web-based conferencing costs as a percentage of the total of the true meeting costs identified will or will not be offset by a corresponding increase in learning effectiveness. Only by considering all the factors that have an impact on learning effectiveness—program planning and administration, the quality of the trainer, program delivery, and learning environment—can we derive the greatest return, in time and dollars spent, on this substantial investment in people.



## **PROCESS: ENHANCING ACCEPTANCE OF TRAINING COST AND BENEFIT ANALYSES**

The total cost of evaluating 18 training programs in the multinational firm we described earlier in the chapter was approximately \$765,000 (in 2010 dollars).<sup>39</sup> That number may seem large until you consider that, during the time of the study, the organization spent more than \$368 million on training. Thus, the cost of training evaluation was roughly 0.2 percent of the training budget during this time period. Given expenditures of such magnitude, some sort of accountability is prudent.

To enhance managerial acceptance, the researchers presented the utility model and the procedures that they proposed to use to the CEO, as well as to senior strategic planning and HR managers, *before* conducting their research. They presented the model and procedures as fallible but reasonable estimates. The researchers noted that management preapproval prior to actual application and consideration of utility results in a decision-making context is particularly important when one considers that nearly any field application of utility analysis will rely on an effect size calculated with an imperfect quasi-experimental design. (See [Chapter 2](#) for more on quasi-experimental designs.)

## CONCLUSION

One of the important lessons to be learned from the material presented in this chapter is that methods are available now for estimating the costs and benefits of HRD programs (proposed, ongoing, or completed). Instead of depending on the power of persuasion to convince decision makers of the value of HRD programs, HR professionals can, by the use of cost-benefit models, join with the other functional areas of business in justifying the allocation of scarce organizational resources on the basis of evidence rather than on beliefs.

## EXERCISES

Software to calculate answers to one or more exercises below is available at <http://hrcosting.com/hr/>.

1. Jane Burns, an HR analyst for Standard City, USA, knows that  $SD_y$  for firefighters in her city is \$28,000. The fire department has asked the city to provide training in team building for 500 of its employees, at a cost of \$2,500 per employee. The effects of this organization-development effort are expected to last for two years. Using [Equation 11-1](#), compute the break-even value for  $d_t$  necessary for the city to recoup the costs of the program.
2. Suppose, in Exercise 1, that you have just read a meta-analysis of team-building studies and know that the cumulated estimate of  $d_t$  is 0.45. Compute an expected utility for the program and compare it to the break-even value you identified earlier. How might this affect the chances that the project will be funded?
3. With regard to Exercise 2, suppose that the discount rate is 10 percent and variable costs are  $-0.10$ . The city is not taxed. How do these factors affect the estimate of expected utility that you developed in Exercise 2?

4. Pilgrim Industries, a 2,000-employee firm with 400 managers, holds 40 days of off-site meetings per year. Outside consultants develop and conduct the meetings, and, on average, 20 managers attend each meeting. The typical meeting lasts two full days. Last year, total program-development costs consumed \$350,000. The average attendee's salary (plus benefits) was \$70,000. To deliver each two-day meeting for 20 people, sleeping accommodations, food, telephone, and a cocktail reception cost \$10,000. In addition, transportation, business services, a meeting room, and audiovisual equipment rental totaled another \$11,000. Determine the total per-day, per-person cost of one off-site meeting.

5. Pilgrim's CEO has heard about the remarkable quality of telepresence web-based conferencing systems, and she has asked you to prepare a per-person, per-day cost comparison of an off-site meeting versus a web-based conference for a two-day meeting. You calculated the per-person, per-day cost of an off-site meeting in Exercise 4. What costs must you consider with respect to a web-based system? Would you want any other information before recommending one alternative over the other?

## REFERENCES

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## **12. Talent Investment Analysis: Catalyst for Change**

Chapter 1, “Making HR Measurement Strategic,” noted that decision sciences evolve not simply when leaders within the profession develop logical and strategic models and measures, but when those models and measurement systems become integrated with the logical models and management systems that are used outside the profession. Finance and marketing frameworks are powerful because every business leader, regardless of professional background, is expected to understand basic financial or marketing logic. The ultimate test of any measurement and analysis system is simple: Does it improve decisions about vital resources where they matter most? Regarding talent, the decisions that matter often occur outside the HR function.

We envision a future in which leaders throughout organizations increasingly understand and are held accountable for the quality of their decisions about talent. They must have a sophisticated understanding of the connections between investments in HR programs and their effects on strategic success. Today organization leaders measure talent investments with a heavy reliance on accounting. As we have seen, accounting logic often provides valuable frameworks to track how traditional resources such as cash and time are spent on HR programs and employees. Unfortunately, however, this approach is often inadequate, and even dangerous, when it is the sole arbiter of HR investments. The increasing importance of talent resources to future strategic success means organizations that make better talent decisions will achieve their strategic missions more effectively.

This means that organizations must stop tolerating exclusive reliance on rudimentary cost-based frameworks for HR investments. Although this certainly presents an important challenge for leaders outside the HR profession, it also holds the HR profession to a high standard. If we expect leaders to act with more sophistication, we can help that process along by providing frameworks that enable more sophistication. The frameworks in this book provide HR leaders with ways to do that—and to demonstrate that the insights they provide often improve decisions, thereby improving organizational effectiveness.

## **BETTER ANSWERS TO FUNDAMENTAL QUESTIONS**

Recall the questions we posed at the beginning of Chapter 1. Remember that we challenged you to consider how well your organization could address the following questions or requests if they were posed by your CEO or other business leaders outside the HR function. Now that you've read this book, you can see that each question referred to one or more chapters, and those chapters have given you tools for a more sophisticated, logical, and analytical approach.

### **Absence Means More Than Just Getting the Work Done**

*I know that on any given day, about 5 percent of our employees are absent. Yet everyone seems to be able to cover for the absent employees, and the work seems to get done. Should we try to reduce this absence rate, and if we did, what would be the benefit to our organization?*

Chapter 3, “The Hidden Costs of Absenteeism,” showed that although employees may be able to cover for absent employees and the work may be completed, much deeper issues must be considered. Chapter 3 showed how to

calculate the costs of paying employees who aren't at work and uncovered the hidden costs of overtime or contract employees needed to fill in for the absent employees. We noted that even if the work is getting done, the extra cost of supervisory time managing absence may be substantial. Thus, a more reasoned approach would use the diagnostic elements in Chapter 3 to look beyond whether the work is getting done and ask whether it is being accomplished with the optimum level of human capital investment. As Chapter 3 showed, many strategies can reduce absence, such as providing absent employees with assistance to mitigate the causes of absence (such as the need to take time off to care for sick children or parents) and providing explicit incentives to encourage and reward attendance.

We also noted that the tools we provided to examine absence patterns and costs may produce counterintuitive insights. For example, we showed that increasing company payments for medications to treat chronic diseases might actually produce a net gain in workforce productivity, thereby reducing presenteeism (employees attending work when they are ill). In short, it isn't as simple as reducing absence whenever it occurs. Instead, a judicious approach focuses on where absence costs are highest and considers investments to both reduce absence and encourage employees to manage optimally their decisions on whether to attend work.

### **Turnover Isn't Always a Bad Thing**

*Our turnover rate among engineers is 10 percent higher than that of our competitors'. Why hasn't HR instituted programs to get it down to the industry levels? What are the costs or benefits of employee turnover?"*

As discussed in Chapter 4, "The High Cost of Employee Separations," the effects of employee separations,

whether dictated by the employer (such as layoffs and dismissals) or by the employee (such as voluntary retirements or quits), carry an array of costs and benefits. Separations carry both obvious and hidden costs.

As discussed, the costs of processing employee separations are merely the tip of the iceberg. To appreciate the costs fully requires understanding not only the costs of separating employees, but also the costs of acquiring and developing their replacements. Moreover, instead of considering employee separations solely on the basis of costs, Chapter 4 provided a framework to examine how employee separations affect the quality of the workforce. Separations can increase workforce quality if replacements are of higher quality than those who left and if the costs of replacement don't overwhelm the increase in value that the replacements provide. We showed that fully accounting for turnover consequences requires looking beyond simply reducing turnover rates, even when the cost savings are significant. We also showed how organizations can move beyond simply assuming that turnover among high performers is dysfunctional and that turnover among low performers is functional.

The key is to consider employee separations as one of many processes that increase or decrease workforce quality, depending on how optimally they are managed. In many ways, employee separations are analogous to employee selection, except that the organization is "selecting" which of its current employees will remain. Organizations do this directly through their decisions about layoffs and dismissals, but they also do it more subtly through their decisions on how to encourage and reward employees for their decisions to stay or leave.

## **Layoffs Cut More Than Costs**

*Our total employment costs are higher than our competitors', so I need you to lay off 10 percent of our employees. It seems "fair" to reduce headcount by 10 percent in every unit, but we project different growth in different units. What's the right way to distribute the layoffs?*

Regarding layoffs, the implications are clear: Layoffs directed solely at labor cost reductions, particularly when they are arbitrarily spread evenly across the workforce, fall far short of the logical and systematic analysis required to optimize workforce quality. Chapter 4 showed that the right answer to a CEO's request for blanket layoffs or turnover cost reductions is to step back and consider the full array of separation costs and consequences. Organizations that take that approach are likely to discover both hidden costs and potential benefits of employee separations. They are more likely to uncover differences in talent pools that are more pivotal with regard to the effects of separations. Turnover reduction will be directed where it has the greatest net effect on the future quality of the workforce.

## **When Everyone Is Reducing Employee Health Investments, Is It Smart to Invest More?**

*In a globally competitive environment, we can't afford to provide high levels of health care and health coverage for our employees. Many companies are cutting their health coverage, and so must we. There are cheaper health-care and insurance programs that can cut our costs by 15 percent. Why aren't we offering cheaper health benefits?"*

Chapter 5, "Employee Health, Wellness, and Welfare," showed that employee health and welfare is more than just a source of increasing costs. The tangible effects of rising health-care costs are undeniable, and for many

organizations, such costs have a significant effect on profits and financial returns. Yet the less tangible impacts of health and welfare investments on organizational productivity and resilience are equally important. Chapter 5 provided frameworks for estimating the costs of programs aimed at protecting employee health and caring for employee injuries and illnesses, and for estimating the effects of employee health and welfare on important organizational outcomes.

As discussed, employee health affects organizational performance through reductions in the costs of health care, but more subtly through reductions in absence and turnover, and through increases in productivity. Thus, by using combinations of techniques, as we described in our examples, organizations can analyze the effects of investments in employee health and welfare for their direct impact on costs and medical outcomes. In fact, they can go further to estimate the effects of changes in worker health on intermediate outcomes that also affect organizational performance.

The compelling and significant cost reductions that are often possible by reducing health insurance coverage or increasing employee health premium contributions must be tempered with an awareness of the powerful effects of improved employee health on organizational performance. A fixation on reducing the costs of insuring or caring for employees when they are ill may well obscure the significant benefits of investing more resources focused on improving employee health and productivity. Chapter 5 showed that organizations rarely systematically gather the data necessary to appreciate fully the effects of programs on worker health. In addition, it appears to be more effective to keep healthy employees healthy than to wait until they are ill and attempt to correct that. We also showed that the benefits

of investments in employee health have proven to be significant in well-designed studies.

Only by understanding fully both the costs and potential benefits of proposed courses of action can organizations hope to optimize their decisions. As the question in this section suggests, business leaders all too often are understandably tempted by large and vivid cost levels to reduce health insurance and health-care programs. Organizations that take a more measured and analytical approach may well discover ways not only to achieve greater net productivity, but also to create more healthy workplaces in the process.

**Why Positive Employee Attitudes Are Not Simply “Soft” and Nice to Have**

*I read that companies with high employee satisfaction have high financial returns, so I want you to develop an employee-engagement measure and hold our unit managers accountable for raising the average employee-engagement in each of their units.*

Chapter 6, “Employee Attitudes and Engagement,” showed tantalizing evidence that organizations with better employee attitudes and higher employee engagement are more likely to be rated as “great places to work”—and provide higher returns to their shareholders. However, before you conclude that investing in employee attitude enhancement is the path to double-digit growth and stock appreciation, Chapter 6 provides a framework for getting underneath the numbers. Indeed, under the right circumstances, there are logical and research-based reasons to expect that enhanced employee attitudes and higher employee engagement may lead to better customer service, higher customer loyalty, and improved profits. The popular

press has provided many examples. However, the key is *the right circumstances*.

Chapter 6 showed that employee attitudes are actually a composite of several different elements, each measured in different ways and each affecting organizational outcomes differently. Employee job satisfaction differs from employee commitment, which, in turn, differs from employee engagement. Understanding the differences has proven key to dissecting the logical connections between attitudes and outcomes. Although commitment and satisfaction may drive employee retention, engagement and line of sight may be the key to improving employee service and production behaviors. Leaders who blindly pursue the goal of being rated highly in the “Best Places to Work” survey may miss more subtle opportunities to enhance attitudes and engagement where they matter most. The pivot points where enhanced attitudes and engagement make the greatest difference are not revealed by a blanket approach to enhance overall attitudes.

Chapter 6 also showed that the path from employee attitudes to organizational performance may be indirect. Employee attitudes may work because they lead to a more attractive workplace for high-quality applicants. Alternatively, they may produce their effects through the retention of high-performing and hard-to-replace employees. Or employee attitudes may have a direct effect on work behaviors when more satisfied or engaged employees demonstrate their attitudes to customers or other key constituents. Consistent with the idea of matching the measurement logic to the strategic situation, Chapter 6 showed how to measure the effects of employee attitudes through a behavioral-costing perspective and through a value-profit-chain perspective.



In the end, therefore, savvy HR and business leaders will look well beyond the typical focus on overall organizational attitudes, measures of engagement, or the ratings of “great places to work.” The tantalizing correlation between those ratings and stock appreciation is just the beginning of a dialogue, one that is guided by principles developed over decades of research and analysis. The danger of equating a correlation with a cause is rarely illustrated more vividly than in the naïve mental models of business leaders who assume that the correlation between employee attitudes and stock performance means that the former *causes* the latter. Immense opportunities for improved decisions and organizational performance arise when the true power of employee attitudes and engagement is understood, and when they are approached with more “hard” science and less “soft” opinion.

### **Work-Life Fit Is Not Just a “Generational” Thing**

*I hear a lot about the increasing demand for work-life fit, but my generation found a way to work the long hours and have a family. Is this generation really that different? Are there really tangible relationships between work-life conflict and organizational productivity? If there are, how would we measure them and track the benefits of work-life programs?*

Chapter 7, “Financial Effects of Work-Life Programs,” showed that, for many workers, the days of passively accepting work demands that require 70 or even 100 hours per week may be fading. The desire to find a better fit between the demands and rewards of work and the demands and rewards of life outside of work are increasing not only for those with children or aging parents, but for virtually all members of the workforce. A strict accounting approach to talent might suggest that it is best to induce workers to devote as much time as

possible to work. After all, how could greater work time be a bad thing? Yet evidence increasingly suggests that employers that invest in programs to help workers find a better fit between work and life outside of work may reap great benefits.

Chapter 7 showed that work-life programs can include child and dependent care, flexible work conditions, options for work leave, information, and organization culture. The chapter also showed that an adequate analysis of such programs involves understanding that simply investing in the program is seldom sufficient. Work-life programs, like other HR programs, require communication, training, and the support of key leaders. The framework of Chapter 7 also showed that the effects of such programs can range from reduced stress to improved attitudes for current employees, which, in turn, lead to greater productivity and reduced turnover and absence. They also can lead to greater workforce quality because the company becomes attractive to whole new groups of job applicants: Increasingly, potential applicants are seeking an approach to work that satisfies their important nonwork goals and demands.

To answer the request for specific, tangible measures of the effects of such programs, Chapter 7 showed that it is often possible to estimate how such programs reduce time away from work by providing employees with ways to accomplish child- and elder-care tasks more easily and with greater advance planning. Naïve business leaders often frame work-life programs as a nice-to-have perk for employees, something that they do only when they can afford it, or something that panders to younger employees who lack sufficient work ethic. In reality, however, work-life programs can often be justified as logical investments that provide powerful business benefits in their own right. A correlation exists between enhanced work-life practices and organizational

financial and stock performance. Unearthing whether your organization would benefit from improved work-life programs requires a deeper analysis within a framework such as Chapter 7 provides.

### **The Staffing Supply Chain Can Be As Powerful As the Traditional Supply Chain**

*We expect to grow our sales 15 percent per year for the next five years. I need you to hire enough sales candidates to increase the size of our sales force by 15 percent a year, and do that without exceeding benchmark costs per hire in our industry.*

*Is it worth it to invest in a comprehensive assessment program, to improve the quality of our new hires? If we invest more than our competition, can we expect to get higher returns? Where is the payoff to improved selection likely to be the highest?*

Cost per hire and time to fill are two of the most frequent HR measures. It's often possible to save millions of dollars by managing staffing processes to lower such costs. However, it's also often possible to create multimillion-dollar problems when other factors go unmeasured and ignored. Focusing only on the number and cost of employees hired is seldom appropriate, because it ignores completely the effects of employee sourcing practices on workforce quality. No organization would manage the supply chain for its raw materials or unfinished goods based only on the cost of acquisition and the volume of goods acquired. Yet organizations often manage their talent supply chain based only on whether vacancies are filled and whether costs are kept at or below benchmark levels.

Chapter 8, "Staffing Utility: The Concept and Its Measurement"; Chapter 9, "The Economic Value of Job Performance"; and Chapter 10, "The Payoff from

Enhanced Selection,” collectively provided an alternative view. In combination, the chapters provided a logical framework for considering vital factors that determine not only the cost and quantity of talent affected by internal and external staffing, but also the quality of that talent over time. They showed that investments to enhance recruitment, selection, and retention can often pay off handsomely, even when they appear at first to be very costly. They also showed that the idea of simply duplicating the practices of others or setting benchmark cost levels based on what others do likely overlooks lucrative opportunities for unique competitive success through competing better in the market for talent. The frameworks provided in these chapters allow business leaders to integrate the effects of investments in higher-quality applicant pools with investments in more valid testing and with investments in enhanced retention of those hired. We saw that greater accuracy in selection does little good without a sufficiently large and high-quality applicant pool, and recruiting higher-quality applicants may do little good without sufficiently valid selection. Optimizing is the key, not maximizing the individual elements.

Moreover, these chapters showed that it is possible to estimate the amount of variability in job performance, and thus to translate the effects of programs to enhance performance quality directly into monetary units. The ability to estimate the relative value of performance differences across different roles and positions opens the door to systematic analysis of “pivotal” roles rather than a traditional focus merely on “important” or “critical” roles and competencies. As discussed, the focus on pivotal roles often uncovers hidden opportunities that traditional analysis misses.

Business leaders are seldom presented with an analysis of HR programs that is consistent with traditional

financial investment models, but these chapters provided a framework to do just that. The chapters showed that investments in enhanced staffing can be analyzed for their impact on profits and discussed how to take into account standard financial considerations such as variable costs, discount rates, and taxes. Whereas every organization is concerned about potential talent shortages and enhancing its position in the “war for talent,” Chapters 8, 9, and 10 showed that savvy organizations go much deeper, to determine where investments in improved staffing will and will not pay off. They do that with much greater sophistication and account for far more than simply whether positions are filled at a reasonable cost. Indeed, if other organizations are managing their staffing processes exclusively in terms of headcount and cost, more sophisticated organizations may well emerge as the victors in the more subtle game of talent management.

### **Taking HR Development Beyond Training to Learning and Workforce Enhancement**

*I know that we can deliver training much more cheaply if we just outsource our internal training group and rely on off-the-shelf training products to build the skills we need. We could shut down our corporate university and save millions.*

As shown in Chapter 11, “Costs and Benefits of HR Development Programs,” it is very dangerous to assume that all training has equivalent effects and that low-cost training is always better. Like other HR programs, some hidden effects of training are simply not apparent with the traditional accounting approaches. Leaders who fail to understand how training, development, and learning work together, and who fail to understand the factors that enhance their effects, risk investing in too much development where it is not needed and too little where it is desperately needed.

Chapter 11 provided a framework that embeds training within a larger concept of employee development. It showed that organizations must consider not only the development or learning experience, but also whether individuals are sufficiently prepared and ready to develop, and whether they have opportunities to transfer their learning back to the workplace. A significant implication of this model is that the investments that determine the effectiveness of development often extend well beyond the learning or training experience itself. Yet the vast majority of learning and training analyses focuses almost solely on the learning event. The framework also noted that improved work performance is only one outcome of enhanced development. In a world where job applicants increasingly regard development opportunities as a core element of the value proposition (particularly in economically developing regions), organizations that invest prudently in development have the potential for ancillary benefits through recruitment, retention, and reduced turnover.

As the chapter showed, the value of an investment in workforce development depends on the costs of that investment, the resulting quality of the workforce, and the impact of that quality improvement on the pivotal elements of the work. We presented analyses that found relationships (but not causal ones) between training expenditures and subsequent stock performance. We also saw that organizations often focus only on learning or performance as development outcomes, but that investments in workforce development may have important effects on employee attitudes, too.

Finally, Chapter 11 connected the earlier discussions about pivotalness and the value of variations in job performance to estimates of the payoffs from employee development. As discussed in that chapter, with a few simple modifications, the same formulas that enabled us

to project the monetary value of staffing allow us to project the monetary value of development. Again, a vital factor to consider is the value of performance variability, what we have called the “pivotalness” of performance in a job or role. Better training is not equally valuable everywhere, and organizations that simply strive to enhance the skills of all employees will fail to optimize their investments. Using the frameworks of [Chapter 11](#), organizations can apply the same rigor and logic to investments in workforce development that they apply to investments in other important resources.

Thus, when business leaders mistakenly focus only on the costs or even the learning outcomes of development, they miss opportunities and risk wasting significant resources. The development framework of [Chapter 11](#) not only helps to estimate costs and learning outcomes more accurately, but it also embeds them in a broader and more appropriate investment framework.

## **INTANGIBLE DOES NOT MEAN “UNMEASURABLE”**

Accounting systems measure important costs, but effective talent decision frameworks go beyond costs to encompass “intangible” investments and value. As the chapters in this book have shown, *intangible* does not mean “unmeasurable,” even if traditional accounting frameworks frequently overlook these “intangibles.” The first step in improving talent decisions is often just to break through a traditional perception that decisions about talent cannot be systematic because talent measures are so “soft.”

Research shows that if managers perceive HR issues as strategic and analytical, they may simply not attend to analytical and numeric analysis. They seem to place HR in a “soft” category of phenomena that are beyond analysis and, therefore, addressable only through opinions, politics, or other less analytical approaches.<sup>1</sup>

An initial step in effective measurement is to get managers to accept that HR analysis is possible and could be informative. The way to do that is often not to present the most sophisticated analysis right away. Instead, the best approach may be to present relatively simple measures that clearly connect to the mental frameworks that managers are familiar with. As you have seen throughout this book, simply calculating and tracking the costs of turnover or absence, for example, reveals that millions might be saved with even modest reductions in employee turnover and absenteeism. Many organization leaders have told us that such a turnover-cost analysis was their first realization that HR issues could be connected to the tangible economic and accounting outcomes they were familiar with.

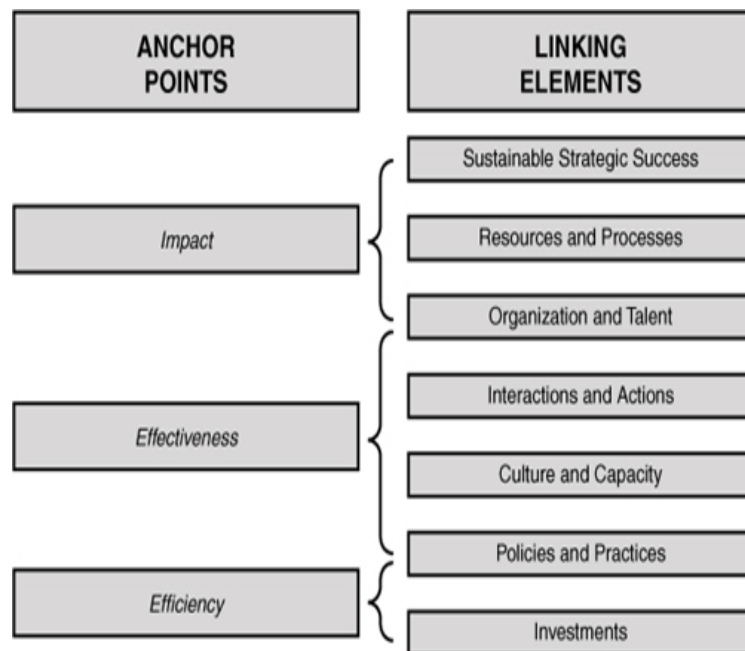
No one would suggest that measuring only the cost of turnover is sufficient for good decision making. As the frameworks in earlier chapters show, overzealous attempts to cut turnover or absence costs can lead to compromises in workforce quality or flexibility that have negative effects that far outweigh the cost savings. However, the change process toward more enlightened and logical decisions may require starting with costs before presenting leaders with more complete (and complex) analyses. An initial analysis that shows simple reductions in costs may create the sort of awareness among leaders that the same analytical logic used for financial, technological, and marketing investments can apply to human resources. Returning to the framework that we introduced in Chapter 1, HR measures in all three anchor points (efficiency, effectiveness, and impact) are useful. From a change-management perspective, efficiency measures may be the appropriate starting point to get broad acceptance of the idea of building measures that include effectiveness and impact.



The belief that something can't be measured is simply no excuse for avoiding logical analysis. As you have seen, it is possible to measure many aspects of talent that traditional systems seldom recognize. For example, there are several ways to measure the value of differences in performance, changes in employee attitudes, and the responses of employees to investments in employee health and welfare. Organizational leaders remain mostly naïve to these opportunities and, therefore, naïve to the significant opportunities they provide for enhancing their decisions. Even when perfect measures are unavailable, you have seen that solid logic can enhance decisions, using sensitivity analysis, simulation, and risk assessment to make up for measurement imperfections, just as these tools are used in other areas of management.

## **THE HC BRIDGE FRAMEWORK AS A META MODEL**

Figure 12-1 shows the HC BRidge framework. In Chapter 1, we introduced the anchor points of this framework: efficiency, effectiveness, and impact. Here we show the linking elements between HR investments and sustainable strategic success. We have not attempted to define measurements for every linking element, and more detail on the linking elements can be found elsewhere.<sup>2</sup> We have suggested that, when measuring the effects of HR investments, organization leaders should keep all three anchor points in mind.



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**Figure 12-1. HC BRidge framework.**

Proceeding from the bottom-right side of [Figure 12-1](#), we note that investments and policies and practices are perhaps the most prominent and tangible elements of the measurement frameworks we have described here. The chapters provided detailed frameworks for identifying both the tangible and intangible costs comprising HR investments, and they explained how to measure the frequency and use of HR policies and practices. Relying on those frameworks, HR leaders can estimate more accurately the full costs of programs such as training, health care, testing, recruiting, and communication, as well as the activity levels and use of such programs by employees and managers.

An important facet of our treatment of each HR program was to provide an overall logic model that showed the required conditions that must be achieved for the effects

of the programs to offset their costs. These are “necessary and sufficient” conditions.<sup>3</sup> They comprise not only the elements that are necessary, but all the elements that are sufficient to achieve or explain program success. These conditions not only guide measurement, but they also become powerful frameworks for more sophisticated logical discussions about where and how HR programs work. Consider the supply-chain framework for staffing and the logical elements of the staffing-utility model. Chapters 8, 9, and 10 showed that, by combining powerful statistical assumptions with the simple concepts of cost, quantity, and quality, we can develop frameworks that predict when enhanced recruitment, selection, and retention will pay off, and how the three elements interact. More applicants are not always better, just as more valid testing and higher retention rates are not always optimal. The “necessary and sufficient conditions” depicted in the logic models in each chapter of the book allow leaders to go beyond simply recognizing the idea of optimization and instead actually strive to achieve it.

Culture emerged in a more subtle way. Looking back, virtually every chapter recognized the importance of a prominent “resource”—leadership support and engagement by key managers and supervisors—that is essential for success. This hidden resource is frequently the most vital requirement, and we have seen examples of its importance in areas as diverse as employee welfare, selection, and training. In addition, we have seen the importance of values, norms, and beliefs in driving sustained progress when the outcomes in question require long-term commitments, as in the case of employee development, health improvement, and better work-life fit. We have seen that although it is important to understand and track specific program investments and outcomes, contextual factors often are key

determinants of the overall effectiveness of any given program.

Capacity has figured prominently in the frameworks we have described. Measuring the payoff of HR investments almost always includes assessing the effect of programs on the skill, knowledge, and capability of those who receive them. We have shown that knowledge and learning not only are measurable, but also often provide essential clues to understanding the mechanisms through which such programs eventually affect organizational performance. Moreover, we showed how to measure engagement and commitment, which represent important proxies for employee motivation. Measuring the combination of capability and motivation makes it possible to estimate the immediate return on investment (ROI) from HR programs using logic very similar to the ROI calculations that are so familiar in the context of other vital organizational investments. Indeed, as we have seen, cost-effectiveness analysis frequently provides valuable insights even when outcomes are not translated into monetary values. It is often quite valuable to estimate the cost of a particular increase in knowledge, learning, or engagement, particularly when comparing two or more programs designed to affect the same outcomes.

Actions and interactions have figured prominently because performance is usually observed through the specific actions or work behaviors of employees and their interactions both within and outside the organization. As [Chapter 9](#) showed, deeply analyzing such performance elements often reveals unseen opportunities to create value by improving employee performance. The fundamental distinction between the average value of performance, or its “importance,” and the value of performance differences, or pivotalness, is the key to understanding where improving investments in

performance will pay off. We saw that traditional job descriptions often obscure pivot points, but that estimating the dollar value of performance differences often reveals pivot points and their associated opportunities. Once again, virtually all leaders recognize the principle of investing where there are large opportunities for gains. Chapter 9 showed how to find them, by considering the actions and interactions that make the biggest difference in key performance outcomes.

Resources and processes in the HC BRidge framework provide the connection points between the observable actions and interactions typically measured in performance assessment, and their effects on the sustainable strategic success of the organization. This kind of deep strategy analysis is a topic beyond the scope of this book,<sup>4</sup> but the importance of resources and processes in evaluating the effects of improved talent was still apparent. Often measures of the value of performance relied on an understanding of how performance affected processes such as sales or production.

As we have seen, although enhanced employee performance, engagement, health, knowledge, retention, and attendance are laudable goals, they are not uniformly valuable. We have seen how important it is to ask questions such as “learning for what purpose?” Often the answers require integrating the measurement of HR investments with strategy and planning processes outside the HR function. More precisely measuring the efficiency and effectiveness elements of such programs, which has been the focus of this book, provides a powerful platform for then engaging the question of how these outcomes really affect the business.

## **LIGHTING THE LAMP OF ORGANIZATION CHANGE**

“Not everything that counts can be counted, and not everything that can be counted counts.” This quote, often attributed to Albert Einstein, reflects some important conclusions and caveats as you begin to apply the frameworks we have described here. First, it is certainly true that we can’t measure everything about talent and HR program effects. Many important elements of such investments remain relatively obscure and cannot be translated precisely into numbers. In particular, they remain outside the domain of traditional business measurement systems. That said, it is also apparent that the frequent failure to make systematic decisions about HR and talent investments is seldom due to the lack of measures. Indeed, advances in technology make it ever more possible to measure vital costs and effects that were once out of reach. Consider the ease with which data from organizational processes, such as supply chains and customer relationship management systems, can be accessed as those processes become more web enabled. Relating HR practices to these processes will be easier in the future. It is now feasible to connect customer reactions to particular call center or retail encounters with specific employees. Inexpensive and rapidly accessible data storage systems make it possible to archive information about employees at the time they are hired or promoted, and to use that information to determine what factors might be associated with their later success. Indeed, it is now quite feasible to evaluate business leaders on the accuracy and success of their decisions in hiring, promotion, layoffs, and performance assessment.

However, that brings us to perhaps the core dilemma facing future talent-measurement systems: Not everything that can be counted really counts. Some of the

things that are easily measured may not be that valuable to decision makers. Information overload is a very real danger without logical frameworks that are capable of guiding leaders to the key relationships and measures that matter most to better decisions. That's why in this book we have emphasized logic and analytics over simply lists of measures or examples of scorecards. The measurement examples we have presented are meant to inspire and motivate future leaders to see beyond the limits of traditional data systems, but their more important purpose is to illustrate the logic of decision-based measurement. Replicating a particular cost calculation, or implementing a particular measure of engagement, is not the point. What matters is that you use these examples as templates and then develop the most valuable measures for your particular strategic and business situation, while at the same time considering the capacities of your measurement systems.

It is important to avoid the temptation to fixate only on the places where measures exist today. Even imperfect measures can prove extremely valuable if they illuminate vital factors that affect the outcomes of decisions. Logic and analysis are the tools that help take even imperfect measures and create tangible decision value.

In the end, the true test of talent and HR measurement is not its elegance, nor even its acceptance and use by members of the HR profession. These are important factors, but they are merely the intermediate steps to the larger goal: building more effective organizations by making better decisions about talent. We hope that this book will become one important tool in your journey to that important goal.

## REFERENCES

1. Johns, G., “Constraints on the Adoption of Psychology-Based Personnel Practices: Lessons from Organizational Innovation,” *Personnel Psychology* 46 (1993): 569–592.
2. Boudreau, J. W., and P. M. Ramstad, *Beyond HR: The New Science of Human Capital* (Boston: Harvard Business School Publishing, 2007).
3. *Ibid.*
4. Strategy-analysis frameworks are covered in more detail in Boudreau and Ramstad (2007) and, more generally, in classic strategy works that are cited there.



## Appendix A. The Taylor-Russell Tables

These are tables of the proportion of employees who will be satisfactory among those selected (success ratio) for given values of the proportion of present employees considered satisfactory (base rate), the selection ratio, and  $r$ .

*Source:* H.C. Taylor and J.T. Russell, "The relationship of validity coefficients to the practical effectiveness of tests in selection: Discussion and tables," *Journal of Applied Psychology*, 23, 1939, 565-578.

**Proportion of Employees Considered  
Satisfactory = 0.05**

<i>r</i>	Selection Ratio										
	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	0.95
0.00	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
0.05	0.06	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05
0.10	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05
0.15	0.09	0.08	0.07	0.07	0.07	0.06	0.06	0.06	0.05	0.05	0.05
0.20	0.11	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.06	0.05	0.05
0.25	0.12	0.11	0.09	0.08	0.08	0.07	0.07	0.06	0.06	0.05	0.05
0.30	0.14	0.12	0.10	0.09	0.08	0.07	0.07	0.06	0.06	0.05	0.05
0.35	0.17	0.14	0.11	0.10	0.09	0.08	0.07	0.06	0.06	0.05	0.05
0.40	0.19	0.16	0.12	0.10	0.09	0.08	0.07	0.07	0.06	0.05	0.05
0.45	0.22	0.17	0.13	0.11	0.10	0.08	0.08	0.07	0.06	0.06	0.05
0.50	0.24	0.19	0.15	0.12	0.10	0.09	0.08	0.07	0.06	0.06	0.05
0.55	0.28	0.22	0.16	0.13	0.11	0.09	0.08	0.07	0.06	0.06	0.05
0.60	0.31	0.24	0.17	0.13	0.11	0.09	0.08	0.07	0.06	0.06	0.05
0.65	0.35	0.26	0.18	0.14	0.11	0.10	0.08	0.07	0.06	0.06	0.05
0.70	0.39	0.29	0.20	0.15	0.12	0.10	0.08	0.07	0.06	0.06	0.05
0.75	0.44	0.32	0.21	0.15	0.12	0.10	0.08	0.07	0.06	0.06	0.05
0.80	0.50	0.35	0.22	0.16	0.12	0.10	0.08	0.07	0.06	0.06	0.05
0.85	0.56	0.39	0.23	0.16	0.12	0.10	0.08	0.07	0.06	0.06	0.05
0.90	0.64	0.43	0.24	0.17	0.13	0.10	0.08	0.07	0.06	0.06	0.05
0.95	0.73	0.47	0.25	0.17	0.13	0.10	0.08	0.07	0.06	0.06	0.05
1.00	1.00	0.50	0.25	0.17	0.13	0.10	0.08	0.07	0.06	0.06	0.05

**Proportion of Employees Considered  
Satisfactory = 0.10**

<i>r</i>	Selection Ratio										
	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	0.95
0.00	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
0.05	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.10
0.10	0.14	0.13	0.13	0.12	0.12	0.11	0.11	0.11	0.11	0.10	0.10
0.15	0.16	0.15	0.14	0.13	0.13	0.12	0.12	0.11	0.11	0.10	0.10
0.20	0.19	0.17	0.15	0.14	0.14	0.13	0.12	0.12	0.11	0.11	0.10
0.25	0.22	0.19	0.17	0.16	0.14	0.13	0.13	0.12	0.11	0.11	0.10
0.30	0.25	0.22	0.19	0.17	0.15	0.14	0.13	0.12	0.12	0.11	0.10
0.35	0.28	0.24	0.20	0.18	0.16	0.15	0.14	0.13	0.12	0.11	0.10
0.40	0.31	0.27	0.22	0.19	0.17	0.16	0.14	0.13	0.12	0.11	0.10
0.45	0.35	0.29	0.24	0.20	0.18	0.16	0.15	0.13	0.12	0.11	0.10
0.50	0.39	0.32	0.26	0.22	0.19	0.17	0.15	0.13	0.12	0.11	0.11
0.55	0.43	0.36	0.28	0.23	0.20	0.17	0.15	0.14	0.12	0.11	0.11
0.60	0.48	0.39	0.30	0.25	0.21	0.18	0.16	0.14	0.12	0.11	0.11
0.65	0.53	0.43	0.32	0.26	0.22	0.18	0.16	0.14	0.12	0.11	0.11
0.70	0.58	0.47	0.35	0.27	0.22	0.19	0.16	0.14	0.12	0.11	0.11
0.75	0.64	0.51	0.37	0.29	0.23	0.19	0.16	0.14	0.12	0.11	0.11
0.80	0.71	0.56	0.40	0.30	0.24	0.20	0.17	0.14	0.12	0.11	0.11
0.85	0.78	0.62	0.43	0.31	0.25	0.20	0.17	0.14	0.12	0.11	0.11
0.90	0.86	0.69	0.46	0.33	0.25	0.20	0.17	0.14	0.12	0.11	0.11
0.95	0.95	0.78	0.49	0.33	0.25	0.20	0.17	0.14	0.12	0.11	0.11
1.00	1.00	1.00	0.50	0.33	0.25	0.20	0.17	0.14	0.13	0.11	0.11

**Proportion of Employees Considered  
Satisfactory = 0.20**

<i>r</i>	Selection Ratio										
	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	0.95
0.00	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20
0.05	0.23	0.23	0.22	0.22	0.21	0.21	0.21	0.21	0.20	0.20	0.20
0.10	0.26	0.25	0.24	0.23	0.23	0.22	0.22	0.21	0.21	0.21	0.20
0.15	0.30	0.28	0.26	0.25	0.24	0.23	0.23	0.22	0.21	0.21	0.20
0.20	0.33	0.31	0.28	0.27	0.26	0.25	0.24	0.23	0.22	0.21	0.21
0.25	0.37	0.34	0.31	0.29	0.27	0.26	0.24	0.23	0.22	0.21	0.21
0.30	0.41	0.37	0.33	0.30	0.28	0.27	0.25	0.24	0.23	0.21	0.21
0.35	0.45	0.41	0.36	0.32	0.30	0.28	0.26	0.24	0.23	0.22	0.21
0.40	0.49	0.44	0.38	0.34	0.31	0.29	0.27	0.25	0.23	0.22	0.21
0.45	0.54	0.48	0.41	0.36	0.33	0.30	0.28	0.26	0.24	0.22	0.21
0.50	0.59	0.52	0.44	0.38	0.35	0.31	0.29	0.26	0.24	0.22	0.21
0.55	0.63	0.56	0.47	0.41	0.36	0.32	0.29	0.27	0.24	0.22	0.21
0.60	0.68	0.60	0.50	0.43	0.38	0.34	0.30	0.27	0.24	0.22	0.21
0.65	0.73	0.64	0.53	0.45	0.39	0.35	0.31	0.27	0.25	0.22	0.21
0.70	0.79	0.69	0.56	0.48	0.41	0.36	0.31	0.28	0.25	0.22	0.21
0.75	0.84	0.74	0.60	0.50	0.43	0.37	0.32	0.28	0.25	0.22	0.21
0.80	0.89	0.79	0.64	0.53	0.45	0.38	0.33	0.28	0.25	0.22	0.21
0.85	0.94	0.85	0.69	0.56	0.47	0.39	0.33	0.28	0.25	0.22	0.21
0.90	0.98	0.91	0.75	0.60	0.48	0.40	0.33	0.29	0.25	0.22	0.21
0.95	1.00	0.97	0.82	0.64	0.50	0.40	0.33	0.29	0.25	0.22	0.21
1.00	1.00	1.00	1.00	0.67	0.50	0.40	0.33	0.29	0.25	0.22	0.21

**Proportion of Employees Considered  
Satisfactory = 0.30**

<i>r</i>	Selection Ratio										
	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	0.95
0.00	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30	0.30
0.05	0.34	0.33	0.33	0.32	0.32	0.31	0.31	0.31	0.31	0.30	0.30
0.10	0.38	0.36	0.35	0.34	0.33	0.33	0.32	0.32	0.31	0.31	0.30
0.15	0.42	0.40	0.38	0.36	0.35	0.34	0.33	0.33	0.32	0.31	0.31
0.20	0.46	0.43	0.40	0.38	0.37	0.36	0.34	0.33	0.32	0.31	0.31
0.25	0.50	0.47	0.43	0.41	0.39	0.37	0.36	0.34	0.33	0.32	0.31
0.30	0.54	0.50	0.46	0.43	0.40	0.38	0.37	0.35	0.33	0.32	0.31
0.35	0.58	0.54	0.49	0.45	0.42	0.40	0.38	0.36	0.34	0.32	0.31
0.40	0.63	0.58	0.51	0.47	0.44	0.41	0.39	0.37	0.34	0.32	0.31
0.45	0.67	0.61	0.55	0.50	0.46	0.43	0.40	0.37	0.35	0.32	0.31
0.50	0.72	0.65	0.58	0.52	0.48	0.44	0.41	0.38	0.35	0.33	0.31
0.55	0.76	0.69	0.61	0.55	0.50	0.46	0.42	0.39	0.36	0.33	0.31
0.60	0.81	0.74	0.64	0.58	0.52	0.47	0.43	0.40	0.36	0.33	0.31
0.65	0.85	0.78	0.68	0.60	0.54	0.49	0.44	0.40	0.37	0.33	0.32
0.70	0.89	0.82	0.72	0.63	0.57	0.51	0.46	0.41	0.37	0.33	0.32
0.75	0.93	0.86	0.76	0.67	0.59	0.52	0.47	0.42	0.37	0.33	0.32
0.80	0.96	0.90	0.80	0.70	0.62	0.54	0.48	0.42	0.37	0.33	0.32
0.85	0.99	0.94	0.85	0.74	0.65	0.56	0.49	0.43	0.37	0.33	0.32
0.90	1.00	0.98	0.90	0.79	0.68	0.58	0.49	0.43	0.37	0.33	0.32
0.95	1.00	1.00	0.96	0.85	0.72	0.60	0.50	0.43	0.37	0.33	0.32
1.00	1.00	1.00	1.00	1.00	0.75	0.60	0.50	0.43	0.38	0.33	0.32

**Proportion of Employees Considered  
Satisfactory = 0.40**

<i>r</i>	Selection Ratio										
	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	0.95
0.00	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40
0.05	0.44	0.43	0.43	0.42	0.42	0.42	0.41	0.41	0.41	0.40	0.40
0.10	0.48	0.47	0.46	0.45	0.44	0.43	0.42	0.42	0.41	0.41	0.40
0.15	0.52	0.50	0.48	0.47	0.46	0.45	0.44	0.43	0.42	0.41	0.41
0.20	0.57	0.54	0.51	0.49	0.48	0.46	0.45	0.44	0.43	0.41	0.41
0.25	0.61	0.58	0.54	0.51	0.49	0.48	0.46	0.45	0.43	0.42	0.41
0.30	0.65	0.61	0.57	0.54	0.51	0.49	0.47	0.46	0.44	0.42	0.41
0.35	0.69	0.65	0.60	0.56	0.53	0.51	0.49	0.47	0.45	0.42	0.41
0.40	0.73	0.69	0.63	0.59	0.56	0.53	0.50	0.48	0.45	0.43	0.41
0.45	0.77	0.72	0.66	0.61	0.58	0.54	0.51	0.49	0.46	0.43	0.42
0.50	0.81	0.76	0.69	0.64	0.60	0.56	0.53	0.49	0.46	0.43	0.42
0.55	0.85	0.79	0.72	0.67	0.62	0.58	0.54	0.50	0.47	0.44	0.42
0.60	0.89	0.83	0.75	0.69	0.64	0.60	0.55	0.51	0.48	0.44	0.42
0.65	0.92	0.87	0.79	0.72	0.67	0.62	0.57	0.52	0.48	0.44	0.42
0.70	0.95	0.90	0.82	0.76	0.69	0.64	0.58	0.53	0.49	0.44	0.42
0.75	0.97	0.93	0.86	0.79	0.72	0.66	0.60	0.54	0.49	0.44	0.42
0.80	0.99	0.96	0.89	0.82	0.75	0.68	0.61	0.55	0.49	0.44	0.42
0.85	1.00	0.98	0.93	0.86	0.79	0.71	0.63	0.56	0.50	0.44	0.42
0.90	1.00	1.00	0.97	0.91	0.82	0.74	0.65	0.57	0.50	0.44	0.42
0.95	1.00	1.00	0.99	0.96	0.87	0.77	0.66	0.57	0.50	0.44	0.42
1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.67	0.57	0.50	0.44	0.42

**Proportion of Employees Considered  
Satisfactory = 0.50**

<i>r</i>	Selection Ratio										
	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	0.95
0.00	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
0.05	0.54	0.54	0.53	0.52	0.52	0.52	0.51	0.51	0.51	0.50	0.50
0.10	0.58	0.57	0.56	0.55	0.54	0.53	0.53	0.52	0.51	0.51	0.50
0.15	0.63	0.61	0.58	0.57	0.56	0.55	0.54	0.53	0.52	0.51	0.51
0.20	0.67	0.64	0.61	0.59	0.58	0.56	0.55	0.54	0.53	0.52	0.51
0.25	0.70	0.67	0.64	0.62	0.60	0.58	0.56	0.55	0.54	0.52	0.51
0.30	0.74	0.71	0.67	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.51
0.35	0.78	0.74	0.70	0.66	0.64	0.61	0.59	0.57	0.55	0.53	0.51
0.40	0.82	0.78	0.73	0.69	0.66	0.63	0.61	0.58	0.56	0.53	0.52
0.45	0.85	0.81	0.75	0.71	0.68	0.65	0.62	0.59	0.56	0.53	0.52
0.50	0.88	0.84	0.78	0.74	0.70	0.67	0.63	0.60	0.57	0.54	0.52
0.55	0.91	0.87	0.81	0.76	0.72	0.69	0.65	0.61	0.58	0.54	0.52
0.60	0.94	0.90	0.84	0.79	0.75	0.70	0.66	0.62	0.59	0.54	0.52
0.65	0.96	0.92	0.87	0.82	0.77	0.73	0.68	0.64	0.59	0.55	0.52
0.70	0.98	0.95	0.90	0.85	0.80	0.75	0.70	0.65	0.60	0.55	0.53
0.75	0.99	0.97	0.92	0.87	0.82	0.77	0.72	0.66	0.61	0.55	0.53
0.80	1.00	0.99	0.95	0.90	0.85	0.80	0.73	0.67	0.61	0.55	0.53
0.85	1.00	0.99	0.97	0.94	0.88	0.82	0.76	0.69	0.62	0.55	0.53
0.90	1.00	1.00	0.99	0.97	0.92	0.86	0.78	0.70	0.62	0.56	0.53
0.95	1.00	1.00	1.00	0.99	0.96	0.90	0.81	0.71	0.63	0.56	0.53
1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.83	0.71	0.63	0.56	0.53

**Proportion of Employees Considered  
Satisfactory = 0.60**

<i>r</i>	Selection Ratio										
	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	0.95
0.00	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
0.05	0.64	0.63	0.63	0.62	0.62	0.62	0.61	0.61	0.61	0.60	0.60
0.10	0.68	0.67	0.65	0.64	0.64	0.63	0.63	0.62	0.61	0.61	0.60
0.15	0.71	0.70	0.68	0.67	0.66	0.65	0.64	0.63	0.62	0.61	0.61
0.20	0.75	0.73	0.71	0.69	0.67	0.66	0.65	0.64	0.63	0.62	0.61
0.25	0.78	0.76	0.73	0.71	0.69	0.68	0.66	0.65	0.63	0.62	0.61
0.30	0.82	0.79	0.76	0.73	0.71	0.69	0.68	0.66	0.64	0.62	0.61
0.35	0.85	0.82	0.78	0.75	0.73	0.71	0.69	0.67	0.65	0.63	0.62
0.40	0.88	0.85	0.81	0.78	0.75	0.73	0.70	0.68	0.66	0.63	0.62
0.45	0.90	0.87	0.83	0.80	0.77	0.74	0.72	0.69	0.66	0.64	0.62
0.50	0.93	0.90	0.86	0.82	0.79	0.76	0.73	0.70	0.67	0.64	0.62
0.55	0.95	0.92	0.88	0.84	0.81	0.78	0.75	0.71	0.68	0.64	0.62
0.60	0.96	0.94	0.90	0.87	0.83	0.80	0.76	0.73	0.69	0.65	0.63
0.65	0.98	0.96	0.92	0.89	0.85	0.82	0.78	0.74	0.70	0.65	0.63
0.70	0.99	0.97	0.94	0.91	0.87	0.84	0.80	0.75	0.71	0.66	0.63
0.75	0.99	0.99	0.96	0.93	0.90	0.86	0.81	0.77	0.71	0.66	0.63
0.80	1.00	0.99	0.98	0.95	0.92	0.88	0.83	0.78	0.72	0.66	0.63
0.85	1.00	1.00	0.99	0.97	0.95	0.91	0.86	0.80	0.73	0.66	0.63
0.90	1.00	1.00	1.00	0.99	0.97	0.94	0.88	0.82	0.74	0.67	0.63
0.95	1.00	1.00	1.00	1.00	0.99	0.97	0.92	0.84	0.75	0.67	0.63
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.75	0.67	0.63

**Proportion of Employees Considered  
Satisfactory = 0.70**



<i>r</i>	Selection Ratio										
	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	0.95
0.00	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
0.05	0.73	0.73	0.72	0.72	0.72	0.71	0.71	0.71	0.71	0.70	0.70
0.10	0.77	0.76	0.75	0.74	0.73	0.73	0.72	0.72	0.71	0.71	0.70
0.15	0.80	0.79	0.77	0.76	0.75	0.74	0.73	0.73	0.72	0.71	0.71
0.20	0.83	0.81	0.79	0.78	0.77	0.76	0.75	0.74	0.73	0.71	0.71
0.25	0.86	0.84	0.81	0.80	0.78	0.77	0.76	0.75	0.73	0.72	0.71
0.30	0.88	0.86	0.84	0.82	0.80	0.78	0.77	0.75	0.74	0.72	0.71
0.35	0.91	0.89	0.86	0.83	0.82	0.80	0.78	0.76	0.75	0.73	0.71
0.40	0.93	0.91	0.88	0.85	0.83	0.81	0.79	0.77	0.75	0.73	0.72
0.45	0.94	0.93	0.90	0.87	0.85	0.83	0.81	0.78	0.76	0.73	0.72
0.50	0.96	0.94	0.91	0.89	0.87	0.84	0.82	0.80	0.77	0.74	0.72
0.55	0.97	0.96	0.93	0.91	0.88	0.86	0.83	0.81	0.78	0.74	0.72
0.60	0.98	0.97	0.95	0.92	0.90	0.87	0.85	0.82	0.79	0.75	0.73
0.65	0.99	0.98	0.96	0.94	0.92	0.89	0.86	0.83	0.80	0.75	0.73
0.70	1.00	0.99	0.97	0.96	0.93	0.91	0.88	0.84	0.80	0.76	0.73
0.75	1.00	1.00	0.98	0.97	0.95	0.92	0.89	0.86	0.81	0.76	0.73
0.80	1.00	1.00	0.99	0.98	0.97	0.94	0.91	0.87	0.82	0.77	0.73
0.85	1.00	1.00	1.00	0.99	0.98	0.96	0.93	0.89	0.84	0.77	0.74
0.90	1.00	1.00	1.00	1.00	0.99	0.98	0.95	0.91	0.85	0.78	0.74
0.95	1.00	1.00	1.00	1.00	1.00	0.99	0.98	0.94	0.86	0.78	0.74
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.78	0.74

**Proportion of Employees Considered  
Satisfactory = 0.80**

<i>r</i>	Selection Ratio										
	0.05	0.10	0.20	0.30	0.40	0.50	0.60	0.70	0.80	0.90	0.95
0.00	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
0.05	0.83	0.82	0.82	0.82	0.81	0.81	0.81	0.81	0.81	0.80	0.80
0.10	0.85	0.85	0.84	0.83	0.83	0.82	0.82	0.81	0.81	0.81	0.80
0.15	0.88	0.87	0.86	0.85	0.84	0.83	0.83	0.82	0.82	0.81	0.81
0.20	0.90	0.89	0.87	0.86	0.85	0.84	0.84	0.83	0.82	0.81	0.81
0.25	0.92	0.91	0.89	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.81
0.30	0.94	0.92	0.90	0.89	0.88	0.87	0.86	0.84	0.83	0.82	0.81
0.35	0.95	0.94	0.92	0.90	0.89	0.89	0.87	0.85	0.84	0.82	0.81
0.40	0.96	0.95	0.93	0.92	0.90	0.89	0.88	0.86	0.85	0.83	0.82
0.45	0.97	0.96	0.95	0.93	0.92	0.90	0.89	0.87	0.85	0.83	0.82
0.50	0.98	0.97	0.96	0.94	0.93	0.91	0.90	0.88	0.86	0.84	0.82
0.55	0.99	0.98	0.97	0.95	0.94	0.92	0.91	0.89	0.87	0.84	0.82
0.60	0.99	0.99	0.98	0.96	0.95	0.94	0.92	0.90	0.87	0.84	0.83
0.65	1.00	0.99	0.98	0.97	0.96	0.95	0.93	0.91	0.88	0.85	0.83
0.70	1.00	1.00	0.99	0.98	0.97	0.96	0.94	0.92	0.89	0.85	0.83
0.75	1.00	1.00	1.00	0.99	0.98	0.97	0.95	0.93	0.90	0.86	0.83
0.80	1.00	1.00	1.00	1.00	0.99	0.98	0.96	0.94	0.91	0.87	0.84
0.85	1.00	1.00	1.00	1.00	1.00	0.99	0.98	0.96	0.92	0.87	0.84
0.90	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.97	0.94	0.88	0.84
0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	0.96	0.89	0.84
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.84

**Proportion of Employees Considered  
Satisfactory = 0.90**

[illegible]

## Appendix B. The Naylor-Shine Table for Determining the Increase in Mean Criterion Score Obtained by Using a Selection Device

### USING THE TABLE

The following definitions are used in the table:

And the table is based upon the following equation:

$$\bar{Z}_{yi} = r_{xy} (\lambda_i / \phi_i)$$

*Note:* The use of the table may differ slightly in the case where  $r_{xy}$  is really a multiple regression coefficient. The major difference occurs in the  $Z_{xi}$  column. With a single predictor, there is no difficulty in expressing a cutoff score in terms of a particular value of  $X$ , the predictor variable (thus, we use  $Z_{xi}$ ). However, in the case of multiple predictors, it is no longer feasible to do so because there are several  $X$  variables. The easiest procedure, therefore, is to reduce conceptually the multivariate case to the bivariate case by treating the multiple correlation coefficient as the correlation coefficient between the observed criterion scores ( $Z_y$ ) and the predicted criterion scores ( $Z'_y$ ). Thus, it becomes possible to talk about cutoff values for the multiple predictor case, but these cutoff scores are expressed in terms of  $Z'_{yi}$  values rather than  $Z_{xi}$  values. The only difficulty this creates is that  $s^2_{Z'y} \neq 1$ , but will always be equal to  $R^2_{xy}$ , the squared multiple correlation coefficient. Thus, to use the tables when  $r_{xy}$  is actually a multiple correlation coefficient, it is necessary to transform  $Z'_{yi}$  values by the following:

$$Z_{xi} = \frac{Z'_{yi}}{R_{xy}}$$

$\phi_i$	$Z_{xi}$	$\lambda_i$	$\lambda_i/\phi_i$	$\phi_i$	$Z_{xi}$	$\lambda_i$	$\lambda_i/\phi_i$	$\phi_i$	$Z_{xi}$	$\lambda_i$	$\lambda_i/\phi_i$
0.9987	-3.00	0.0044	0.00	0.9974	-2.79	0.0081	0.01	0.9951	-2.58	0.0143	0.01
0.9986	-2.99	0.0046	0.00	0.9973	-2.78	0.0084	0.01	0.9949	-2.57	0.0147	0.01
0.9986	-2.98	0.0047	0.00	0.9972	-2.77	0.0086	0.01	0.9948	-2.56	0.0151	0.02
0.9985	-2.97	0.0048	0.00	0.9971	-2.76	0.0088	0.01	0.9946	-2.55	0.0154	0.02
0.9985	-2.96	0.0050	0.01	0.9970	-2.75	0.0091	0.01	0.9945	-2.54	0.0158	0.02
0.9984	-2.95	0.0051	0.01	0.9969	-2.74	0.0093	0.01	0.9943	-2.53	0.0163	0.02
0.9984	-2.94	0.0053	0.01	0.9968	-2.73	0.0096	0.01	0.9941	-2.52	0.0167	0.02
0.9983	-2.93	0.0055	0.01	0.9967	-2.72	0.0099	0.01	0.9940	-2.51	0.0171	0.02
0.9982	-2.92	0.0056	0.01	0.9966	-2.71	0.0101	0.01	0.9938	-2.50	0.0175	0.02
0.9982	-2.91	0.0058	0.01	0.9965	-2.70	0.0104	0.01	0.9936	-2.49	0.0180	0.02
0.9981	-2.90	0.0060	0.01	0.9964	-2.69	0.0107	0.01	0.9934	-2.48	0.0184	0.02
0.9981	-2.89	0.0061	0.01	0.9963	-2.68	0.0110	0.01	0.9932	-2.47	0.0189	0.02
0.9980	-2.88	0.0063	0.01	0.9962	-2.67	0.0113	0.01	0.9931	-2.46	0.0194	0.02
0.9979	-2.87	0.0065	0.01	0.9961	-2.66	0.0116	0.01	0.9929	-2.45	0.0198	0.02
0.9979	-2.86	0.0067	0.01	0.9960	-2.65	0.0119	0.01	0.9927	-2.44	0.0203	0.02
0.9978	-2.85	0.0069	0.01	0.9959	-2.64	0.0122	0.01	0.9925	-2.43	0.0208	0.02
0.9977	-2.84	0.0071	0.01	0.9957	-2.63	0.0126	0.01	0.9922	-2.42	0.0213	0.02
0.9977	-2.83	0.0073	0.01	0.9956	-2.62	0.0129	0.01	0.9920	-2.41	0.0219	0.02
0.9976	-2.82	0.0075	0.01	0.9955	-2.61	0.0132	0.01	0.9918	-2.40	0.0224	0.02

0.9975	-2.81	0.0077	0.01	0.9953	-2.60	0.0136	0.01	0.9916	-2.39	0.0229	0.02
0.9974	-2.80	0.0079	0.01	0.9952	-2.59	0.0139	0.01	0.9913	-2.38	0.0235	0.02
0.9911	-2.37	0.0241	0.02	0.9834	-2.13	0.0413	0.04	0.9706	-1.89	0.0669	0.07
0.9909	-2.36	0.0246	0.02	0.9830	-2.12	0.0422	0.04	0.9699	-1.88	0.0681	0.07
0.9906	-2.35	0.0252	0.03	0.9826	-2.11	0.0431	0.04	0.9693	-1.87	0.0694	0.07
0.9904	-2.34	0.0258	0.03	0.9821	-2.10	0.0440	0.04	0.9686	-1.86	0.0707	0.07
0.9901	-2.33	0.0264	0.03	0.9817	-2.09	0.0449	0.05	0.9678	-1.85	0.0721	0.07
0.9898	-2.32	0.0270	0.03	0.9812	-2.08	0.0459	0.05	0.9671	-1.84	0.0734	0.08
0.9896	-2.31	0.0277	0.03	0.9808	-2.07	0.0468	0.05	0.9664	-1.83	0.0748	0.08
0.9893	-2.30	0.0283	0.03	0.9803	-2.06	0.0478	0.05	0.9656	-1.82	0.0761	0.08
0.9890	-2.29	0.0290	0.03	0.9798	-2.05	0.0488	0.05	0.9649	-1.81	0.0775	0.08
0.9887	-2.28	0.0297	0.03	0.9793	-2.04	0.0498	0.05	0.9641	-1.80	0.0790	0.08
0.9884	-2.27	0.0303	0.03	0.9788	-2.03	0.0508	0.05	0.9633	-1.79	0.0804	0.08
0.9881	-2.26	0.0310	0.03	0.9783	-2.02	0.0519	0.05	0.9625	-1.78	0.0818	0.08
0.9878	-2.25	0.0317	0.03	0.9778	-2.01	0.0529	0.05	0.9616	-1.77	0.0833	0.09
0.9875	-2.24	0.0325	0.03	0.9772	-2.00	0.0540	0.06	0.9608	-1.76	0.0848	0.09
0.9871	-2.23	0.0332	0.03	0.9767	-1.99	0.0551	0.06	0.9599	-1.75	0.0863	0.09
0.9868	-2.22	0.0339	0.03	0.9761	-1.98	0.0562	0.06	0.9591	-1.74	0.0878	0.09
0.9864	-2.21	0.0347	0.04	0.9756	-1.97	0.0573	0.06	0.9582	-1.73	0.0893	0.09
0.9861	-2.20	0.0355	0.04	0.9750	-1.96	0.0584	0.06	0.9573	-1.72	0.0909	0.09

0.9857	-2.19	0.0363	0.04	0.9744	-1.95	0.0596	0.06	0.9564	-1.71	0.0925	0.10
0.9854	-2.18	0.0371	0.04	0.9738	-1.94	0.0608	0.06	0.9554	-1.70	0.0940	0.10
0.9850	-2.17	0.0379	0.04	0.9732	-1.93	0.0620	0.06	0.9545	-1.69	0.0957	0.10
0.9846	-2.16	0.0387	0.04	0.9726	-1.92	0.0632	0.06	0.9535	-1.68	0.0973	0.10
0.9842	-2.15	0.0396	0.04	0.9719	-1.91	0.0644	0.07	0.9525	-1.67	0.0989	0.10
0.9838	-2.14	0.0404	0.04	0.9713	-1.90	0.0656	0.07	0.9515	-1.66	0.1006	0.11
0.9505	-1.65	0.1023	0.11	0.9192	-1.40	0.1497	0.16	0.8749	-1.15	0.2059	0.24
0.9495	-1.64	0.1040	0.11	0.9177	-1.39	0.1518	0.17	0.8729	-1.14	0.2083	0.24
0.9484	-1.63	0.1057	0.11	0.9162	-1.38	0.1539	0.17	0.8708	-1.13	0.2107	0.24
0.9474	-1.62	0.1074	0.11	0.9147	-1.37	0.1561	0.17	0.8686	-1.12	0.2131	0.25
0.9463	-1.61	0.1092	0.12	0.9131	-1.36	0.1582	0.17	0.8665	-1.11	0.2155	0.25
0.9452	-1.60	0.1109	0.12	0.9115	-1.35	0.1604	0.18	0.8643	-1.10	0.2179	0.25
0.9441	-1.59	0.1127	0.12	0.9099	-1.34	0.1626	0.18	0.8621	-1.09	0.2203	0.26
0.9429	-1.58	0.1145	0.12	0.9082	-1.33	0.1647	0.18	0.8599	-1.08	0.2227	0.26
0.9418	-1.57	0.1163	0.12	0.9066	-1.32	0.1669	0.18	0.8577	-1.07	0.2251	0.26
0.9406	-1.56	0.1182	0.13	0.9049	-1.31	0.1691	0.19	0.8554	-1.06	0.2275	0.27
0.9394	-1.55	0.1200	0.13	0.9032	-1.30	0.1714	6.19	0.8531	-1.05	0.2299	0.27
0.9382	-1.54	0.1219	0.13	0.9015	-1.29	0.1736	0.19	0.8508	-1.04	0.2323	0.27
0.9370	-1.53	0.1238	0.13	0.8997	-1.28	0.1758	0.20	0.8485	-1.03	0.2347	0.28

0.9357	-1.52	0.1257	0.13	0.8980	-1.27	0.1781	0.20	0.8461	-1.02	0.2371	0.28
0.9345	-1.51	0.1276	0.14	0.8962	-1.26	0.1804	0.20	0.8438	-1.01	0.2396	0.28
0.9332	-1.50	0.1295	0.14	0.8944	-1.25	0.1826	0.20	0.8413	-1.00	0.2420	0.29
0.9319	-1.49	0.1315	0.14	0.8925	-1.24	0.1849	0.21	0.8389	-0.99	0.2444	0.29
0.9306	-1.48	0.1334	0.14	0.8907	-1.23	0.1872	0.21	0.8365	-0.98	0.2468	0.30
0.9292	-1.47	0.1354	0.15	0.8888	-1.22	0.1895	0.21	0.8340	-0.97	0.2492	0.30
0.9279	-1.46	0.1374	0.15	0.8869	-1.21	0.1919	0.22	0.8315	-0.96	0.2516	0.30
0.9265	-1.45	0.1394	0.15	0.8849	-1.20	0.1942	0.22	0.8289	-0.95	0.2541	0.31
0.9251	-1.44	0.1415	0.15	0.8830	-1.19	0.1965	0.22	0.8264	-0.94	0.2565	0.31
0.9236	-1.43	0.1435	0.16	0.8810	-1.18	0.1989	0.23	0.8238	-0.93	0.2589	0.31
0.9222	-1.42	0.1456	0.16	0.8790	-1.17	0.2012	0.23	0.8212	-0.92	0.2613	0.32
0.9207	-1.41	0.1476	0.16	0.8770	-1.16	0.2036	0.23	0.8186	-0.91	0.2637	0.32
0.8159	-0.90	0.2661	0.33	0.7454	-0.66	0.3209	0.43	0.6628	-0.42	0.3653	0.55
0.8133	-0.89	0.2685	0.33	0.7422	-0.65	0.3230	0.44	0.6591	-0.41	0.3668	0.56
0.8106	-0.88	0.2709	0.33	0.7389	-0.64	0.3251	0.44	0.6554	-0.40	0.3683	0.56
0.8078	-0.87	0.2732	0.34	0.7357	-0.63	0.3271	0.44	0.6517	-0.39	0.3697	0.57
0.8051	-0.86	0.2756	0.34	0.7324	-0.62	0.3292	0.45	0.6480	-0.38	0.3712	0.57
0.8023	-0.85	0.2780	0.35	0.7291	-0.61	0.3312	0.45	0.6443	-0.37	0.3725	0.58
0.7995	-0.84	0.2803	0.35	0.7257	-0.60	0.3332	0.46	0.6406	-0.36	0.3739	0.58
0.7967	-0.83	0.2827	0.35	0.7224	-0.59	0.3352	0.46	0.6368	-0.35	0.3752	0.59

0.7939	-0.82	0.2850	0.36	0.7190	-0.58	0.3372	0.47	0.6331	-0.34	0.3765	0.59
0.7910	-0.81	0.2874	0.36	0.7157	-0.57	0.3391	0.47	0.6293	-0.33	0.3778	0.60
0.7881	-0.80	0.2897	0.37	0.7123	-0.56	0.3410	0.48	0.6255	-0.32	0.3790	0.61
0.7852	-0.79	0.2920	0.37	0.7088	-0.55	0.3429	0.48	0.6217	-0.31	0.3802	0.61
0.7823	-0.78	0.2943	0.38	0.7054	-0.54	0.3448	0.49	0.6179	-0.30	0.3814	0.62
0.7794	-0.77	0.2966	0.38	0.7019	-0.53	0.3467	0.49	0.6141	-0.29	0.3825	0.62
0.7764	-0.76	0.2989	0.38	0.6985	-0.52	0.3485	0.50	0.6103	-0.28	0.3836	0.63
0.7734	-0.75	0.3011	0.39	0.6950	-0.51	0.3503	0.50	0.6064	-0.27	0.3847	0.64
0.7704	-0.74	0.3034	0.39	0.6915	-0.50	0.3521	0.51	0.6026	-0.26	0.3857	0.64
0.7673	-0.73	0.3056	0.40	0.6879	-0.49	0.3538	0.51	0.5987	-0.25	0.3867	0.65
0.7642	-0.72	0.3079	0.40	0.6844	-0.48	0.3555	0.52	0.5948	-0.24	0.3876	0.65
0.7611	-0.71	0.3101	0.41	0.6808	-0.47	0.3572	0.52	0.5910	-0.23	0.3885	0.66
0.7580	-0.70	0.3123	0.41	0.6772	-0.46	0.3589	0.53	0.5871	-0.22	0.3894	0.66
0.7549	-0.69	0.3144	0.42	0.6736	-0.45	0.3605	0.54	0.5832	-0.21	0.3902	0.67
0.7517	-0.68	0.3166	0.42	0.6700	-0.44	0.3621	0.54	0.5793	-0.20	0.3910	0.67
0.7486	-0.67	0.3187	0.43	0.6664	-0.43	0.3637	0.55	0.5753	-0.19	0.3918	0.68
0.5714	-0.18	0.3925	0.69	0.4721	0.07	0.3980	0.84	0.3745	0.32	0.3790	1.01
0.5675	-0.17	0.3932	0.69	0.4681	0.08	0.3977	0.85	0.3707	0.33	0.3778	1.02
0.5636	-0.16	0.3939	0.70	0.4641	0.09	0.3973	0.86	0.3669	0.34	0.3765	1.03
0.5596	-0.15	0.3945	0.70	0.4602	0.10	0.3970	0.86	0.3632	0.35	0.3752	1.03

0.5557	-0.14	0.3951	0.71	0.4562	0.11	0.3965	0.87	0.3594	0.36	0.3739	1.04
0.5517	-0.13	0.3956	0.72	0.4522	0.12	0.3961	0.88	0.3557	0.37	0.3725	1.05
0.5478	-0.12	0.3961	0.72	0.4483	0.13	0.3956	0.88	0.3520	0.38	0.3712	1.05
0.5438	-0.11	0.3965	0.73	0.4443	0.14	0.3951	0.89	0.3483	0.39	0.3697	1.06
0.5398	-0.10	0.3970	0.74	0.4404	0.15	0.3945	0.90	0.3446	0.40	0.3683	1.07
0.5359	-0.09	0.3973	0.74	0.4364	0.16	0.3939	0.90	0.3409	0.41	0.3668	1.08
0.5319	-0.08	0.3977	0.75	0.4325	0.17	0.3932	0.91	0.3372	0.42	0.3653	1.08
0.5279	-0.07	0.3980	0.75	0.4286	0.15	0.3925	0.92	0.3336	0.43	0.3637	1.09
0.5239	-0.06	0.3982	0.76	0.4247	0.19	0.3918	0.92	0.3300	0.44	0.3621	1.10
0.5199	-0.05	0.3984	0.77	0.4207	0.20	0.3910	0.93	0.3264	0.45	0.3605	1.10
0.5160	-0.04	0.3986	0.77	0.4168	0.21	0.3902	0.94	0.3228	0.46	0.3589	1.11
0.5120	-0.03	0.3988	0.78	0.4129	0.22	0.3894	0.94	0.3192	0.47	0.3572	1.12
0.5080	-0.02	0.3989	0.79	0.4090	0.23	0.3885	0.95	0.3156	0.48	0.3555	1.13
0.5040	-0.01	0.3989	0.79	0.4052	0.24	0.3876	0.96	0.3121	0.49	0.3538	1.13
0.5000	0.00	0.3989	0.80	0.4013	0.25	0.3867	0.96	0.3085	0.50	0.3521	1.14
0.4960	0.01	0.3989	0.80	0.3974	0.26	0.3857	0.97	0.3050	0.51	0.3503	1.15
0.4920	0.02	0.3989	0.81	0.3936	0.27	0.3847	0.98	0.3015	0.52	0.3485	1.16
0.4880	0.03	0.3988	0.82	0.3897	0.28	0.3836	0.98	0.2981	0.53	0.3467	1.16
0.4840	0.04	0.3986	0.82	0.3859	0.29	0.3825	0.99	0.2946	0.54	0.3448	1.17
0.4801	0.05	0.3984	0.83	0.3821	0.30	0.3814	1.00	0.2912	0.55	0.3429	1.18

0.4761	0.06	0.3982	0.84	0.3783	0.31	0.3802	1.01	0.2877	0.56	0.3410	1.19
0.2843	0.57	0.3391	1.19	0.2090	0.81	0.2874	1.38	0.1469	1.05	0.2299	1.57
0.2810	0.58	0.3372	1.20	0.2061	0.82	0.2850	1.38	0.1446	1.06	0.2275	1.57
0.2776	0.59	0.3352	1.21	0.2033	0.83	0.2827	1.39	0.1423	1.07	0.2251	1.58
0.2743	0.60	0.3332	1.21	0.2005	0.84	0.2803	1.40	0.1401	1.08	0.2227	1.59
0.2709	0.61	0.3212	1.22	0.1977	0.85	0.2780	1.41	0.1379	1.09	0.2203	1.60
0.2676	0.62	0.3292	1.23	0.1949	0.86	0.2756	1.41	0.1357	1.10	0.2179	1.61
0.2643	0.63	0.3271	1.24	0.1922	0.87	0.2732	1.42	0.1335	1.11	0.2155	1.61
0.2611	0.64	0.3251	1.25	0.1894	0.88	0.2709	1.43	0.1314	1.12	0.2131	1.62
0.2578	0.65	0.3230	1.25	0.1867	0.89	0.2685	1.44	0.1292	1.13	0.2107	1.63
0.2546	0.66	0.3209	1.26	0.1841	0.90	0.2661	1.45	0.1271	1.14	0.2083	1.64
0.2514	0.67	0.3187	1.27	0.1814	0.91	0.2637	1.45	0.1251	1.15	0.2059	1.65
0.2483	0.68	0.3166	1.28	0.1788	0.92	0.2613	1.46	0.1230	1.16	0.2036	1.66
0.2451	0.69	0.3144	1.28	0.1762	0.93	0.2589	1.47	0.1210	1.17	0.2012	1.66
0.2420	0.70	0.3123	1.29	0.1736	0.94	0.2565	1.48	0.1190	1.18	0.1989	1.67
0.2389	0.71	0.3101	1.30	0.1711	0.95	0.2541	1.49	0.1170	1.19	0.1965	1.68
0.2358	0.72	0.3079	1.31	0.1685	0.96	0.2516	1.49	0.1151	1.20	0.1942	1.69
0.2327	0.73	0.3056	1.31	0.1660	0.97	0.2492	1.50	0.1131	1.21	0.1919	1.70
0.2296	0.74	0.3034	1.32	0.1635	0.98	0.2468	1.51	0.1112	1.22	0.1895	1.70

0.2266	0.75	0.3011	1.33	0.1611	0.99	0.2444	1.52	0.1093	1.23	0.1872	1.71
0.2236	0.76	0.2989	1.34	0.1587	1.00	0.2420	1.52	0.1075	1.24	0.1849	1.72
0.2206	0.77	0.2966	1.34	0.1562	1.01	0.2396	1.53	0.1056	1.25	0.1826	1.73
0.2177	0.78	0.2943	1.35	0.1539	1.02	0.2371	1.54	0.1038	1.26	0.1804	1.74
0.2148	0.79	0.2920	1.36	0.1515	1.03	0.2347	1.55	0.1020	1.27	0.1781	1.75
0.2119	0.80	0.2897	1.37	0.1492	1.04	0.2323	1.56	0.1003	1.28	0.1758	1.75
0.0985	1.29	0.1736	1.76	0.0618	1.54	0.1219	1.97	0.0367	1.79	0.0804	2.19
0.0968	1.30	0.1714	1.77	0.0606	1.55	0.1200	1.98	0.0359	1.80	0.0790	2.20
0.0951	1.31	0.1691	1.78	0.0594	1.56	0.1182	1.99	0.0351	1.81	0.0775	2.21
0.0934	1.32	0.1669	1.79	0.0582	1.57	0.1163	2.00	0.0344	1.82	0.0761	2.21
0.0918	1.33	0.1647	1.79	0.0571	1.58	0.1145	2.01	0.0336	1.83	0.0748	2.23
0.0901	1.34	0.1626	1.80	0.0559	1.59	0.1127	2.02	0.0329	1.84	0.0734	2.23
0.0885	1.35	0.1604	1.81	0.0548	1.60	0.1109	2.02	0.0322	1.85	0.0721	2.24
0.0869	1.36	0.1582	1.82	0.0537	1.61	0.1092	2.03	0.0314	1.86	0.0707	2.25
0.0853	1.37	0.1561	1.83	0.0526	1.62	0.1074	2.04	0.0307	1.87	0.0694	2.26
0.0838	1.38	0.1539	1.84	0.0516	1.63	0.1057	2.05	0.0301	1.88	0.0681	2.26
0.0823	1.39	0.1518	1.84	0.0505	1.64	0.1040	2.06	0.0294	1.89	0.0669	2.28
0.0808	1.40	0.1497	1.85	0.0495	1.65	0.1023	2.07	0.0287	1.90	0.0656	2.29
0.0793	1.41	0.1476	1.86	0.0485	1.66	0.1006	2.07	0.0281	1.91	0.0644	2.29
0.0778	1.42	0.1456	1.87	0.0475	1.67	0.0989	2.08	0.0274	1.92	0.0632	2.31



0.0764	1.43	0.1435	1.88	0.0465	1.68	0.0973	2.09	0.0268	1.93	0.0620	2.31
0.0749	1.44	0.1415	1.89	0.0455	1.69	0.0957	2.10	0.0262	1.94	0.0608	2.32
0.0735	1.45	0.1394	1.90	0.0446	1.70	0.0940	2.11	0.0256	1.95	0.0596	2.33
0.0721	1.46	0.1374	1.91	0.0436	1.71	0.0925	2.12	0.0250	1.96	0.0584	2.34
0.0708	1.47	0.1354	1.91	0.0427	1.72	0.0909	2.13	0.0244	1.97	0.0573	2.35
0.0694	1.48	0.1334	1.92	0.0418	1.73	0.0893	2.14	0.0239	1.98	0.0562	2.35
0.0681	1.49	0.1315	1.93	0.0409	1.74	0.0878	2.15	0.0233	1.99	0.0551	2.36
0.0668	1.50	0.1295	1.94	0.0401	1.75	0.0863	2.15	0.0228	2.00	0.0540	2.37
0.0655	1.51	0.1276	1.95	0.0392	1.76	0.0848	2.16	0.0222	2.01	0.0529	2.38
0.0643	1.52	0.1257	1.95	0.0384	1.77	0.0833	2.17	0.0217	2.02	0.0519	2.39
0.0630	1.53	0.1238	1.97	0.0375	1.78	0.0818	2.18	0.0212	2.03	0.0508	2.40
0.0207	2.04	0.0498	2.41	0.0113	2.28	0.0297	2.63	0.0059	2.52	0.0167	2.84
0.0202	2.05	0.0488	2.42	0.0110	2.29	0.0290	2.64	0.0057	2.53	0.0163	2.85
0.0197	2.06	0.0478	2.43	0.0107	2.30	0.0283	2.64	0.0055	2.54	0.0158	2.86
0.0192	2.07	0.0468	2.44	0.0104	2.31	0.0277	2.65	0.0054	2.55	0.0154	2.87
0.0188	2.08	0.0459	2.44	0.0102	2.32	0.0270	2.66	0.0052	2.56	0.0151	2.88
0.0183	2.09	0.0449	2.45	0.0099	2.33	0.0264	2.67	0.0051	2.57	0.0147	2.89
0.0179	2.10	0.0440	2.46	0.0096	2.34	0.0258	2.68	0.0049	2.58	0.0143	2.90

0.0174	2.11	0.0431	2.48	0.0094	2.35	0.0252	2.68	0.0048	2.59	0.0139	2.90
0.0170	2.12	0.0422	2.48	0.0091	2.36	0.0246	2.69	0.0047	2.60	0.0136	2.91
0.0166	2.13	0.0413	2.49	0.0089	2.37	0.0241	2.71	0.0045	2.61	0.0132	2.92
0.0162	2.14	0.0404	2.49	0.0087	2.38	0.0235	2.71	0.0044	2.62	0.0129	2.93
0.0158	2.15	0.0396	2.51	0.0084	2.39	0.0229	2.72	0.0043	2.63	0.0126	2.94
0.0154	2.16	0.0387	2.51	0.0082	2.40	0.0224	2.73	0.0041	2.64	0.0122	2.95
0.0150	2.17	0.0379	2.53	0.0080	2.41	0.0219	2.74	0.0040	2.65	0.0119	2.96
0.0146	2.18	0.0371	2.54	0.0078	2.42	0.0213	2.74	0.0039	2.66	0.0116	2.97
0.0143	2.19	0.0363	2.54	0.0075	2.43	0.0208	2.76	0.0038	2.67	0.0113	2.98
0.0139	2.20	0.0355	2.55	0.0073	2.44	0.0203	2.76	0.0037	2.68	0.0110	2.99
0.0136	2.21	0.0347	2.55	0.0071	2.45	0.0198	2.77	0.0036	2.69	0.0107	3.00
0.0132	2.22	0.0339	2.57	0.0069	2.46	0.0194	2.79	0.0035	2.70	0.0104	3.01
0.0129	2.23	0.0332	2.57	0.0068	2.47	0.0189	2.80	0.0034	2.71	0.0101	3.01
0.0125	2.24	0.0325	2.60	0.0066	2.48	0.0184	2.80	0.0033	2.72	0.0099	3.02
0.0122	2.25	0.0317	2.60	0.0064	2.49	0.0180	2.82	0.0032	2.73	0.0096	3.03
0.0119	2.26	0.0310	2.61	0.0062	2.50	0.0175	2.82	0.0031	2.74	0.0093	3.04
0.0116	2.27	0.0303	2.61	0.0060	2.51	0.0171	2.83	0.0030	2.75	0.0091	3.05
0.0029	2.76	0.0088	3.06	0.0022	2.85	0.0069	3.14	0.0016	2.94	0.0053	3.23
0.0028	2.77	0.0086	3.07	0.0021	2.86	0.0067	3.15	0.0016	2.95	0.0051	3.24
0.0027	2.78	0.0084	3.08	0.0021	2.87	0.0065	3.16	0.0015	2.96	0.0050	3.25

0.0026	2.79	0.0081	3.09	0.0020	2.88	0.0063	3.17	0.0015	2.97	0.0048	3.26
0.0026	2.80	0.0079	3.10	0.0019	2.89	0.0061	3.18	0.0014	2.98	0.0047	3.26
0.0025	2.81	0.0077	3.11	0.0019	2.90	0.0060	3.19	0.0014	2.99	0.0046	3.27
0.0024	2.82	0.0075	3.12	0.0018	2.91	0.0058	3.20	0.0013	3.00	0.0044	3.28
0.0023	2.83	0.0073	3.13	0.0018	2.92	0.0056	3.21				
0.0023	2.84	0.0071	3.13	0.0017	2.93	0.0055	3.22				

$\phi'_{\bar{x}_i}$  = Proportion above cutoff (selection ratio)

$Z_{\bar{x}_i}$  = Predictor cutoff value in standard-score form

$\lambda_{\bar{x}_i}$  = Normal curve ordinate at  $Z_{\bar{x}_i}$

**Table B-1. A Table for Computing the Mean Criterion Score ( $Z_{yi}$ ) for the Group Falling above Some Cutoff Score ( $Z_{xi}$ )**

Source: J.C. Naylor and L.C. Shine, "A Table for Determining the Increase in Mean Criterion Score Obtained by Using a Selection Device." Journal of Industrial Psychology, 3, 1965, 33-42. Used by permission.

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# **Financial Analysis for HR Managers**

**Tools for Linking HR Strategy to Business  
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*To Elissa, Syril, Rustin, Mara, Torin, Judah, and Hazel.*

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Particularly valuable were the insights I gained from the experienced and very bright professionals who participated in the Rutgers Executive Masters in HR Leadership program and in the executive education programs offered by the Rutgers Center for Management Development. Among many other things, these individuals taught me the importance of communicating core concepts with a minimum of academic jargon and mathematical notation. To the extent that I failed to do that in this book, the fault is my own. My students also often asked me to recommend a book on corporate finance that would be appropriate for HR managers. The difficulty I had in identifying books that would provide what they were looking for prompted me to begin thinking about doing this volume. It was my colleague and friend Dr. Paula Caligiuri who encouraged me to move beyond just thinking about it and actually submit a book proposal to FT Press. I am therefore particularly grateful to Paula for making this book happen.

The ideas expressed in this volume are largely a synthesis of the writings and contributions others have made to the finance and human resource strategy literatures. My dependence on their work cannot be overstated.

Unfortunately, the list is far too large to acknowledge them all. I have, however, tried to cite many of these individuals in the following chapters. Finally, I would like to express my greatest gratitude to my parents.

Though neither had a degree in finance, or anything else, their exceptional level of business acumen (and hard work) provided our family with the resources that

enabled my siblings and me to attend college and graduate school.

## About the Author

**Steven Director** is a professor in the Rutgers University School of Management and Labor Relations. He has held a number of leadership positions at Rutgers, including serving as Associate Dean, as Chair of the Human Resource Management Department, and as Director of the PhD program in Industrial Relations and Human Resources. Prior to joining Rutgers he was an Employment Policy Fellow at the Brookings Institution and on the faculty of Michigan State University. He received his Ph.D. and MBA degrees from the Northwestern University Kellogg School of Management.

Dr. Director teaches courses in Labor Economics, Statistics, and Finance. His most frequent and preferred teaching assignment is a course in Financial Analysis for Human Resource Managers. In addition to his on-campus teaching, Dr. Director has taught Finance for HR to senior executives in the U.S., Europe, and Asia. Recognized for his ability to effectively communicate financial concepts to non-financial audiences, Dr. Director has also developed and delivered customized finance training for scientists, engineers, and physicians. His publications have appeared in numerous journals and edited volumes.

His research interests include the financial aspects of HR, compensation and benefits policy, and the interaction between national and corporate employment policy. In January, 2003 he developed and partnered with the Society of Human Resource Management to produce the monthly Leading Indicator of National Employment (LINE) Report. Dr. Director continues to serve as economic advisor to this project and SHRM has now published over 100 consecutive monthly LINE

reports. This data series is followed closely by financial analysts and business economists.

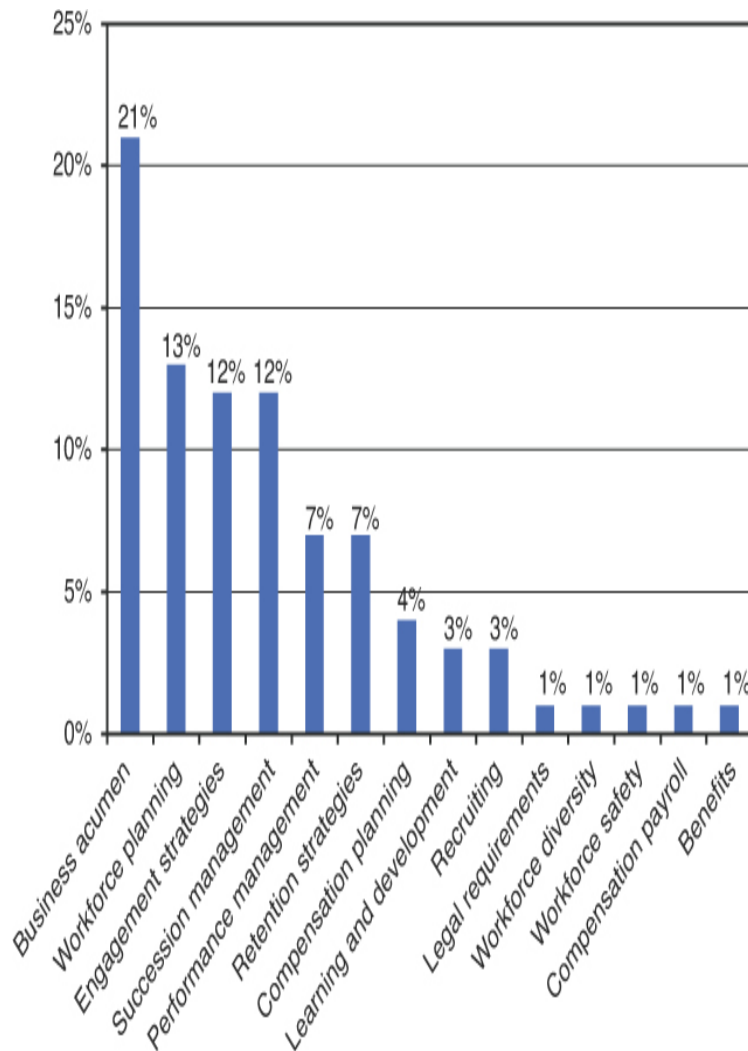
## **1. Business Strategy, Financial Strategy, and HR Strategy**

What makes one company more successful than another? Is it because it has nicer office buildings, newer research labs, or better manufacturing equipment? If it is the differences in people that create differences in corporate value, then the HR function (though not necessarily the HR department) is critical to a corporation's success. Clearly line managers have an important role in hiring, developing, and motivating the people that can make an organization successful. Perhaps surprisingly it is the role of human resource managers in this process that is less clear. Should human resource managers have primarily an administrative role focusing on the processing of transactions and compliance with regulations? Should human resource managers be business partners charged with developing and maintaining a workforce with the specific capabilities required to execute their firm's business strategy? Or should human resource managers be true strategic partners participating along with top management, and their counterparts from other functional areas, in the actual development and monitoring of a firm's business strategy? In many organizations HR departments play only one or two of these three roles. It is a premise of this book that many firms fail to achieve their maximum success because they do not utilize their HR departments optimally. It must be acknowledged, however, that line managers may be underutilizing their HR departments because they are not confident that HR can perform at higher levels.



## **IS HR WEAKEST IN THE MOST CRITICAL AREAS?**

A study conducted by the Corporate Leadership Council (CLC)<sup>1</sup> found that in the opinion of the 16,000 line managers who were surveyed, fewer than one in five HR business partners were highly effective in their strategy roles. That's a statement that the HR profession should find troubling. The good news is that there's lots of room for improvement, and we know how to generate those improvements. The CLC study also estimated the relationship between HR staff competencies and degree of success as a strategic partner. Their findings are summarized in Exhibit 1-1. Each vertical bar represents an estimate of the maximum impact on strategic role effectiveness of a particular HR capability. The maximum impact was calculated by comparing the strategic role performance of individuals rated high and individuals rated low on each capability. Of far greater importance than expertise in any HR specialization was overall business acumen. What are the implications of that statement for the way you select and train HR professionals? Does it mean you don't need individuals with specialized training or experience in HR? No, but it suggests that while specialized HR skills are necessary, they are not sufficient.



**Exhibit 1-1. Impact of HR competencies on strategic role effectiveness**

Source: Graph created using data from Corporate Leadership Council, "Building Next-Generation HR-Line Partnerships," Corporate Executive Board, 2008, p. 32.

HR professionals need both HR knowledge and a high degree of business acumen. Most individuals in the field today have strong HR skills. There is, however, a wide range in the level of business acumen they possess. That creates substantial competitive advantages for corporations whose HR staffs possess both sets of skills. For individuals who have both sets of skills, it also creates great opportunities for them to advance within their HR careers. The specific mix of skills required

depends, of course, on the individual's job duties and position in the corporate hierarchy. In general, the higher the individual is (or hopes to be) in the corporate hierarchy, the greater the need for strong business acumen to complement their HR knowledge.

What is business acumen, anyway? At the most fundamental level, it is an understanding of how your company makes money and how your decisions and behaviors can impact the company's financial performance. The business acumen needed by HR managers includes an understanding of their firm's business strategy, the key drivers of their firm's success, and the interrelationships among the different components of the organization. This understanding is necessary to develop and execute an effective HR strategy. There is no business department, function, or activity whose success is not dependent upon the firm's HR strategy. An organization's HR strategy determines who is employed in each functional area, how much will be invested to enhance their skills and capabilities, and what behaviors will be encouraged or discouraged through the compensation system. A firm's HR strategy must be tailored to support its business strategy. To produce this alignment, HR managers need the ability to analyze which choices will add value to the firm and which will weaken it. Do most individuals in the HR profession have that ability? In a survey conducted by Mercer Consulting,<sup>2</sup> HR leaders were asked to assess the skills of their staffs. They rated their staffs weakest on the following skill sets:

- Financial skills
- Business strategy skills
- Organizational assessment
- Cross-functional expertise

- Cost analysis and management

They felt their staffs were strongest at the following:

- Interpersonal skills
- Recordkeeping/data maintenance
- Team skills
- Functional HR expertise
- Customer service

The skill sets where these HR staffs were strong are important, but they are not the skill sets that drive corporate success or the career success of individual HR managers. No company is going to become an industry leader because of the interpersonal skills or recordkeeping abilities of its HR staff. It is rather striking that the areas in which these HR staffs were weakest are exactly the skill sets that are most likely to contribute to a corporation's success, and exactly the skills that individual HR managers need to progress in their careers.

## **YOU DON'T NEED TO BE A QUANT TO MAKE GOOD BUSINESS DECISIONS**

In most cases HR managers need only a modest level of quantitative skills. There is certainly no need to be the kind of individual the Wall Street firms refer to as a *quant*. Analyzing business decisions generally requires no more than a tolerance for basic arithmetic and a comfort with the creation and use of spreadsheets. Actually, in many cases more important than the ability to crunch the numbers is the ability to think analytically and creatively about the business challenges a firm faces. Some HR managers are limited in their ability to do this simply because they do not understand all the jargon used in their company's financial statements or in the models their firm uses to evaluate business alternatives. Without that understanding it's impossible to know, for example, whether a proposal made by a colleague is brilliant or nonsense.

Fortunately, gaining an understanding of basic financial jargon and concepts is not difficult to do. You don't need a degree in finance to use financial tools to make better decisions. The goal of this book is to help HR professionals deepen their understanding of business economics and finance. Hopefully an increased understanding of these issues can enable them to make better decisions about resource allocations within the HR function. The bigger potential benefit, however, is that an increased understanding of these issues can enable them to more effectively tailor an HR strategy to the firm's business strategy. If this can be done they can significantly improve their firm's competitiveness and add value to the firm's shareholders. At the same time they can enhance their own prospects for career advancement. Too many HR professionals underestimate the role HR can and should play in strategic decisions. They should not be deterred simply

because these decisions involve financial models or analyses.

## **WHICH HR DECISIONS ARE IMPORTANT?**

In many organizations, human resource costs (recruitment, selection, compensation, training, and workforce administration) are the largest component of the firm's operating expenses. In some service organizations these items constitute 70% to 80% of the firm's total costs. Properly managing those costs is therefore critical to the success of any corporation. Other things equal, a 10% reduction in a firm's HR costs can produce a huge increase in its bottom line profit. Still, of greater importance than managing workforce costs is creating workforce value. Firms do not become industry leaders because they have the lowest turnover rate, the smallest health insurance premiums, or the lowest cost per hire. Firms succeed because they create value for their customers. Firms succeed because they have a workforce that skillfully executes a value-creating business strategy. A firm's objective must be to maximize the return on the investment (ROI) it makes in its workforce. The relationship between the ROI and HR costs can be summarized as:  $\text{HR ROI} = \text{Workforce value} / \text{HR costs}$ . Yes, other things equal, reducing HR costs in the denominator of this ratio produces an increase in ROI. Of course, increasing HR costs in the denominator of this ratio could also improve ROI. That would be the case when these additional HR expenditures result in even larger increases in workforce value.

Reducing inefficiencies in HR processes and increasing workforce value are both important. Increases in workforce value, however, are most likely to explain a firm's level of success. Consider these two firms. Company A's management and workforce are by far the most talented and engaged in the industry. Company B's management and workforce are about average for the

industry, but its cost per hire is much less than average. Which HR department is doing the better job? In which firm will more value be created for shareholders? The amount a firm can save by reducing inefficiencies in HR processes is usually insignificant compared to the amount it can gain by building a more talented and engaged work force. Of course if you can do both, you should. Several books have been written that focus on using financial tools to improve the efficiency of resource allocation within the HR department. This book discusses those issues but focuses on the financial understanding needed to align HR strategy with business strategy and create shareholder value.

## **WHAT THIS BOOK ATTEMPTS TO DO**

When should financial analyses precede HR decisions? The answer to that question is always. That doesn't mean that in all cases you need to develop spreadsheet models and utilize their built-in financial functions. That may be necessary when decisions involve many factors or substantial amounts of money. However, even in situations in which no formal modeling is warranted, you need to consider the potential financial implications of your recommendations and actions. To do that requires an understanding of and appreciation for the importance of the following:

- Basic financial concepts such as the difference between profit and cash flow
- Difference between the market value and the book value of a company
- Cost of capital
- Time value of money
- Return on investment

- Risk reward trade-offs
- Risk management tools such as diversification and real options

Most of these concepts are just as relevant for your personal decision making as for your decisions at work. HR managers also need to understand the strengths and weaknesses of the various financial performance measures used to assess how well a company is doing and as a basis for allocating incentive pay.

This book provides you with an intuitive understanding of each of these topics. Algebraic notation and equations are avoided, and these concepts are illustrated using spreadsheet examples. Not all HR managers are comfortable with algebraic notation, and in any case spreadsheets are the format in which they are most likely to encounter these concepts on the job. Where appropriate the keystrokes for utilizing Microsoft Excel's built-in financial functions are provided and discussed. This book does not attempt to include an introduction to the HR strategy or to corporate compensation policies. There are excellent volumes devoted to these topics.<sup>3</sup> What it does attempt to do is provide HR managers with an understanding of the financial jargon and methods often central to strategy development and compensation policy.

Chapter 2 ("The Income Statement: Do We Care About More Than the Bottom Line?"), Chapter 3 ("The Balance Sheet: If Your People Are Your Most Important Asset, Where Do They Show Up on the Balance Sheet?"), and Chapter 4 ("Cash Flows: Timing Is Everything") use data from the annual reports of Home Depot, Inc., to review the interpretation of corporate income statements, balance sheets, and cash flow statements. If you are familiar with the interpretation of basic financial statements and the differences between profit and cash



flow, you may want to skip over these chapters. Chapter 5 (“Financial Statements as a Window into Business Strategy”) provides a case study on using financial statements to gain insights into a firm’s business strategy. Chapter 6 (“Stocks, Bonds, and the Weighted Average Cost of Capital”) and Chapter 7 (“Capital Budgeting and Discounted Cash Flow Analysis”) discuss the concepts of cost of capital and time value of money. Chapter 8 (“Financial Analysis of Human Resource Initiatives”) uses these concepts to look at resource allocation within the HR function. Chapter 9 (“Financial Analysis of Corporation’s Strategic Initiatives”) begins with the premise that if HR managers are going to be true strategic partners they must understand the financial models used to develop and evaluate corporate strategy. These techniques are discussed in spreadsheet illustrations. Chapter 10 (“Equity-Based Compensation: Stock and Stock Options”) looks at equity pay and the implications of paying in stock versus paying in stock by stock options. Pensions are of enormous financial significance to the U.S. economy and to most large corporations, and they are the subject of Chapter 11 (“Financial Aspects of Pension and Retirement Programs”). The chapter includes a discussion of the way pension accounting choices can affect the company’s bottom line profit. Chapter 12 (“Creating Value and Rewarding Value Creation”) attempts to pull all these concepts together to look at the conditions under which shareholder value is created and at the strengths and weaknesses of alternative measures of value creation. These topics are discussed within the context of incentive pay and the choice of performance metrics that encourage the development and execution of strategies that create long-term value for the firm and its stakeholders.

## **2. The Income Statement: Do We Care About More Than the Bottom Line?**

Suppose you resign from your corporate HR position and use your life savings, say \$1,000,000, to start your own headhunting firm. One year later, what are the financial questions that you will be asking? Perhaps number one on your list will be, “Did your firm make a profit?” In addition to profitability you will want to know about the financial condition of your business, that is, “Will your firm have the financial strength to ride out difficult economic conditions should you encounter them?” Or on the flipside, “Will your firm have the financial strength to take advantage of any attractive expansion opportunities?” A third question you will no doubt ask is, “What rate of return are you earning on your \$1,000,000 investment?” Could you have earned a comparable or better return from an alternative investment, perhaps one that was less much risky than starting up a small business? Your accountant may point out to you that you should be closely monitoring your firm’s cash flow from operations. What’s the difference between cash flow and profit? Why is cash flow even important as long as you make a profit large enough to give you a good return on your investment? The questions you would want answered as the owner of a small privately held business are the same ones that the CEOs, CFOs, and other executives of large corporations worry about. How close can the standard financial statements come to providing useful answers to these questions?

It has become a cliché to say that trying to manage a business based on its financial statements is like trying to drive a car by looking in the rear view mirror. That criticism is a bit too simplistic. A driver cannot plan his route forward without knowing where he is now and how

much gas he has in the car. Financial statements tell you where you are now and what resources you can draw upon to move forward. Furthermore, a key component of strategic planning is almost always a forecast of what future financial statements would look like under different business scenarios. In addition to these internal uses, financial statements are a primary mechanism through which external constituencies (for example, stockholders, bondholders, financial analysts, banks, partners, suppliers, customers, competitors, and prospective employees) form opinions about a firm. It's hard to overstate the importance of financial statements. That doesn't mean that the standard financial statements (the balance sheet, the income statement, the statement of cash flows, and statement of retained earnings) don't have significant weaknesses and limitations. However, understanding those limitations makes them more, not less, useful. Financial metrics are also more valuable when combined with nonfinancial measures such as customer satisfaction, product quality, product innovation, process efficiency, and the ability to attract and retain highly talented employees.

The following sections discuss the interpretation and analysis of the basic financial statements using as examples data from the Securities Exchange Commission (SEC) filings by the nation's largest home improvement retailer Home Depot, Inc., and its major competitor Lowe's Companies, Inc. This chapter looks at income statements. The income statements show profit as the amount by which revenues exceed expenses. The next two chapters focus on the balance sheet and cash flow statement. A balance sheet provides an indication of a company's financial strength by comparing the amount the company owns (assets) to the amount it owes (liabilities). Annual cash flow statements provide a comparison of the amount of cash coming in during the year and the amount paid out during that period. A key

objective of these chapters is to help the reader understand how net cash flow differs from net profit.

## INCOME STATEMENTS

Income statements are sometimes referred to as an Earnings Statement, Statement of Operations, Profit and Loss Statement, or P&L Statement. No matter how complex the corporation may be, the logic of an income statement can be nothing more than Revenues minus Expenses = Profits. Exhibit 2-1 presents Home Depot's income statement for the 2011 fiscal year. Perhaps the first thing you notice is that Home Depot's top-line sales revenue grew by a modest 3.5%, whereas its bottom line net income grew by a substantial 16.3%. How can profits grow so much faster than sales? Before getting into that analysis, review the definition of each of the components shown on an income statement.

<i>Amounts in Millions</i>				
	For 12-Month Period Ending	January 30, 2012	January 30, 2011	
		FY 2011	FY 2010	% Change
<b>NET SALES</b>		\$ 70,395	\$ 67,997	3.5%
Cost of Sales		46,133	44,693	3.2%
<b>GROSS PROFIT</b>		24,262	23,304	4.1%
Selling, General, and Administrative Expenses		16,028	15,849	1.1%
<b>EBITDA</b>		8,234	7,455	10.4%
Depreciation and Amortization		1,573	1,616	-2.7%
<b>EBIT</b>		6,661	5,839	14.1%
Interest and Other Expense (Net)		593	566	4.8%
<b>EARNINGS BEFORE INCOME TAX</b>		6,068	5,273	15.1%
Provision for Income Tax		2,185	1,935	12.9%
<b>NET EARNINGS</b>		\$ 3,883	\$ 3,338	16.3%

**Exhibit 2-1. The Home Depot, Inc., and subsidiaries consolidated statement of earnings**

## **Sales Revenue**

When analysts speak about a company's top-line growth, they are referring to growth in the dollar value of sales, which is the top line of the income statement. The top line of Home Depot's fiscal year (fy) 2011 income statement shows sales of just under \$70.4 billion, up 3.5% from fy2010. As is typically done, the top line in the Home Depot income statement is labeled Net Sales, indicating that this number is net of (that is, after subtracting out) any discounts off of list price, sales returns, or other deductions from the original sale price. Sales taxes are also not included in this number. You must remember that Home Depot, like all major corporations, uses the accrual method of accounting. That means they assign (accrue) revenues and expenses to particular time periods using the following logic. Revenues for a specific time period, say fy2011, are the revenues earned during that year regardless of whether Home Depot has collected the cash from those sales. Any amounts that remain uncollected at the end of the year show up as Accounts Receivable on the balance sheet (see Exhibit 3-1).

## **Cost of Goods Sold**

The first category of expenses subtracted out on an income statement is the cost of the merchandise sold during that period. The cost of the merchandise sold by Home Depot in fy2011 was \$46.1 billion. Remember that is what it cost Home Depot to purchase this merchandise from its suppliers, not the price Home Depot charged its customers when this merchandise was resold. The accrual accounting method requires that the expenses subtracted out on the fy2011 income statement be those expenses, and only those expenses, that were necessary to generate Home Depot's fy2011 revenues. The amount of merchandise Home Depot purchases from its suppliers in a given year can be either more or less than the amount it actually sells in that year. The amount subtracted on its income statement will always be the cost of the merchandise sold that year. For example, if in a given year Home Depot purchased merchandise costing \$50 billion but sold merchandise only costing \$45 billion, a \$45 billion cost of goods expense would be subtracted on its income statement. Inventory levels shown on its balance sheet would increase by \$5 billion. In a year when year Home Depot purchased merchandise costing \$50 billion and, by drawing down on previous inventory, sold merchandise costing \$53 billion, the \$53 billion cost of goods sold would be subtracted on its income statement. Inventory levels shown on its balance sheet would decrease by \$3 billion.

## **SG&A**

Ignore, just for the moment, the subtotals shown in bold type in the income statement (Gross Profit, EBIT, EBITDA, and Pretax Profit). The next major category of expenses subtracted out is Selling, General, and Administrative Expense (SG&A). Home Depot's SG&A expense in fy2011 was \$16.0 billion. This category is sometimes referred to as Operating Expenses because it is a catch-all category that includes almost all the costs of operating a business. The only things it does not include are the costs shown elsewhere on the income statement (merchandise costs, depreciation, interest, and income taxes). It will come as no surprise to HR managers that for most corporations the largest component of operating expenses is compensation costs (wages and benefits). That is just one of the compelling reasons why HR managers need to understand financial statements and why CEOs, CFOs, and others need to appreciate the role HR plays to determine a firm's financial success (or lack thereof). In addition to compensation costs, SG&A includes expenses for the following:

- Advertising
- Office supplies
- Rent
- Insurance
- Utilities
- Bad debt write-offs
- Payroll taxes
- Shipping costs
- Travel and entertainment

- And much more

Under the accrual accounting method, all operating expenses for the year are included in SG&A even if the company has not paid all those bills by the end of the fiscal year. As discussed in the next chapter, any operating expenses not paid by the end of fy2011 were recorded on the company's balance sheet as an accounts payable liability. It's not a consideration for a retailer like Home Depot, but in some industries, for example pharmaceuticals, research and development is so important that operating expenses on their income statements are disaggregated on to two lines: one labeled R&D and the other labeled SG&A. Pfizer, Inc., for example, in its fy2011 income statement shows \$9.1 billion spent on R&D and another \$19.5 billion for other SG&A expenses.<sup>1</sup>



## Depreciation and Amortization

Suppose Home Depot builds a new store at a cost of \$60 million and that store generates \$20 million in revenues during its first year of operation. When trying to determine whether that new store was profitable in its first year, would it make sense to subtract from its first year revenues its first year operating expenses and the full \$60 million construction cost? Of course not. Both common sense and Generally Accepted Accounting Principles (GAAP) require that when estimating this store's profit you treat the \$60 million construction cost as if it had been spread over the useful life of that store. The accounting term for that process is *depreciation*. There are various ways to calculate depreciation expense, but the simplest to illustrate is called *straight line depreciation*. If Home Depot were using straight line depreciation to allocate this \$60 million construction cost over a 30-year life of the building, it would on its income statement subtract a \$2 million ( $\$60 \text{ million} / 30$ ) depreciation expense in each of those 30 years. In the first year \$60 million would have been paid to construct the building but only a \$2 million expense would be included on the income statement. In the second and later years, no cash would be been paid out for this construction, but a \$2 million expense would be included on the income statement. This method of calculating profits can produce large differences between the profit a company reports in a given a year and its actual net cash flow in that year. The implications of that statement for business planning are extremely important and are examined in detail in later chapters.

In fy2011 Home Depot's income statement included a depreciation expense charge of almost \$1.6 billion. That \$1.6 billion was not, however, paid out in fy2011. It was just an accounting recognition of a portion of the cash Home Depot paid out in earlier years to purchase buildings and other long-term assets. Firms depreciate

not just their buildings, but almost all long-term assets. Long-term assets are assets that have a useful life of greater than one year. These might include furniture and fixtures, trucks, forklifts, lab equipment, computers, and almost any other type of fixed asset that is required for the firm's operation. The most significant exception is real estate. Firms depreciate the cost of buildings and other improvements on the land but not the cost of the land itself. The assumption is that land does not have a finite useful life and does not decrease in value with usage.

How can you determine the appropriate useful life over which to spread the cost of each type of depreciable asset? You could argue, quite reasonably, that a firm should make the most realistic forecast possible of how long each of its long-term assets will be used and then allocate their cost over that that life span. For tax purposes, however, firms typically use the minimum asset life span permitted under the federal income tax code. The shorter the life span assumed, the larger the annual depreciation expense will be. Larger annual depreciation deductions reduce the company's taxable income and therefore the taxes that must be paid. An exception might be a firm that is not profitable now but expects to be profitable in the future. In that situation a firm might prefer smaller deductions now and larger reductions in the future. When firms use a different asset life estimate for financial reporting than for tax purposes, this is disclosed in a footnote to its financial statements.

The term *depreciation* refers to allocating the cost of a long-term tangible asset over an estimate of its useful life. Until recently, the term *amortization* referred to an analogous process used to allocate the cost of an intangible asset, for example, a purchased patent or brand name over an estimate of its useful life. The logic

behind this approach was not always clear. Does a brand name have a finite useful life? Is it always true that over time a brand name decreases rather than increases in value? To sidestep these difficulties, accountants have generally stopped assigning arbitrary economic lives to intangible assets. Intangible assets are now carried on a company's books at their initial value until there is evidence that their value has declined. If and when such declines in value of an intangible asset do occur, the company shows a charge on their income statement labeled amortization expense.

## **Interest Expense**

Almost all corporations have both interest bearing debt such as bank borrowing and bonds and noninterest bearing debt such as accounts payable. This line on the income statement shows the cost for this period of the interest bearing debt. Interest is shown on a separate line and is not lumped into the broad category of operating expenses because it is not a cost of operating the business. It is a cost of financing the business. This distinction is important when you begin analyzing the income statement to assess the success of the firm's business model. The label used on the Home Depot income statement is Interest and Other Expenses (Net). Other expenses that can be included are loan application and processing fees, points charged by lenders, and legal and other fees associated with obtaining loans. In fy2011 Home Depot's interest expense of \$606 million was offset by \$13 million of interest and investment income producing a net interest expense of \$593 million. In a foot note to its income statement, Home Depot states that the interest expense shown for 2012 is net of capitalized interest of \$3 million. Capitalized interest is interest that instead of being expensed on the current period's income statement is treated as part of the asset's cost reported on the balance sheet. It then becomes part of the asset's depreciation expense reported on future income statements.

**Income Taxes**

Income tax expense is the total amount the corporation must pay in federal and state income taxes. It does not include other nonincome taxes such as the employer share of unemployment and social security taxes. These nonincome taxes are included in operating expenses. Home Depot's income tax expense in fy2011 was just more than \$2 billion. Its combined effective income tax rate decreased to 36.0% for fy2011 (2,185 / 6,068) from 36.7% in fy2010 (1,935 / 5,273).

## **Net Income**

When managers talk about being “bottom line focused” they mean focused on net income, which is the bottom line of the income statement. Net income (which is the same as net earnings or net profit) is what’s left when you take top-line sales revenue and then net out (subtract out) all the categories of expenses shown on the income statement. Companies whose stock is publicly traded are required to report Earnings Per Share (EPS). EPS is exactly what it sounds like: Net Income divided by the number of stock shares outstanding. Stock options and certain other financial instruments give their owners the right to obtain additional stock shares from the company. When such share distributions occur, the denominator in the EPS ratio, the number of shares outstanding, increases and the earnings per share is reduced (if the same profit figure is used in the numerator). To alert shareholders to this possibility, publicly traded companies are also required to report Diluted Earnings Per Shares. In the diluted EPS measure, the denominator is the number of shares currently outstanding plus the number that could potentially be issued through stock options and other securities that could be converted into stock. A big difference between a company’s basic EPS and diluted EPS may make investors nervous because of the risk that their ownership percentage will decline at some point in the future. Expressed on a per share basis, Home Depot’s net income converts to a basic EPS of \$2.49 and diluted EPS of \$2.47.

## **PROFIT CAN BE MEASURED AT VARIOUS LEVELS**

The income statements in Exhibit 2-1 show five measures of profit:

- Gross Profit

- EBITDA
- EBIT (Earnings Before Income Taxes)
- Net Income

Which profit measure is most important? That depends on which business question you want to answer at the moment. Each of these measures provides important information for managers and investors.

### **Gross Profit**

Gross profit is sales revenue minus only the first category of expenses, the cost of goods sold. Gross profit, often referred to as gross margin, is just the mark-up a company receives over its cost of purchasing or producing the items sold. If Home Depot buys a hammer for \$5.00 from its supplier and then sells it at retail for \$8.00, the gross profit or gross margin on that item is \$3.00. To be successful a company's gross profit must be large enough to cover all other costs of operating and financing the business and still leave a sufficient bottom line profit.

## **EBIT**

EBIT is an acronym for Earnings Before Interest and Taxes are subtracted out. Its calculation is exactly that: sales revenue minus all expenses other than interest and taxes. What critical business question does knowing that quantity answer? Why exclude interest expense that is a real and sometimes large expense? Another name for EBIT is operating profit. Interest expense is not subtracted out in this calculation because it is not a cost of operating the business. It is a cost of financing the business. Suppose Home Depot and Lowe's had the same sales revenue, the same cost of goods sold, and the same operating expenses, but that Home Depot had more debt and therefore more interest expense than Lowe's. In this hypothetical situation, both companies would have equally successful business operations and exactly the same pretax operating profit (EBIT). However, because of financing differences Home Depot would have a smaller bottom line net income. If the question you are interested in at the moment is, "Which business model is more successful?" comparing the two firms on EBIT would be the best choice. If the question you are interested in at the moment is, "Which firm generated the greatest profit for its shareholders?" comparing the two firms on net income would be the best choice. Remember that net income is always the result of two things: the profitability of the firm's business operations (which is measured by EBIT) and the way those operations were financed, that is, how much was borrowed at what interest rate.



## EBITDA

EBITDA is an acronym for Earnings Before Interest, Taxes, Depreciation and Amortization are subtracted out. Though sometimes referred to as a profit measure, it is probably more correct to view EBITDA as one form of cash flow measure. Remember that depreciation and amortization expenses do not represent cash outflows during the period in which they appear on the income statement. They are accounting reallocations of cash that was actually paid out at the time specific tangible or intangible assets were originally acquired. In fy2011, Home Depot's depreciation and amortization expense was \$1.573 billion, so its EBITDA was \$1.573 greater than its EBIT. EBITDA is a widely used performance metric in many industries including telecom. One telecom firm that eventually got into financial trouble was boasting each quarter about how rapidly its EBITDA was growing. Its EBITDA, the revenues it received from subscribers minus only the current cost of providing telecom services to those subscribers, was actually a positive and growing number. However, the monthly cost to provide telephone service after the fiber, electronics, and other network components are in place is relatively small. EBITDA would have been a good estimate of the positive cash flow its business would generate each quarter *if* there were no additional expenditures for building out its network. As a profit measure, however, EBITDA can be misleading. For this telecom firm viewing EBITDA as a profit measure was the equivalent of saying, "Yes, we are profitable if we don't subtract out the biggest costs our industry incurs, the costs of fiber, electronics, and network construction." The networks are a long-term asset, and the costs to create them show up on an income statement only as depreciation expense.

## **Net Income**

Net income is the profit remaining after all expenses have been subtracted. It is determined by the level of success achieved by the firm's business operations, the amount borrowed to finance those operations, the average interest rate paid on that debt, and the company's tax bracket. These bottom line profits can be retained by the corporation to support future business operations or distributed to shareholders as dividends.

## **SEEING THE BIG PICTURE**

Understanding the definition and calculation of the various income statement components is only the first step to use this information to make better business decisions. One way to begin an analysis of the business implications of this information is to calculate a common size income statement. This is easily done by expressing each row in the income statement as a percentage of top-line revenues. By expressing each item as a percentage of a common size (100%), you can easily make comparisons between a company's income statements from different years or between the income statements of different companies for the same year. Exhibit 2-2 provides an example of common size income statements for Home Depot and its largest competitor Lowe's Companies, Inc. Several factors are immediately obvious. Both firms charge almost exactly the same mark-up on the merchandise they sell. Gross margins at Home Depot are 34.5%, and gross margins at Lowe's are 34.6%. This is not surprising given the similarities in their product lines and competitive pressures to match the prices others offer. The similar gross margins are an important insight into the business strategies of these two firms. The relationship of gross margins to business strategy is discussed in the next chapter.

	<i>Amounts in Millions of \$</i>		<i>Home Depot</i>		<i>Lowe's</i>	
	<i>For 12-Month Period Ending</i>	<i>Jan 30, 2012</i>	<i>% of</i>	<i>Feb 3, 2012</i>	<i>% of</i>	
		<i>FY 2011</i>	<i>Sales</i>	<i>FY 2011</i>	<i>Sales</i>	
<b>NET SALES</b>		<b>\$70,395</b>	100%	<b>\$50,208</b>	100%	
Cost of Sales		46,133	65.5%	32,858	65.4%	
<b>GROSS PROFIT</b>		<b>24,262</b>	34.5%	<b>17,350</b>	34.6%	
Selling, General, and Administrative Expenses		16,028	22.8%	12,593	25.1%	
<b>EBITDA</b>		<b>8,234</b>	11.7%	<b>4,757</b>	9.5%	
Depreciation and Amortization		1,573	2.2%	1,480	2.9%	
<b>EBIT</b>		<b>6,661</b>	9.5%	<b>3,277</b>	6.5%	
Interest and Other Expense (Net)		593	0.8%	371	0.7%	
<b>EARNINGS BEFORE INCOME TAX</b>		<b>6,068</b>	8.6%	<b>2,906</b>	5.8%	
Provision for Income Tax		2,185	3.1%	1,067	2.1%	
<b>NET EARNINGS</b>		<b>\$3,883</b>	5.5%	<b>\$1,839</b>	3.7%	

**Exhibit 2-2. Common size income statements for  
Home Depot and Lowe's**

Source: Lowe's calculations based Form 10-K filed with U.S. Securities Exchange Commission on 3/20/2012, page 32. Home Depot calculations based Form 10-K filed with U.S. Securities Exchange Commission on 3/22/12, page 30.

### **Operating Efficiency**

There is a bigger difference between the two firms in terms of operating efficiency. SG&A at Lowe's is equal to 25.1% of sales revenue, whereas at Home Depot it is only 22.8%. If Lowe's had generated the same \$50.2 billion of sales with an SG&A percentage equal to Home Depot's, its operating profit (EBIT) would have been \$1.15 billion larger!  $([25.1\% - 22.8\%] \times \$50.2 \text{ billion})$ . This data raises the question, "Why are operating expenses greater at Lowe's?" Is it because it is less efficient, or is it because it is intentionally spending more on marketing or more to provide a different customer experience?

## **Store Growth**

Depreciation expense at Home Depot was larger in dollar terms but smaller as a percentage of sales (refer to Exhibit 2-2). This percentage difference is largely the result of the difference in the rate of store expansion.

Between the end of 2007 and the end of 2011, the number of Lowe's stores increased by almost 14%, from 1,534 to 1,745. During that same period the number of Home Depot stores increased by less than 1%, from 2,234 to 2,252.

## **Operating Profit Margin**

Because as a percentage of sales revenue, both SG&A and depreciation expense are larger at Lowe's than at Home Depot, it is not surprising that Lowe's operating profit margin (EBIT/sales revenue) is much smaller. For every \$100 of sales revenue, Home Depot in 2011 earned an operating profit of \$9.50. For every \$100 of sales revenue, Lowe's earned an operating profit of only \$6.50. Even if Home Depot and Lowe's had the same sales revenue, Home Depot's operating profit would have been 46% greater!

## **Profit per Store**

Another way to see this difference is to calculate EBIT per store. At Home Depot this was \$2.96 million (\$6.66 billion / 2,252 stores). At Lowe's, it was only \$1.88 million (\$3.28 billion / 1,745 stores). By strategically closing down underperforming stores, Home Depot has optimized its capital allocation and concentrated on its core business activities. The introduction of new warehousing and transportation systems has also helped to reduce its supply chain costs.

### **Year-Over-Year Change**

Between 2010 and 2011, Home Depot's bottom line net income grew by 16.3%, even though its top-line revenues grew by only 3.5%. It can do this because during 2011 as a percentage of sales, its gross margins were up and its SG&A and depreciation expenses were down.

### **Financing Costs**

EBIT provides the most direct measure of the success of Home Depot's business model. Bottom line net income is always the result of two things: the success of the company's business model and how that business was financed, that is, how much was borrowed at what interest rate. Home Depot and Lowe's were not dramatically different in terms of interest expense. At Home Depot it was equal to 0.8% of sales and at Lowe's 0.7% of sales.

### **THE BOTTOM LINE**

After subtracting from Home Depot's operating profit of \$6.7 billion, an interest expense of \$593 million, and almost \$2.2 billion in income taxes, you see that Home Depot's 2011 bottom line net income (which it label Net Earnings) was almost \$3.9 billion. The 5.5% net profit margin means that for every \$100 in sales revenue that comes in, \$5.50 remains after all expenses are subtracted. Does that level of profitability constitute a strong business performance? Is that enough profit to provide the company's shareholders with an attractive return on their investment? Alternative techniques for answering those questions are examined in later chapters.

### **3. The Balance Sheet: If Your People Are Your Most Important Asset, Where Do They Show Up on the Balance Sheet?**

If you want to calculate your personal net worth, you subtract from the value of everything you own the value of everything you owe. No matter how complex a corporation may be, its balance sheet is nothing more than that, a list of everything the company owns (assets) minus the list of everything the company owes (liabilities). Although you could describe the difference between these two quantities as a corporation's net worth, the standard accounting terminology for the excess of assets over liabilities is *owners' equity* or *shareholders' equity*. A corporation with assets of \$5 billion and liabilities of \$3 billion would calculate its shareholders' equity as \$2 billion ( $5 - 3 = 2$ ). Just as you might assess your personal financial health by comparing the value of what you own to the value of what you owe, you can assess the financial condition of a corporation by comparing the value of its assets to the value of its liabilities. When you assess a corporation's financial condition, you seek to determine whether it has the financial strength to ride out difficult economic times should it encounter them. On the flipside, you are also interested in whether it has the financial strength to take advantage of any attractive growth opportunities. Balance sheets are sometimes described as a snapshot in that they show what the company owned and what it owed on a specific date, the last day of the reporting period. The balance sheet excerpts in [Exhibits 3-1 and 3-2](#) show Home Depot's assets and liabilities as of January 30, 2012, which was the last day of its 2011 fiscal year. By contrast, an income statement does not refer to a specific date but to an interval of time. Home Depot's 2011 income statement (refer to [Exhibit 2-1](#)) reports the

company's revenues and expenses over the 12-month period ending on January 30, 2012.

THE HOME DEPOT, INC., AND SUBSIDIARIES CONSOLIDATED BALANCE SHEETS			
	<i>Amounts in Millions</i>		
	Jan 30, 2012 FY 2011	Jan 30, 2011 FY 2010	
<b>ASSETS</b>			
Current Assets:			
Cash and Cash Equivalents	1,987	545	
Receivables, Net	1,245	1,085	
Merchandise Inventories	10,325	10,625	
Other Current Assets	963	1,224	
<b>Total Current Assets</b>	<b>14,520</b>	<b>13,479</b>	
<b>Long-Term Assets</b>			
Property and Equipment, at Cost			
Land	8,480	8,497	
Buildings	17,737	17,606	
Furniture, Fixtures, and Equipment	10,040	9,687	
Leasehold Improvements	1,372	1,373	
Construction in Progress	758	654	
Capital Leases	588	568	
<b>Gross Property and Equipment</b>	<b>38,975</b>	<b>38,385</b>	
Less Accumulated Depreciation and Amortization	14,257	13,325	
<b>Net Property and Equipment</b>	<b>24,448</b>	<b>25,060</b>	
Notes Receivable	135	139	
Goodwill	1,120	1,187	
Other Assets	295	260	
<b>Total Assets</b>	<b>\$40,518</b>	<b>\$40,125</b>	

**Exhibit 3-1. Assets section of Home Depot's  
balance sheet**

Source: Form 10-K filed with U.S. Securities Exchange Commission on 3/22/2012, page 31.

**THE HOME DEPOT, INC., AND SUBSIDIARIES**  
**CONSOLIDATED BALANCE SHEETS, continued.**  
 LIABILITIES AND STOCKHOLDERS' EQUITY

*Amounts in Millions*

	Jan 30, 2012	Jan 30, 2011
<b>Current Liabilities:</b>		
Accounts Payable	4,856	4,717
Accrued Salaries and Related Expenses	1,372	1,290
Sales Taxes Payable	391	368
Deferred Revenue	1,147	1,177
Income Taxes Payable	23	13
Current Installments of Long-Term Debt	30	1,042
Other Accrued Expenses	1,557	1,515
<b>Long-term Liabilities:</b>		
Long-Term Debt, Excluding Current Installments	10,758	8,707
Other Long-Term Liabilities	2,146	2,135
Deferred Income Taxes	340	272
<b>Total Liabilities</b>	<b>\$ 22,620</b>	<b>\$ 21,236</b>
<b>Components of Stockholders' Equity</b>		
Common Stock, Par Value \$0.05 x 1.722 Billion Shares Issued	87	86
Additional Paid-In Capital	6,966	6,556
Retained Earnings	17,246	14,995
Accumulated Other Comprehensive Income	293	445
Treasury Stock at Cost	(6,694)	(3,193)
<b>Total Stockholders Equity</b>	<b>\$ 17,898</b>	<b>\$ 18,889</b>
<b>Total Liabilities Plus Stockholder's Equity</b>	<b>\$ 40,518</b>	<b>\$ 40,125</b>

**Exhibit 3-2. Liabilities and equity section of  
Home Depot balance sheet**

Source: Form 10-K filed with U.S. Securities Exchange Commission on  
3/22/2012, page 31.



## ASSETS ON THE BALANCE SHEET

The balance sheet balances because of simple arithmetic. Assets are usually listed on the left side (or top) of the balance sheet, and liabilities and shareholders' equity on the right side (or bottom). Because shareholders' equity is calculated by subtracting liabilities from assets (in the previous example  $5 - 3 = 2$ ), assets on the left side always equal the sum of liabilities and shareholders' equity on the right side ( $5 = 3 + 2$ ). The assets listed in [Exhibit 3-1](#) are divided into two groups: Current Assets and Long-Term Assets. Current assets are assets that the company expects to convert into cash, sell, or consume within 1 year of the balance sheet date.<sup>1</sup> Current assets are presented in the order of liquidity, that is, the speed with which they can be converted to cash. The typical sequence is cash, temporary investments, accounts receivable, inventory, supplies, and prepaid expenses. Then long-term assets are shown at their original purchase price minus accumulated depreciation. A few of these items may warrant some additional explanation.

### Accounts Receivable

The income statement shows that Home Depot's sales in fy2011 were \$70.395 billion (refer back to [Exhibit 2-1](#)). Some of those sales were credit sales, and not all that money was collected by the end of the year. The amount remaining uncollected was added to the accounts receivables balance in the current assets section of Home Depot's balance sheet in [Exhibit 3-1](#). Receivables increased by \$160 million between January 30, 2011 and January 30, 2012. That tells you that the amount Home Depot collected from sales in fy2011 was \$70.235 billion (\$70.395 billion in sales minus the \$160 million that was uncollected as of January 30, 2012).

### **Accounts Receivable Turnover Ratio**

Dividing annual sales revenue from the top line of the income statement by the accounts receivable balance yields a measure known as an accounts receivable turnover ratio ( $\$70.395 \text{ billion} / \$1.25 \text{ billion} = 56.5$ ). Dividing this ratio into 52 weeks gives the average sales collection period in weeks ( $52 / 56.5 = 0.92 \text{ weeks}$ ). Home Depot's average collection period of less than 1 week is obviously much shorter than the collection period you might observe in other types of businesses. Remember this is an average with many sales paid for at the time of purchase, whereas others are credit sales that may take much longer than 1 week to collect. Tracking the average collection period from year to year should provide an early indication if a firm is beginning to have difficulty collecting from its customers.

## **Inventories**

To be conservative, inventories are shown on a company's balance sheet at the company's cost of acquiring that merchandise or the current market value of that merchandise, whichever is smaller. Determining a company's cost of acquiring (purchasing or manufacturing) the merchandise in inventory is not always straightforward. Home Depot uses the first-in, first-out (FIFO) method of calculating its inventory costs. For example, suppose it buys 5,000 hammers at \$7.00 each and later another 3,000 identical hammers at \$8.00 each. It then sells 6,000 of these hammers at \$10.00 each. All the hammers are identical, so it makes no difference whether when stocking the shelves the warehouse employee grabs a box from the first shipment or from the second shipment. The question is just whether the first hammers sold will be treated for accounting purposes as having been purchased at the \$7.00 price or the \$8.00 price. Because Home Depot uses the FIFO method, for purposes of the income statement they would treat the first 5,000 sold (the first out of inventory) as having the first cost of \$7.00 each. The next 1,000 that were sold would be treated as having a cost of \$8.00 each. The 2,000 that were not sold would be included in the inventory section of the balance sheet at \$8.00 each.

If Home Depot had instead opted to use the last-in, first-out (LIFO) method of inventory accounting, it would have treated the first 3,000 sold (the first out) as having a cost of \$8.00 each (the last cost) and the next 3,000 as having a cost of \$7.00 each. The 2,000 remaining in inventory would be valued at \$7.00 each. The important point here is that in both cases the business reality is exactly the same. In both scenarios 8,000 hammers were purchased at an average price of \$7.38 each, and 6,000 were sold at \$10.00 each. Nevertheless, opting to use the FIFO instead of the LIFO accounting method would

make the *reported* profits higher and the *reported* inventory values lower. With the FIFO method the cost of goods sold subtracted out on the income statement would be \$43,000 (5,000 at \$7 plus 1,000 at \$8). With the LIFO accounting choice, the cost of goods sold subtracted out on the income statement would be \$45,000 (3,000 at \$8 and 3,000 at \$7). Obviously, subtracting a smaller cost of goods sold on the income statement increases *reported* profits. Remember that *true* profits, at least at the pretax level, are unaffected by this accounting choice. Why would a company elect the LIFO accounting option which, during periods of rising prices, lowers reported profits? They might select LIFO precisely because lower taxable profits mean lower tax payments. The choice between LIFO and FIFO is more significant during periods of rapid inflation. If in this example the price per hammer had been the same in both the first and second purchases, the choice of FIFO versus LIFO would have no effect. With today's computerized inventory control systems, it is often possible to at all times know the exact cost of the items currently in inventory. That makes it possible to avoid both LIFO and FIFO and use an average cost method for inventory costing. Home Depot, however, like most companies chooses to stay with one of the more traditional methods of inventory costing.

### **Inventory Turnover Ratio**

Dividing the Cost of Goods Sold expense from Home Depot's income statement by the value of inventories shown on its balance sheet yields a measure known as an inventory turnover ratio ( $\$46.133 \text{ billion} / \$10.325 \text{ billion} = 4.47$ ). Dividing this ratio into 52 weeks gives the average inventory holding period in weeks ( $52 / 4.47 = 11.6 \text{ weeks}$ ). Home Depot turns its inventory over 4.47 times a year compared to only 3.93 times a year at Lowe's. This is another area where Home Depot's performance is stronger. A key goal of modern supply chain management techniques and Just-in-Time (JiT) inventory practices is reducing the amount of capital tied up in inventory. Of course, if inventories become too lean, there is a risk of losing sales because some products may not be available for immediate delivery.

## Property, Plant, and Equipment

The long-term assets section of the balance sheet lists the firm's property, plant, and equipment at the original purchase price and then subtracts the accumulated depreciation to determine the net (or book) value of these assets. Suppose Home Depot were to buy for \$50,000 a delivery truck that has an estimated useful life of 5 years. Allocating this cost over 5 years using straight-line depreciation would result in a \$10,000 ( $\$50,000 / 5$ ) depreciation expense subtracted on the income statement in each of those years. Regardless of its market value, at the end 1 year, this truck would be shown on the company's balance sheet as having a value of \$40,000 (original purchase price of \$50,000 minus accumulated depreciation of \$10,000). At the end of year 2, this truck would be shown on the company's balance sheet as having a value of \$30,000 (original purchase price of \$50,000 minus accumulated depreciation of 2 times \$10,000). At the end of year 5, even if this truck were in good condition and fully operable, it would be shown on the company's balance sheet as having a value of zero (original purchase price of \$50,000 minus the accumulated depreciation of 5 times \$10,000). You never depreciate more than 100% of an asset's original cost. So even if this truck remained in use in year 6 and beyond, there would be no additional depreciation expense for this truck on the company's income statement.

Home Depot's balance sheet (refer to Exhibit 3-1) shows that the total originally paid for its property, plant, and equipment was \$38.975 billion. This quantity is sometimes referred to a gross property plant and equipment. Subtracting the accumulated depreciation, the amount that has already been expensed on the current and previous income statements, yields the \$24.448 billion net (or book value) of these long-term assets. Home Depot lists seven categories of property

and equipment. Most of the labels are straightforward. Leasehold improvements are just alterations it made to property Home Depot leases from others. Capital leases are a long-term lease that are so similar to purchasing an asset that for accounting purposes they are reported as if the asset had been purchased. For example, a lease would be treated as a purchase if the lease covers 75% or more of the asset's useful life or if the present value<sup>2</sup> of the lease payments is greater than 90% of the asset's market value.

### **Goodwill**

Also shown in the assets section of Home Depot's balance sheet are long-term notes receivable and goodwill. Whenever *goodwill* appears on a balance sheet, it indicates that there has been an acquisition and that the price paid was greater than the fair market value of net assets acquired. Paying a price greater than the value of the assets acquired does not necessarily mean you have paid a price greater than the value of the on-going firm containing those assets. For example, during fy2006 Home Depot made a number of acquisitions at a total cost of \$4.5 billion. The cash and other identifiable assets acquired through those acquisitions, minus the liabilities assumed along with those acquisitions, had an estimated fair market value of \$1.5 billion. When Home Depot consolidated these acquisitions into its balance sheet, it recorded these assets and liabilities with a net value of \$1.5 billion and an additional "plug number" of \$3 billion labeled goodwill. The sum of the \$1.5 billion in net assets and the \$3 billion in goodwill, therefore, balanced the \$4.5 billion that was paid to acquire these firms.

The term goodwill sounds like you are paying for the good feelings customers and others may have about a firm being acquired. That, however, is not the case, and many firms are abandoning the goodwill label and replacing it with more precise language like "excess of

purchase price over fair value of assets acquired.” There are many reasons why a firm might be worth more than the fair market value of its net assets. One reason that should be obvious to HR managers is the value of a firm’s workforce. What is required in dollars and time to recruit, select, and develop one top executive (or one executive secretary, or one engineer, or one sales rep, or one highly competent employee in any position)? Given the magnitude of those HR costs, a successful corporation with all its employees in place is obviously worth far more than it would be with same net assets but none of those employees in place. Examples of other factors that may add value beyond the sum of a corporation’s net assets are market position, brand recognition, customer loyalty, first-mover advantage, and strategic fit with the acquiring firm.

Companies no longer amortize (write down the value of) goodwill over a specified number of years. Instead goodwill remains as an asset on the balance sheet until the company has evidence that its value has decreased. Home Depot’s 2011 balance sheet (refer to Exhibit 3-1) shows goodwill valued at more than \$1.1 billion. When there is evidence that the value of goodwill has declined, a goodwill impairment charge is subtracted on the income statement, and the value of the goodwill asset shown on the balance sheet is reduced. (The value of goodwill is usually written down when there is a significant decrease in the present value of expected future cash flows from the acquired asset. The logic behind and techniques for calculating the present value of future cash flows is discussed in Chapter 7, “Capital Budgeting and Discounted Cash Flow Analysis.”)



## LIABILITIES ON THE BALANCE SHEET

The section of the Home Depot balance sheet reproduced in Exhibit 3-2 shows total liabilities as of January 30, 2012 of \$22.62 billion. Of this amount \$9.38 billion are current liabilities that must be paid within the upcoming 12 months. The balance of \$13.24 billion consists of long-term liabilities that will not come due within the next 12 months. If a firm has a 20-year mortgage, 1 year of it is shown as a current liability, and the other 19 years as a long-term liability. The current liabilities section of Home Depot's balance sheet shows \$30 million as the near-term installments associated with long-term debt. Most of the labels in the liabilities section of this balance sheet are straightforward, with the possible exceptions of deferred revenue and deferred income taxes. *Deferred revenue* is money received for goods or services that have not yet been delivered. Under the accrual accounting methodology, these funds are included in cash on the assets side of the balance sheet, and a corresponding liability is recorded until delivery is made, at which time it is converted into revenue on the income statement. *Deferred income tax* entries indicate that there has been a difference between the accounting treatment and the tax treatment of some item of income or expense. A deferred income tax entry may appear on either the asset side or the liabilities side of the balance sheet. A deferred tax asset indicates this difference will result in a future tax savings. A deferred tax liability indicates that this difference will result in an increase in the firm's future tax obligations. For example, income already earned and recognized for accounting but not tax purposes creates a tax liability. You must pay taxes on that income in a future year.

## **Stockholders' Equity on the Balance Sheet**

As of June 30, 2012, Home Depot had assets totaling \$40.518 billion and liabilities totaling \$22.620 billion. Subtracting from the sum of everything Home Depot owned the sum of everything Home Depot owed, yields a shareholders' equity of \$17.898 billion ( $40.518 - 22.620$ ). That is the amount that would be left if all assets were sold at their book value and all liabilities were paid off at their book value. Paying off all liabilities at their book value is certainly possible if you have the cash to do that. Selling all assets at their book value is extremely unlikely. Assets, particularly long-term assets, may have a market value quite different from their book value. For example, a building constructed 20 years ago for \$300,000 and depreciated straight line over 30 years will have a book value of \$100,000 (\$300,000 original purchase price minus 20 years of depreciation at \$10,000 per year). The cost to replace that building in today's market could easily be \$400,000 or more. In that example, the current market value is more than four times the book value. The book value of shareholders equity is therefore seldom the price you would pay to acquire a corporation. The assets on the balance sheet may have a book value that is quite different from the market value, and the balance sheet value does not include intangibles like brand value or the talent of the company's management and workforce.

## **The Capital Invested Component of Stockholders Equity**

Current stockholders' equity is what the stockholders originally invested in the business plus any profits that were earned and retained in the business. The Home Depot balance sheet shows the components of its shareholders' equity. As of January 30, 2012, 1.722 billion shares of Home Depot stock had been issued. The individuals purchasing those shares paid Home Depot \$7.053 billion. On the balance sheet this \$7.053 billion is disaggregated into \$87 million, which reflects the \$0.05 par value of each share issued and \$6,966 billion in additional paid-in capital. That disaggregation adds very little useful information for most readers of a balance sheet. The \$0.05 a share par value is an arbitrary number chosen by the lawyers and accountants who structured the stock offering. When these shares were issued, they were not sold for 5 cents each but for as much as the market would pay. Dividing \$7.053 billion by 1.722 billion shares tells you that the average price paid when the company originally sold these shares was \$4.10 per share. This number, of course, has little relationship, if any, to what those shares sell for in today's market. On January 30, 2012, Home Depot stock was selling for just under \$45 a share. Fluctuations in the current market price of its stock price generally have no impact on Home Depot's income statement or on the value of shareholder's equity shown on its balance sheet. The current market price is what individuals external to Home Depot agree to when buying and selling stock to each other. Current stock prices impact a company's financial statements only in years when the company chooses to issue new shares or buy back shares that are currently outstanding.

### **The Retained Earning Component of Stockholders Equity**

There are only two possibilities for what a company can do with its net profits. It can distribute them to shareholders as dividends or retain them within the corporation to support its future operations. The stockholders equity section of Home Depot's January 30, 2012 balance sheet shows that out of the profits the company earned in the years since its incorporation \$17.246 billion was retained to grow the business. The balance of its net profits was distributed as dividends.

### **Other Comprehensive Income**

The Home Depot balance sheet also shows \$293 million of Accumulated Other Comprehensive Income. Other comprehensive income includes changes in the value of certain assets or liabilities before these changes are recognized on the income statement. These assets are not usually assets like buildings or land, but instead are securities, derivative contracts, pension liabilities, and foreign operation assets. An example would be unrealized gains or losses on securities or derivatives held by Home Depot. These changes will eventually be recognized on the income statement when the security is sold or the derivative position is closed. In the meantime the security is shown at its increased value in the assets section of the balance sheet. This increases the value of total assets and therefore the value of stockholders equity. The other comprehensive income category shows the source of this increase in stockholder equity.

## **Treasury Stock**

The last entry on the Home Depot balance sheet is labeled Treasury stock. These are shares of the company's own stock that Home Depot has purchased in the external market. Why would a company buy shares of its own stock? Sometimes these shares are acquired for re-issuance through stock-based employee compensation plans. Buying back shares in the open market prevents the dilution that would occur if the company issued new stock to support these compensation needs. Companies may also buy back stock because they feel that their stock is undervalued in the open market. During 2011, Home Depot announced plans to buy back \$3.5 billion of its outstanding shares. This was in addition to substantial share repurchases in earlier years. As of January 30, 2012 Home Depot had spent \$6.696 billion to repurchase its own stock. The amount paid to purchase these shares is subtracted from stockholders' equity. Owning shares of its own stock cannot make a company more valuable. It can, however, make each outstanding share more valuable because the company's value is divided among a smaller number of shares outstanding.

## **WHICH NUMBERS ON A BALANCE SHEET CAN YOU BELIEVE?**

Assuming a complete absence of fraud and that all entries were prepared in a manner consistent with generally accepted accounting principles (GAAP), can you have equal confidence in all the numbers in a balance sheet? The answer is usually “no.” The cash amounts shown should be exact. The liabilities listed should also be precise because the firm and its creditors have written contracts specifying exactly how much is owed. You need to be a bit more cautious, however, when looking at the noncash current assets. The accounts receivable number shown is net of an allowance for accounts that may never be collected. Such bad debt allowances are based on historical experience, but as always history is no guarantee of what the future will bring. For example, a significant percentage of Home Depot’s customers are professional contractors. It’s certainly possible that the percentage of contractors paying their debts in a timely manner might decline during a prolonged housing recession. Inventory is shown on a balance sheet at the lower of its cost or its current market value. However, firms may vary considerably in the speed and aggressiveness with which inventory is written down in response to a decline in its market value.

### **Book Value Versus Market Value of Long-Term Assets**

You need to be most cautious when basing decisions on the balance sheet valuations of long-term assets. The book value of long-term assets, the original purchase price minus accumulated depreciation, can be a millions of dollars above or below the market value of those assets. A building constructed 15 years ago for \$3 million and now shown on a firm's balance sheet at a depreciated value of \$1.5 million could easily have a replacement cost of \$5 million. It's also possible for market values to be well below book values. Both U.S. and International Financial Reporting Standards (IFRS) do require that assets be written down when their economic value to a firm declines. That doesn't mean you don't need to be cautious. Consider the case of a steel mill<sup>3</sup> that was operating with outdated technology at a time when there was excess capacity in the global steel industry. As is standard for an on-going concern, this steel mill was shown on the parent company's balance sheet at its original construction cost minus accumulated depreciation. When the parent company decided to discontinue operations at this location, there were no buyers willing to purchase this mill for even one-half of its book value.

### **If the Asset Value Is Imprecise, so Is the Equity Value**

Remember that equity is just assets minus liabilities. If in a firm with \$3 million in liabilities, the book value of assets is \$8 million, the book value of equity will be \$5 million. If the book value of assets overstates (understates) its market value by \$2 million, the balance sheet value of the equity would also be overstated (understated) by \$2 million. It's important to keep those caveats in mind when using financial performance measures such as return on assets (net income / assets) and return on equity (net income / equity). You usually focus on changes in the numerator of those ratios, but those ratios are equally affected by the validity of the numbers in the denominator.



## **What Can a Balance Sheet Tell You About a Company's Financial Condition?**

To assess your personal financial condition, you might begin by calculating your net worth. To do that you would subtract from the sum of everything you own, the sum of everything you owe. If the amount you owe is large compared to your net worth, you probably have cause for concern. In that situation, you would certainly find it more difficult to obtain a mortgage or a car loan. You can apply exactly the same logic to a corporate balance sheet. You can subtract from the sum of everything Home Depot owns (assets of \$40.518 billion) the sum of everything Home Depot owes (liabilities of \$22.620 billion) to obtain Home Depot's net worth (shareholder's equity of \$17.898 billion). Dividing total liabilities by the shareholders equity ( $\$22.620 \text{ billion} / \$17.898$ ) reveals that Home Depot's debt to equity ratio is 1.26. Home Depot uses \$1.26 in borrowed money for every \$1.00 of shareholders' equity. The debt-to-equity ratio is a measure of financial leverage. A firm is said to be more highly leveraged if it increases the percentage of its assets that are financed through borrowing. Home Depot's debt equity ratio of 1.26 in January 2012 is up from 1.11 in January 2010. An increasing debt equity ratio can signal a problem with a firm's business operations. However, in this case it appears that Home Depot's leverage was increasing not because of operating problems but because of an intentional shift in its financial strategy. During 2011, the company borrowed \$2 billion through the sale of 10-year and 30-year bonds.<sup>4</sup> Those funds were used to pay off \$1 billion of bonds originally issued in 2006 that matured in 2011. The balance was used by Home Depot to buy back shares of its own stock. Home Depot was intentionally increasing its debt/equity ratio based on the expectation that borrowing long term at low rates would enable the company to generate even larger increases in shareholder value.

Any debt-to-equity ratio more than 1.0 indicates that the company is relying more heavily on borrowed money than on the owner's money. For small or struggling firms, a ratio above 1.0 can lead to serious problems. But for large, well-established firms, like Home Depot, a debt equity ratio of 1.26 is not a large amount of leverage. By comparison, the ratio of liabilities to equity on IBM's January 2012 balance sheet was 4.75.<sup>5</sup> Like Home Depot, IBM was taking advantage of historically low interest rates to borrow funds and use them to repurchase its own shares.

## **USE CAUTION WHEN USING PUBLISHED FINANCIAL RATIOS**

To properly interpret the level of any financial ratio, you must compare it to the level of that ratio in that firm in earlier years and to the value of that ratio in other firms with a similar product/industrial mix. For companies whose stock is publicly traded, numerous financial ratios can be obtained at no cost from MSN Money, Yahoo Finance, Google Finance, and many other Internet sites. For instance, the MSN money site provides six ratios related to financial condition, six related to profit margins, six related to return on investment, six related to operational efficiency, and six related to stock price. There are no accounting standards that specify how these financial ratios should be defined. Managers, investors, or financial analysts may calculate a ratio in the manner they believe is most relevant for their purposes. When utilizing financial ratios calculated by others, it is therefore critical that you know the definitions that were used. For example, the Home Depot leverage ratio calculated in the previous section was 1.26. The measure used was debt to equity. The MSN Money site reports a different leverage ratio for Home Depot of 2.3. The measure used was assets to equity. These are just two different ways to say exactly the same thing. If Home Depot has \$1.26 in debt for \$1.00 of equity, it has \$2.26 in assets for every \$1.00 of equity (\$1.00 of equity + \$1.26 of debt = \$2.26 in total assets). MSN Money divided the \$2.26 in total assets by the \$1.00 of equity to get a ratio of 2.26, which it rounded to 2.3. It is also common to see published debt/equity ratios calculated with long-term debt, not total liabilities, in the numerator. Unfortunately, it's not always easy as it should be to find a clear statement of the definitions used to calculate published ratios. You may sometimes need to go back to the original financial statements and replicate the calculations to be sure a published ratio is what you think it is.

### **Ratio of Current Assets to Current Liabilities**

A ratio called the Current Ratio is often used to assess the short-run implications of a company's debt. It is usually defined as current assets divided by current liabilities. Dividing Home Depot's current assets of \$14.520 billion by its current liabilities of \$9.376 billion yields a current ratio of 1.54. A ratio of 1.54 suggests that during the upcoming year Home Depot will have \$1.54 in current assets to pay off for every \$1.00 of current liabilities. A current ratio close to or below 1.0 can be a flag that a company may have difficulty raising the cash to cover its short-term debts. A variation that provides an even more stringent test of a firm's capability to make the payments on its short-term obligations is the acid test ratio. It is defined the same way as the current ratio but excludes from the current assets measure in the numerator the value of less liquid items such as inventories and prepaid expenses. There is no guarantee that all the merchandise in inventory will be sold, and prepaid expenses (for example, rent or insurance paid for in advance) are not assets that can be converted into cash. Calculating this ratio using Home Depot's January 2012 balance sheet ( $[\$14.520 \text{ billion in current assets} - \$10.325 \text{ billion in inventory}] / \$9.376 \text{ billion of liabilities}$ ) yields a value of 0.45, that is, only \$0.45 in liquid assets available to cover each \$1.00 of short term debt. That would be cause for serious concern if you believed Home Depot would be unable to convert most of its \$10 billion of inventory into cash. Because there is no reason to believe that, the acid test in this case is not a particularly useful measure. It might however be a critically important tool if you were evaluating the balance sheet of, say, a cell phone manufacturer that had a large inventory of phones that consumers were rejecting in favor of the latest-and-greatest release from one of its competitors.

## **Financial Leverage Can Increase the Shareholders' Return on Investment**

The previous section discussed using a debt equity ratio to assess the amount of financial leverage reflected on a firm's balance sheet. Why do almost all firms have debt on their balance sheet? It's not because they couldn't raise all the money needed by selling stock. It's because they believe that by borrowing a portion of the amount needed they can provide their shareholders with a greater rate of return on their investment. Exhibit 3-3 illustrates how this can be achieved. A common measure of the rate of return earned by the shareholders is Return on Equity (ROE), calculated by dividing Net Income from the bottom line of the income statement by Shareholders Equity from the balance sheet. The top panel illustrates the effect of leverage under the assumption that management can earn an operating profit of 10% on every dollar of assets they have to work with. If this company's \$500 million in assets had been paid for with funds raised through the sale of stock, its EBIT would be \$50 million and its net income \$35 million. That \$35 million divided by the shareholders' investment of \$500 million would have been a return on equity of 7%. Now suppose only \$100 million of that \$500 million in assets had been financed through the sale of stock and that the balance, \$400 million, was money borrowed from a bank or by selling bonds. If the average interest rate on the debt was 5%, the firm must pay 20 million in interest, reducing its net income to \$21 million. However, because the shareholders had invested only \$100 million, that \$21 million net income represents a 21% return on the equity. In this case the use of substantial financial leverage tripled the shareholders' rate of return on their investment. Would you rather earn a 7% return or a 21% return on the funds in your 401K? You would jump at the chance to earn 21% unless you thought that investment was too risky. Does using financial leverage make a firm more risky?

**Assumption 1: Management can earn an operating profit of 10% on every dollar.**

	<u>No Leverage</u>	<u>Highly Leveraged</u>
Equity	\$500	\$100
Debt	\$0	\$400
Total Assets	\$500	\$500
EBIT @ 10 % of Assets	\$50	\$50
- Interest @ 5% of Debt	\$0	-\$20
Profit Before Tax	\$50	\$30
Tax @ 30%	-\$15	-\$9
Net Income	\$35	\$21
Return on Equity (NI/Equity)	7.0%	21.0%

**Assumption 2: Management can earn an operating profit of 2% on every dollar.**

	<u>No Leverage</u>	<u>Highly Leveraged</u>
Equity	\$500	\$100
Debt	\$0	\$400
Total Assets	\$500	\$500
EBIT @ 2% of Assets	\$10	\$10
- Interest @ 5% of Debt	\$0	-\$20
Profit Before Tax	\$10	-\$10
Tax @ 30%	-\$3	\$0
Net Income	\$7	-\$10
Return on Equity (NI/Equity)	1.4%	-10.0%

**Exhibit 3-3. Impact of leverage on return on equity**

### **Financial Leverage Can Reduce the Shareholders' Return on Investment**

To see how financial leverage can reduce the return to shareholders, refer to the bottom panel of Exhibit 3-3. Suppose the business described in this exhibit were a Home Depot retail outlet, and Lowe's had just opened a new store one block away, and that the new Lowe's store reduces Home Depot's profit by cutting into its market share. This Home Depot outlet is still profitable but now earns an operating profit equal to 2% of assets utilized instead of the previous 10%. Referring to the bottom panel of Exhibit 3-3, you can see if this firm had no debt, its net income would be \$7 million and its return on equity would be 1.4%. On the other hand, if this firm had \$400 million in debt, its net income, actually a net loss, would be -\$10 million. Under this scenario, the effect of financial leverage was to reduce the return on equity from +1.4% to -10%. So when is leverage helpful, and when is it harmful? Simply, it is helpful when you can earn more on a borrowed dollar than it costs you to borrow it. Exhibit 3-3 shows the average interest rate was 5%. When the firm earned 10% on each dollar of assets, the use of leverage was highly beneficial. When the firm earned only 2% on each dollar of assets, the use of leverage was detrimental. The more highly leveraged a firm is, the larger these positive and negative effects can be. Leverage can magnify a good year into a great year. It can also transform a mediocre year into a disastrous year. Highly leveraged firms are generally considered to be riskier because the effect of leverage is to take whatever volatility there is in business operations and magnify that into even greater swings in bottom-line profit and return on equity.

### **An Alternative Calculation of Return on Equity**

The return on equity measure used in the previous example was calculated by dividing net income by the book value, that is, the balance sheet value, of shareholders equity. It is certainly possible that the stock market value of shareholders equity could be above or below the value of shareholders equity shown on the balance sheet. The stock market value of shareholders equity, the company's market capitalization, is the dollar value of all shares currently outstanding. It is calculated by multiplying the number of shares outstanding by the current price per share. For example, if there are 10 million shares of XYZ Company's stock outstanding and XYZ stock is trading at \$50 per share, the market capitalization of XYZ is \$500 million. Some analysts prefer to calculate return on equity as net income divided by market value of equity, instead of as net income divided by the balance sheet value of equity. Using the market value of equity avoids needing to rely on accounting statements that may not reflect the true replacement cost of a firm's assets and may completely omit the value of workforce quality and other intangible assets. Of course, using the market value of equity has a different set of problems. This number can be highly volatile and influenced by stock market conditions and other external factors unrelated to the firm's performance.



## 4. Cash Flows: Timing Is Everything

What's the difference between operating profit and cash flow from operations? When measuring profits you make a series of timing adjustments. For example, you define top-line revenues as total sales during the period even if you have not yet collected all the cash from those sales. You subtract from that number only the cost of the merchandise sold during that period, even if you paid your suppliers for that merchandise and other merchandise that is still in inventory. Similarly you don't subtract from the current period's revenues the full amount paid to purchase long-term assets. You allocate, or depreciate, those costs over an estimate of the economic life of that asset. Those timing assumptions are all quite reasonable if your goal is to estimate the amount of profit earned during a particular time period. When calculating cash flow from operations, you make none of those timing adjustments. When calculating cash flow you attempt to answer the question, "How much cash did your business operations actually bring in during the period and how much cash did your business operations actually pay out during that period?" The net of those two numbers determines whether your cash flow for the period was positive or negative.

The example in Exhibit 4-1 illustrates how different profit and cash flow can be during the same period. This firm had a profit of \$15 million in 2012, but its cash flow was a negative \$6 million. The company's cash flow from the operations was calculated as follows:

15	Net income
+ 6	Depreciation
−4	Increase in Accounts Receivable
−8	Increase in inventory
−15	Increase in long-term assets
−6	Cash flow from operations

<b>Income Statement and Excerpt from Balance Sheet</b>			
All Figures in Millions of \$			
<u>Income Statement for Year 2012</u>			
Revenue	100		
Cost of Goods Sold	60		
Operating Expenses	12		
Depreciation	6		
Interest	2		
Tax	5		
Net Income	15		
<u>Balance Sheet at the End of 2012</u>		<u>Balance Sheet at the End of 2011</u>	
Cash	4	Cash	10
Accounts Receivable	8	Accounts Receivable	4
Inventory	20	Inventory	12
Long-Term Assets, Gross	65	Long-Term Assets, Gross	50
Accumulated Depreciation	31	Accumulated Depreciation	25
Long-Term Assets, Net	29	Long-Term Assets, Net	25
Total Assets	61	Total Assets	51
Short-Term Liabilities	15	Short-Term Liabilities	15
Long-Term Liabilities	25	Long-Term Liabilities	25
Equity	21	Equity	11
Total Liabilities Plus Equity	61	Total Liabilities Plus Equity	51

**Exhibit 4-1. Information needed to calculate cash flow from operations**

Calculating operating cash flows involves two steps. The first is to determine what the income statement tells you

about cash flows. The second is to review the assets and liabilities shown on the balance sheet to determine whether there were any changes during the year in these items that had cash flow implications. When you assess the cash flow impact of a particular transaction, you are doing nothing more than saying, “If all this company’s cash were kept in a single account, would that account balance go up or down because of this transaction?”

## **CASH FLOW INFORMATION FROM THE INCOME STATEMENT**

The company (refer to Exhibit 4-1) earned a net profit of \$15 million. That’s a cash inflow. But one of the items subtracted on the income statement was depreciation. As you know, depreciation is not a real cash outflow. It’s just an accounting recognition in the current period of a portion of the cash that was spent at the time the long-term assets were acquired. The cash generated in 2012 was therefore more than \$15 million profit. When you add back the \$6 million in depreciation expense, you see that the cash generated was \$21 million. The company’s current business operations during 2011 brought in \$21 million more than was paid out. You could stop there if there were no changes over the year in the balance sheet. But there usually are, so look at that next.

## **CASH FLOW INFORMATION FROM THE BALANCE SHEET**

What changes occurred in this company's balance sheet between the end of 2011 and the end of 2012? Did those changes add to or reduce the company's cash on hand? An increase in an asset category required cash to purchase those additional assets, so subtract from the cash generated the amount of any asset increase. A reduction in an asset category would mean assets were sold, so you would add the cash received from selling those assets. An increase in any category of liabilities would mean additional funds were borrowed, so add the amount of cash obtained through any additional borrowing. A reduction in any category of liabilities would mean debts were being paid off. In that case, you would subtract the amount of cash used to pay off those debts.

In this example, inventories increased by \$8 million, and long-term assets increased by \$15 million. The cash used to acquire those additional assets was subtracted in the preceding calculation. Accounts Receivable also increased over the year. Accounts Receivable, that is, uncollected funds, increased by \$4 million, so the company has \$4 million less in the bank than if accounts receivables had remained at the 2011 level. In this example liabilities were unchanged between the end of 2011 and the end of 2012.

The logic of the Home Depot cash flow statement shown in Exhibit 4-2 is exactly the same as the approach used in the simplified previous example. Home Depot starts with the \$3.9 billion in net income from the bottom line of its 2011 income statement and then adds back the two noncash items, depreciation, and stock-based compensation expense, which had been subtracted on that income statement. Chapter 10, "Equity-Based Compensation: Stock and Stock Options," discusses the

expensing of stock-based compensation. The key point for this discussion is that granting employees stock options or other forms of equity does not require a cash outlay at the time of the grant. Home Depot then goes through each of the categories of assets and liabilities that appear on its balance sheet. If an asset category increases, the cash required to increase those assets is subtracted. If an asset category decreases, the proceeds from those asset reductions are added. If a liability category increases, the funds obtained through that borrowing are added. If a liability category decreases, funds used to pay down that debt are subtracted. During the 12-month period that ended January 29, 2012, Home Depot's business operations produced a net cash inflow of \$6.651 billion. Of that amount the company spent \$1.129 billion to build new stores and acquire other long-term business assets. That still left a net inflow of \$5.522 billion.

#### **CASH FLOWS FOR YEAR ENDING JANUARY 30, 2012**

*Amounts in Millions*

	<b>Net Earnings</b>	<b>\$3,883</b>
<i>Add Back</i>	Depreciation and Amortization	1,682
<i>Add Back</i>	Stock-Based Compensation Expense	215
Changes in Operating Assets:		
<i>Subtract</i>	Increase in Receivables, Net	(170)
<i>Add</i>	Decrease in Merchandise Inventories	256
<i>Add</i>	Decrease in Other Current Assets	159
Changes in Operating Liabilities:		
<i>Add</i>	Increase in Accounts Payable and Accrued Expenses	422
<i>Subtract</i>	Decrease in Deferred Revenue	(29)
<i>Add</i>	Increase in Income Taxes Payable	14
<i>Add</i>	Increase in Deferred Income Taxes	170
<i>Subtract</i>	Decrease in Other Long-Term Liabilities	(2)
<i>Add</i>	Other	51
<b>Net Cash Provided by Operating Activities</b>		<b>\$6,651</b>

**CASH FLOWS FROM INVESTING ACTIVITIES:**

<i>Subtract</i>	Purchase of Property and Equipment	(1,221)
<i>Add</i>	Proceeds from Sales of Property and Equipment	56
<i>Subtract</i>	Payments for Business Acquired	(65)
<i>Add</i>	Proceeds from Sale Business, Net	101

**Net Cash Used in Investing Activities (1,129)**

**CASH FLOWS FROM FINANCING ACTIVITIES:**

<i>Add</i>	Proceeds from Long-Term Borrowings	1,994
<i>Subtract</i>	Repayments of Long-Term Debt	(1,028)
<i>Subtract</i>	Repurchases of Common Stock	(3,470)
<i>Add</i>	Proceeds from Sales of Common Stock	306
<i>Subtract</i>	Cash Dividends Paid to Stockholders	(1,632)
<i>Subtract</i>	Net Cash Used in Other Financing Activities	(218)

**Net Cash Used in Financing (4,048)**

**INCREASE IN CASH AND CASH EQUIVALENTS \$1,474**

Effect of Exchange Rate Changes on Cash and Cash Equivalents	(32)
Cash and Cash Equivalents at Beginning of Year	<b>\$545</b>
Cash and Cash Equivalents at End of Year	<b>\$1,987</b>

**Exhibit 4-2. Cash flow statement for Home Depot**

Source: Form 10-K filed with U.S. Securities Exchange Commission on 3/22/2012, page 32.

What can a company do with that much cash? There are only a few possibilities. The cash could be retained within the company to expand current business operations or to acquire new businesses. Funds not retained in the business can be returned to the shareholders as dividends or used to repurchase the company shares in the open market. Home Depot during 2011 did all three of those things.

It paid dividends of \$1.632 billion and repurchased a \$3.47 billion of its own stock. After a stock repurchase, each of the remaining shareholders will own a larger percentage of the company. These remaining

shareholders will have benefited if at the time of the repurchase the stock was undervalued in the external market. The remaining shareholders will have incurred an economic loss if at the time of the repurchase the shares were overvalued in the external market.

At the same time that Home Depot was distributing cash by repurchasing shares, it was raising cash by selling bonds. Home Depot paid off \$1.028 billion in bonds originally issued in 2006 that matured in 2011. This cash outflow was more than offset by borrowing \$1.994 billion through the sale of new 10-year and 30-year bonds. Of course, buying back shares at the same time you're taking on additional debt makes the company more highly leveraged. As explained in Chapter 2 ("The Income Statement: Do We Care About More Than the Bottom Line?") increasing leverage creates additional opportunities and also additional risk.

The combined effect of all these activities was to increase Home Depot's cash on hand by \$1.474 billion, from \$545 million at the start of the year to \$1.987 billion at the end of the year.

## 5. Financial Statements as a Window into Business Strategy

When looking at financial statements, the challenge for most people is to not fail to see the forest for the trees. Can a corporation's balance sheet and income statement provide clues not only about its financial performance, but also about its business and financial strategy? Try an exercise to see how far you can get. The income statements and balance sheets in [Exhibits 5-1 and 5-2](#) describe real companies that you're probably familiar with. For the moment, however, the names are withheld to see how much you can learn about each of them just by looking at the numbers in their financial statements. Suppose as an experienced HR executive, you have been asked to recommend which company's management team deserves a bigger performance bonus. [Chapter 12, "Creating Value and Rewarding Value Creation,"](#) discusses in more detail the selection and construction of bonus drivers, but for the purpose of this exercise, you will use only some simple financial ratios.

	Company A		Company B	
<b>Total Revenue</b>	<b>10,877</b>	<b>100.0%</b>	<b>446,950</b>	<b>100.0%</b>
Cost of Revenue, Total	6,592	60.6%	335,127	75.0%
<b>Gross Profit</b>	<b>4,285</b>	<b>39.4%</b>	<b>111,823</b>	<b>25.0%</b>
Selling /General /Administrative Expense	3,036	27.9%	85,265	19.1%
<b>EBIT</b>	<b>1,249</b>	<b>11.5%</b>	<b>26,558</b>	<b>5.9%</b>
Interest Expense	130	1.2%	2,160	0.5%
Income Tax--Total	436	4.0%	7,944	1.8%
<b>Income After Tax</b>	<b>683</b>	<b>6.3%</b>	<b>16,454</b>	<b>3.7%</b>
Minority Interest	0	0.0%	-688	-0.2%
Total Extraordinary Items	0	0.0%	-67	0.0%
<b>Net Income</b>	<b>683</b>	<b>6.3%</b>	<b>15,669</b>	<b>3.5%</b>



**Exhibit 5-1. Income statements for companies A  
and B**

<b>Assets</b>	<b>Company A</b>		<b>Company B</b>	
Cash and Short-Term Investments	1,877	22%	6,003	3%
Total Receivables, Net	2,033	24%	5,937	3%
Total Inventory	1,148	14%	40,714	21%
Prepaid Expenses	282	3%	1,685	1%
Other Current Assets, Total	220	3%	636	0%
<b>Total Current Assets</b>	<b>5,560</b>	<b>65%</b>	<b>54,975</b>	<b>28%</b>
		0%		0%
Property/Plant/Equipment, Total--Net	2,469	29%	112,324	58%
Goodwill, Net	175	2%	20,651	11%
Other Long-Term Assets, Total	287	3%	5,456	3%
<b>Total Assets</b>	<b>8,491</b>	<b>100%</b>	<b>193,406</b>	<b>100%</b>
<b>Liabilities</b>				
Accounts Payable	917	11%	36,608	19%
Accrued Expenses	388	5%	18,154	9%
Notes Payable/Short-Term Debt	0	0%	4,047	2%
Current Port. of LT Debt/Capital Leases	506	6%	2,301	1%
Other Current Liabilities, Total	764	9%	1,190	1%
<b>Total Current Liabilities</b>	<b>2,575</b>	<b>30%</b>	<b>62,300</b>	<b>32%</b>
Long-Term Liabilities	3,960	47%	59,791	31%
<b>Total Liabilities</b>	<b>6,535</b>	<b>77%</b>	<b>122,091</b>	<b>63%</b>
<b>Equity</b>	<b>1,956</b>	<b>23%</b>	<b>71,315</b>	<b>37%</b>
<b>Total Liabilities &amp; Shareholders' Equity</b>	<b>8,491</b>	<b>100%</b>	<b>193,406</b>	<b>100%</b>

**Exhibit 5-2. Balance sheets for companies A and  
B**

## COMMON SIZE FINANCIAL STATEMENTS

It's immediately obvious that Company B has much larger sales revenue and profits. You can assume, however, that the size difference between these two organizations is reflected in the base salaries of the two management teams. The challenge is to recommend which team should get the larger performance bonus, perhaps as a percentage of its base salary. To control for the size difference between the two firms, you can calculate common size income statements and balance sheets (refer to Exhibits 5-1 and 5-2). The common size income statements simply express all entries as a percentage of top-line sales revenue. The common size balance sheets simply express each asset category as a percentage of total assets and each component of liabilities and shareholders' equity as a percentage of the total liabilities and shareholders' equity.

### Profit Margin

You might start your analysis by comparing the two firms on net profit margin. On this measure Company A looks stronger. For every \$100 in sales revenue, Company A ended up with \$6.30 of bottom line net income. Company B generated only \$3.50 of bottom line net income from every \$100 in sales revenue. If you recommend that bonuses be distributed in proportion to the net profit margin, Company A managers will receive bonuses almost twice as large as those received by the team at Company B.

**Net profit margin = Net income / sales revenue**

**Company A looks much stronger**

Company A: 683 / 10,877 = 6.3%

Company B: 15,699 / 446,950 = 3.5%

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## Return on Assets

In addition to looking at profit as a percentage of sales revenue, you could calculate profit as a percentage of the assets used to generate that profit. Maximizing the profit they can earn given the bundle of assets they have to work with is a key economic goal of any management team. If you recommend that bonuses be distributed in proportion to return on assets, the teams in both companies would receive similar bonuses. There is no significant difference between the two companies on this measure.

**Return on assets = Net income / total assets**

**No significant difference between companies A and B**

Company A: 683 / 8,491 = 8.0 %

Company B: 15,699 / 193,406 = 8.1 %

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## Asset Turnover

Clearly, it is going to make a big difference which bonus driver you choose. The question you may be asking yourself is, “How could two companies be so different on net profit margin and so similar on return on assets?” To answer that question you probably need to calculate one more ratio. The ratio defined as sales revenue divided by total assets is sometimes referred to as *asset turnover*.

This is the first measure on which Company B’s performance is the stronger one. Company B generated \$2.31 in sales revenue for every \$1 of assets it had to work with. Company A generated only a \$1.28 in sales revenue for every \$1 of assets. If bonuses are distributed based on asset turnover, the Company B team would receive bonuses almost twice as large as those received by its counterparts in Company A.

**Asset turnover = Sales revenue / total assets**

**Company B looks much stronger**

Company A: 10,877 / 8,491 = 1.28

Company B: 446,950 / 193,406 = **2.31**

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## CONNECTING THE DOTS

So what are you going to recommend? On the first measure, Company A looks better. On the second measure, there is no real difference between the two firms. On the third measure, Company B looks better. To make sense of this information, you need to ask what business scenario explains this constellation of data points. Perhaps it can help to recognize that Return on Assets = Profit Margin  $\times$  Asset Turnover, as shown in Exhibit 5-3. When you multiply the fractions on the right side of this equation, the two sales terms cancel, and you are left with NI over assets, which is ROA (return on assets). This equation is simply saying that ROA, the net income a company earns on each dollar of assets, is equal to the profit it makes on every dollar of sales revenue, times the number of sales dollars it can generate with each dollar of assets. You can now see that Company A and Company B achieved almost exactly the same ROA through two different business strategies. The Company A data suggests a high-margin, low-volume business strategy. The Company B data is consistent with a low-margin, high-volume business strategy. Company B made much less profit on each dollar of sales but offset that by generating more sales per dollar of assets.

	Return on Assets = Profit Margin			x	Asset Turnover
	$\frac{\text{Net Income}}{\text{Assets}}$	=	$\frac{\text{Net Income}}{\text{Sales}}$	x	$\frac{\text{Sales}}{\text{Assets}}$
Company A	8.0%	=	6.3%	x	1.28
Company B	8.1%	=	3.5%	x	2.31

Exhibit 5-3. The determinants of ROA

## RETURN ON EQUITY

You have now figured out how these two firms could be so different in profit per dollar of sales while so close in profit per dollar of assets. Company A offset its lower margins with higher volumes. There is, however, an additional performance measure that you should consider: profit per dollar of shareholders equity. This measure shows how much profit is earned for every dollar shareholder investment.

**Return on equity = Net income / equity**

**Company A looks much stronger**

Company A: 683 /1,956 = **34.9%**

Company B: 15,699 /71,315 = **22.0%**

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If performance is judged on this measure of ROE, Company A looks much stronger. This raises a new question. How can two companies be so similar on ROA yet so different when it comes to return on equity (ROE)? The equation in Exhibit 5-4 provides the answer.

Return on Equity		=	Profit Margin	x	Asset Turnover	x	Financial Leverage
$\frac{\text{Net Income}}{\text{Equity}}$		=	$\frac{\text{Net Income}}{\text{Sales}}$	x	$\frac{\text{Sales}}{\text{Assets}}$	x	$\frac{\text{Assets}}{\text{Equity}}$
Company A	34.9%	=	6.3%	x	1.28	x	4.34
Company B	22.0%	=	3.5%	x	2.31	x	2.71

**Exhibit 5-4. The determinants of ROE**

The first two terms on the right side of this equation are exactly the ones you used to calculate the ROA. The additional term on the right side is a measure of financial leverage, calculated as the ratio of assets to equity. Company A's assets to equity ratio of 4.34 suggests that for every \$1.00 of equity, the company borrowed an additional \$3.34. Company B's assets to equity ratio of \$2.71 suggests that for every \$1.00 of equity that

company borrowed \$1.71. When you multiply the fractions on the right side of this equation, the two sales terms cancel, the two assets terms cancel, and you are left with net income over equity, which is ROE. This equation is simply saying that ROE, the net income a company earns on each dollar of equity, is equal to the profit it makes on every dollar of assets multiplied by the amount of assets it has per dollar shareholder investment. As explained in Chapter 3 (“The Balance Sheet: If Your People Are Your Most Important Asset, Where Do They Show Up on the Balance Sheet?”), whenever you see a company whose ROE is different from its ROA, that difference is the result of financial leverage. When the ROE is greater than the ROA, the financial leverage was beneficial, that is, the company earned more on the borrowed money than it cost to borrow it. When the ROE is less than the ROA, the financial leverage turned out to be detrimental, that is, the company earned less on the borrowed money than it cost to borrow it. The larger the amount of financial leverage (that is, borrowing), the larger these beneficial or harmful effects can be.

## **DIFFERENTIAL IMPACT OF FINANCIAL LEVERAGE**

The impact of financial leverage was beneficial at both of these firms. Company B's ROE of 22% was well above its ROA of 8.1%. There was even a larger difference between Company A's ROE of 34.9% and its ROA of 8.0%.

Company A had the bigger benefit from financial leverage because it engaged in more borrowing. That can be confirmed by referring to Company A's higher assets to equity ratio in Exhibit 5-4. The first two terms on the right side of the equation are the components ROA. The third term on the right side of this equation is the leverage multiplier. The larger it is, the more borrowing there has been, and the larger the impact of financial leverage will be. You've now figured out how the two companies could have similar ROAs but such different ROEs. The explanation is that Company A was much more highly leveraged.

It is interesting to note that in percentage terms Company A has both borrowed more from others and has more owed to them. The accounts receivable number shown on Company A's balance sheet (2,033) is equal to 19% of the top-line sales number on its income statement (10,877). The comparable percentage for Company B is only 1%. It appears that Company A makes much greater use of credit sales.

## THE BIG PICTURE

By reviewing their financial statements, and without relying on any external information, you got clues about the business strategies and the financial strategies of these two firms. Company A appeared to have a high-margin, low-volume business strategy. Company B appeared to employ a low-margin, high-volume strategy. Company A's financial strategy appeared to depend upon a far greater amount of financial leverage. The data in Exhibits 5-1 and 5-2 is real and was excerpted from the March 2012 10-K filings of two well-known retailers. The figures are in millions of U.S. dollars. That information is probably enough for you to identify Company B with 2011 sales revenues of just under \$447 billion as Wal-Mart Stores, Inc. Company A is Nordstrom, Inc. Now that you know who these two companies are, you can see that your speculations based on their financial statements were accurate. Wal-Mart's low-margin, high-volume strategy is widely understood and has been hugely successful. During 2011 Nordstrom matched Wal-Mart's ROA through a quite different high-margin, low-volume strategy. Nordstrom is willing to compromise some market share to focus on the subset of consumers who are willing to pay a premium price for its differentiated merchandise and its higher level of customer service. If the objective were to reward operating managers in proportion to the success of their 2011 business operations, managers at both the firms should probably receive similar bonuses. Both firms achieved the same ROA but through different business strategies.

Even though their operating performances as measured by ROA were similar, Nordstrom (Company A) had a greater ROE; that is, it earned more profit per dollar shareholder investment. Nordstrom's larger ROE was the result of its financial strategy, not the result of a stronger operating performance. Financial strategy



decisions are typically made at corporate headquarters, and ROE is therefore usually not an appropriate measure to gauge the performance of divisional or operating managers. The difference between a firm's ROE and its ROA could be an important factor when evaluating the performance of the CFO or the CEO. Remember, however, that although greater financial leverage may boost a firm's ROE, it also makes the firm riskier. You must carefully assess whether the increase in the ROE is large enough to justify taking on that additional risk. In the previous example, you saw that Nordstrom was both more highly leveraged (it borrowed more) and had much more owed to them (that is, much higher receivables on its balance sheet). The explanation is that Nordstrom is one of the few U.S. retailers that still own its credit card receivables. Nordstrom's wholly owned federal savings bank, Nordstrom FSB, provides a private label credit card, two Nordstrom VISA credit cards, and a debit card. Nordstrom's financial statements reflect the combination of retail businesses that are typically only moderately leveraged and banking operations that are typically more highly leveraged.

## **THE LINK BETWEEN HR STRATEGY AND BUSINESS STRATEGY**

Becker, Huselid, and Beatty in their excellent book, *The Differentiated Workforce*<sup>1</sup> explain how the HR strategies at Wal-Mart and Nordstrom are aligned with the business strategies that you uncovered through a review of their financial statements. At both firms HR strategy is focused on attracting, developing, and retaining exceptionally talented individuals to occupy those key positions that are most critical to maintaining the firm's strategic capabilities. They explain that at Nordstrom these individuals are the personal shoppers that shape the customer experience, and that at Wal-Mart they are the distribution and logistics specialists that enable the firm's operating processes to work so efficiently.

Remember this was only an exercise used to demonstrate how you can extract clues about both business strategy and financial strategy from a review of a firm's income statement and balance sheet. A more detailed discussion of selecting bonus drivers is contained in Chapter 12. However, one key take away from the previous example should be that a firm's ROA is always a function of its profit margin and asset turnover. When a firm selects a business strategy, it makes a statement about the combination of profit margin and asset turnover that it believes can maximize its ROA. HR strategy including employee selection and employee compensation should be tailored to support the firm's business strategy. Those business strategies can differ between firms and even between different divisions of the same firm. For example, Tiffany and Company has one division that manufactures and sells finished jewelry and another division that imports and distributes loose diamonds. Both divisions have the same economic goal, to maximize ROA, the profit earned on the assets invested in that division. The strategies it utilizes to pursue this goal are, however, polar opposites. The finished jewelry division pursues a high-margin strategy. This division's products are differentiated from the competition not only by the quality of the materials and workmanship, but also by the Tiffany and Company brand. This division believes its brand is its single-most important asset<sup>2</sup> and targets a market niche that pays a premium for its differentiated product.

Branding is much less important in the loose diamond division because a loose diamond of a given size and quality has the same value whether distributed by Tiffany or any other firm. Product differentiation is not practical in this market. This division pursues a low-margin strategy. Its approach is to employ competitive, not premium, pricing and to seek the largest share possible of the diamond importation and distribution business. If

Tiffany is going to be successful in this market, it will be because of the scale and efficiency of its operations. If you are the SVP of HR at Tiffany's, you don't want to evaluate the financial statements of these two divisions without an understanding of these differences in business strategies. It would be foolish to deny bonuses to managers in the loose diamond division because they did not achieve profit margins comparable to those earned in the finished jewelry division, or to criticize the managers in the finished jewelry division because they did not match the market share of the loose diamond division.

## **6. Stocks, Bonds, and the Weighted Average Cost of Capital**

### **WHY IS THE COST OF CAPITAL IMPORTANT TO HR MANAGERS?**

No business strategy and no HR strategy can create value for the firm unless it generates a return on investment greater than the firm's cost of capital. For that reason it is critical to understand what determines a firm's cost of capital and the implications of the cost of capital for all strategic and operating decisions made by the firm. The basic concept is a simple one. For example, suppose you want to open a restaurant where you can show off your skills as a chef and make enough money to support your family. To get this business started, you need \$500,000, all of which you borrow from your brother-in-law at 8%. Your cost of capital is 8%, and each year you must pay your brother-in-law \$40,000 in interest. Unless the operating profit from your restaurant is greater than \$40,000 per year, you may show off your culinary skills, but you won't be generating any economic value for yourself and your family. In this example, 8% is the minimum return you must earn on the \$500,000 invested in this restaurant if your business is to be successful. A firm's cost of capital is the minimum rate of return it must generate through its business operations to cover the cost of raising the money used to acquire the assets invested in those operations.

## WHERE DOES THE MONEY COME FROM?

The example in the previous paragraph is an unrealistic one in that 100% of the funds came from borrowing. Most corporations are financed through a combination of equity and debt. Equity financing refers to funds raised through the sale of stock. This can be common stock or preferred stock. Each share of common stock represents an ownership interest in the corporation. Owners of common stock typically have the right to vote for members of the Board of Directors and on other corporate issues. Common stockholders have the right to receive dividends in proportion to their ownership interest. For example, if you own 3% of the outstanding stock and management chooses to declare a dividend, you are entitled to 3% of the dividends distributed. If the company is liquidated, common shareholders also have a right to receive a percentage of the proceeds. However, common shareholders have the lowest priority claim. They receive a percentage of whatever, if anything, is left after the claims of creditors, bondholders, and preferred stockholders have been paid.

Preferred stock is a type of stock that may have no voting rights but pays a fixed dividend amount. Corporations cannot pay any dividends to common stockholders until this obligation to preferred stockholders has been satisfied. For example, GM's offered its series B preferred shares with a fixed dividend of \$2.38 per year. GM cannot pay any dividends to its common stockholders unless it first pays \$2.38 per share to the preferred stockholders. After it does that, the dividend to common stockholders could be less than \$2.38 a share or much larger than that. Preferred stock may be *cumulative* or *noncumulative*. Cumulative preferred requires that if a company fails to pay a dividend at the stated rate, it must make it up at a later time. The GM series B preferred shares are cumulative. That means if these preferred shareholders received no dividend in 2013, they must be

paid \$4.76 per share ( $2 \times \$2.38$ ) in 2014, or no dividends can be paid to common shareholders in 2014.

Debt financing, that is, borrowing, can take the form of loans from a bank or other institution, or the sale of bonds or commercial paper. Bonds and commercial paper are just IOUs that the corporation provides to lenders. Bonds and commercial paper are debt instruments and do not represent any ownership interest in the company. Commercial paper is usually short term and unsecured, that is, not backed by specific assets. Bonds may be secured or unsecured and can have terms as long as 20 or 30 years. If you buy a \$10,000 bond from IBM, IBM gives you a bond certificate (an IOU) stating that it will repay the \$10,000 you have loaned it on the bonds maturity date. That bond certificate will also state the annual interest rate that IBM will pay you on your \$10,000 between the date of purchase and the maturity date. Bond pricing and bond yields are discussed in more detail in Chapter 7, “Capital Budgeting and Discounted Cash Flow Analysis.”

### Calculating the WACC

Firms often refer to their weighted average cost of capital (WACC). This is just the weighted average of the cost of raising equity capital from the firm's shareholders and the cost of borrowing from the firm's creditors. Consider the hypothetical firm described in Exhibit 6-1 with \$50 million of assets. Equity capital, that is, proceeds from the sale of stock, was used to purchase assets costing \$30 million (60% of the total). Borrowed funds were used to purchase the remaining \$20 million of assets (40% of the total). If the cost of raising equity capital is 11% and the average cost of borrowings is 6%, the firm's weighted average cost of capital is 9%  $[(.6 \times 11\%) + (.4 \times 6\%) = 9\%]$ . This firm's business operations must produce a return of at least 9% to cover the cost of the assets utilized. That 9% is sometimes described as the *hurdle rate* that must be exceeded by all its strategic and operating investments.

	Cost of Capital	Proportion of Total Assets
Equity	11%	0.6
Debt	6%	0.4
Weighted Average	9% = $(.6 \times 11\%) + (.4 \times 6\%)$	

Exhibit 6-1. Weighted average cost of capital

## **The Cost of Debt**

Of course, to do the calculation (refer to Exhibit 6-1) you must start with an estimate of the cost of debt and the cost of equity. As you will see, the cost of debt is the easier number to determine. The cost of debt is just the average after-tax interest rate that the firm pays. Because interest, like other business expenses, reduces a firm's taxable income, its after-tax cost is less than its pretax cost. If a firm were in a 25% tax bracket, every \$100 in interest expense would reduce the firm's taxable income by \$100 and therefore its tax obligation by \$25. The net after-tax cost of the interest payment would be \$75 (\$100 interest payment minus \$25 tax reduction). This relationship can be expressed as

After tax cost of debt = (Average interest rate)  $\times$  (1 – tax rate).

If a firm's pretax interest rate were 8% and its tax rate were 25%, its after-tax interest rate would be 6% ( $8\% \times (1 - .25) = 6\%$ ).



## The Cost of Equity

The *cost of equity* is the minimum rate of return that will entice investors to purchase shares of stock in this firm. Of course, stockholders are not promised any specific rate of return. Their stock purchase decision is based on the return they expect to receive. Their actual returns may turn out to be much more or much less than was expected. The riskier a firm is perceived to be, the higher the expected return will need to be to attract equity investors. The capital asset pricing model, often abbreviated as CAPM, is by far the most frequently used method for estimating the expected return that will be required. Recent survey data indicates an overwhelming majority of all organizations and more than 90% publicly traded companies utilize the CAPM when estimating their cost of equity.<sup>1</sup> The underlying logic of the CAPM is just that investors won't pursue a risky investment unless they expect to earn more than they could on a less risky investment. Exhibit 6-2 is an illustration of using CAPM to estimate the expected return on a company's stock.

Expected Return on This Stock = Return on a Risk-Free Investment + Premium for Accepting Risk Associated with This Stock				
= Return on a Risk-Free Investment + Beta x (Market Rate of Return - Risk-Free Rate of Return)				
11%	=	5%	+ 1.5 x (9% - 5%)	

**Exhibit 6-2. Using CAPM to estimate the cost of equity**

The yield on government bonds is usually assumed to be your best proxy for the return on a risk-free investment. Just less than one-half of all firms report using the yield on the 10-year U.S. government bonds as their estimate of the risk-free rate.<sup>2</sup> Others use the yield on either shorter or longer treasury bonds. The illustration in Exhibit 6-2 assumes that during a particular time period government bonds were yielding 5% and the average

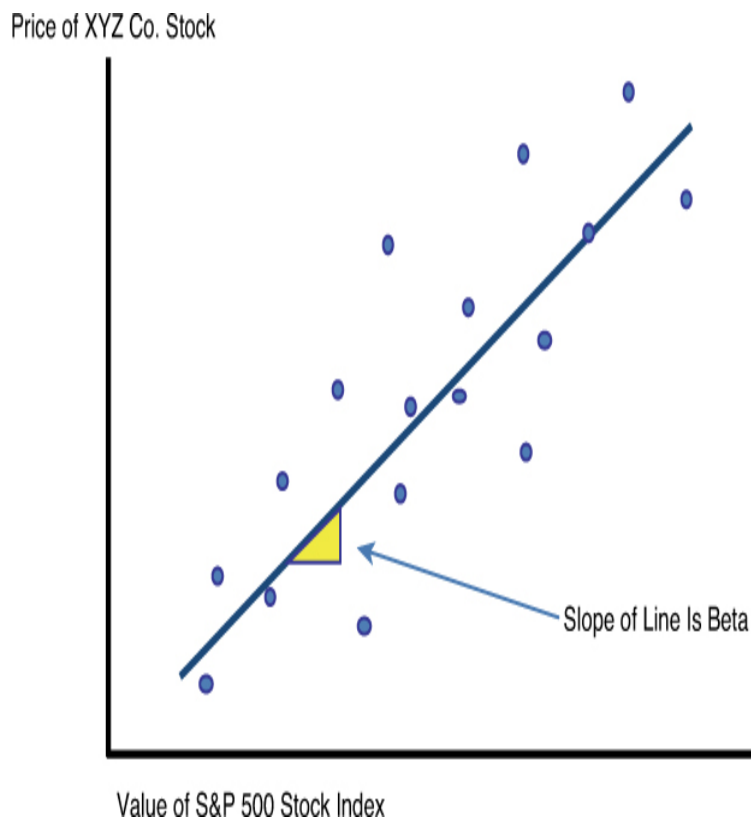
return on equities in the U.S. stock market was 9%. In other words, the U.S. stock market was providing a risk premium of 4 percentage points above government bonds. Because there are billions of dollars invested in the U.S. stock market, it is clear that an additional 4% added to their expected return was enough to entice many investors to put money in the risky stock market rather than leave it in safer government bonds.

### **IS YOUR COMPANY OF ABOVE AVERAGE OR BELOW AVERAGE RISK?**

The capital asset pricing model assumes that if a company's stock is perceived to be of above average risk, it will attract investors only if they believe they can earn an above-average return. Similarly, a company whose stock is perceived to be of below average risk will attract investors even though it is expected to provide a below average return. The company's stock (refer to Exhibit 6-2) was assumed to be one and one-half times as risky as the market on average, so investors would require a risk premium of 1.5 times the market risk premium of 4 percentage points. A risk premium of 6 percentage points ( $1.5 \times 4\%$ ) above the risk-free rate of 5% suggests investors would purchase this company's stock only if they expected to earn an 11% return on their investment.

The term *beta* (the second letter of the Greek alphabet) in this illustration is a measure of how risky a firm is relative to the overall stock market. It is a measure of a stock's price volatility in relation to the rest of the market. In other words, does the stock's price tend to fluctuate more or less than the average for all other stocks? When a stock's volatility equals that of an average share in the market, beta equals 1.0. *Volatility*, uncertainty about what the stock price will be in the future, is treated as an indication of risk. Stocks of above average volatility and therefore above average risk have a beta greater than 1.0, and stocks of below average

volatility and risk have a beta of less than 1.0. Beta is usually estimated by comparing the volatility in a stock's price during some sample period to the volatility in a broad market index such as the S&P 500 index. For example, you could record on a sample of 100 days the value of a company's stock price and the level of the S&P 500 index. You could then plot those 100 paired observations in a graph similar to the one in [Exhibit 6-3](#) and use regression analysis (or a ruler) to find the straight line that best summarized the historical relationship between this company's stock price and the S&P 500 index. The slope of that line is the beta.



**Exhibit 6-3. Estimating beta by plotting a company's stock price versus the overall market**

Stated differently, a change in the company stock price equals beta times the change in the market index. If the beta were 1.2, that would mean that every time the S&P index moves by 1%, this company stock tends to move by

1.2%. If the S&P went up by 10%, the stock would on average rise by 12%. If the S&P fell 5%, the stock would on average fall 6%. Similarly, the price of a stock with a beta of 0.8 would on average rise by 8% when the S&P index climbs by 10% and fall by 4% when the S&P index declines by 5%.

Remember that the betas reflect the average responses during a sample time period. There is no guarantee that these historical patterns will persist into the future. Estimates of the betas for the stocks of publicly traded companies are readily available at no cost from a large variety of Internet financial data services.

## **CAPITAL COSTS IN 2012**

To review, a company's cost of capital is the weighted average of its cost of borrowing and its cost of raising money through the sale of stock. The cost of debt is the average after-tax interest rate it pays on the amount borrowed. The cost of equity is the minimum rate of return that will entice investors to purchase shares of stock in this firm. If the company is perceived to be of above average risk, that is, it has a beta greater than 1.0, investors will purchase the stock only if they expect to earn a return that is sufficiently above average for the market. If the company is perceived to be of below average risk, that is, it has a beta less than 1.0, investors will expect to earn a return that is below average of the market. Estimates of the average cost of capital for a sample of industries are shown in Exhibit 6-4. If you review these you can notice that in each industry the cost of equity is substantially above the after-tax cost of debt. Equity investors require a higher return because they expose themselves to considerably more risk. There is no promise about what will happen to the market price of the shares they purchase or what level of, if any, dividends they will receive. On the other hand, bond purchasers and others who loan funds to the firm receive a contractual promise that their principal will be returned along with a specified amount of interest. Their risk is not zero; the firm could default on these promises, but it is substantially less than the risk absorbed by equity investors.

<i>Industry Name</i>	<i>Cost of Equity</i>	<i>After-Tax Cost of Debt</i>	<i>Weighted Average Cost of Capital</i>
Semiconductor Equip	12.70%	3.28%	11.46%
Advertising	14.09%	5.24%	11.42%
Furn/Home Furnishings	12.81%	3.48%	10.98%
Retail (Hardlines)	12.57%	3.75%	10.84%
Metal Fabricating	11.48%	2.84%	10.32%
Auto Parts	12.13%	3.54%	10.27%
Retail (Softlines)	10.55%	2.54%	10.13%
Heavy Truck & Equip	12.76%	3.07%	9.82%
Chemical (Diversified)	11.02%	2.64%	9.48%
Computers/Peripherals	9.71%	4.30%	9.21%
Electrical Equipment	9.89%	3.21%	9.14%
Steel	12.03%	2.66%	9.06%
Apparel	9.71%	3.67%	8.77%
Petroleum (Producing)	9.97%	3.88%	8.76%
Human Resources	9.34%	2.89%	8.73%
Healthcare Information	8.95%	3.01%	8.60%
Engineering & Const	9.26%	2.85%	8.57%
IT Services	8.25%	3.13%	7.96%
Retail Automotive	10.13%	2.21%	7.95%
Computer Software	8.17%	3.83%	7.87%
E-Commerce	8.08%	3.83%	7.83%
Biotechnology	8.09%	5.72%	7.81%
Telecom. Equipment	8.00%	3.79%	7.52%
Electronics	8.31%	3.92%	7.51%
Homebuilding	10.62%	3.67%	7.14%
Bank	6.52%	2.83%	4.27%

**Exhibit 6-4. 2012 Average cost of capital in a sample of industries**

Source: January 2012 estimates by Dr. Aswath Damodaran, Stern School of Business, New York University. Downloaded May 23, 2012 from [http://pages.stern.nyu.edu/~adamodar/New\\_Home\\_Page/datafile/wacc.htm](http://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/wacc.htm).

## Impact of WACC on Value Creation

Value is created only when the assets employed in the firm's operations generate a return greater than the firm's cost of capital. Greater value is created when the return on the assets employed increases and/or the cost of capital falls. Increasing the return on the assets employed is the primary challenge facing operating managers. However, before addressing that topic, look at how important a reduction in the firm's cost of capital can be. The data in [Exhibit 6-5](#) describe one division of a large company. During 2012, this division had pretax operating profits of \$700,000 and after-tax operating profits of \$462,000. The economic value created by this division during 2012 was \$22,000. In other words, its business operations earned \$462,000, which was \$22,000 more than the \$440,000 ( $10\% \times \$4,400,000$ ) it costs the parent corporation to keep \$4,400,000 in assets tied up in this division.

Economic profit = (After-tax operating profit) – (WACC × capital employed)

$$\$22,000 = (\$462,000) - (10\% \times \$4,400,000)$$

	Year 2012	200% Growth	No Growth, but WACC Reduced by 1 Point
Revenue	\$5,000,000	\$15,000,000	\$5,000,000
Cost of Goods Sold	3,000,000	9,000,000	3,000,000
Operating Expense	1,000,000	3,000,000	1,000,000
Depreciation	300,000	900,000	300,000
EBIT	<u>\$700,000</u>	<u>\$2,100,000</u>	<u>\$700,000</u>
EBIT -33% Tax	462,000	1,386,000	462,000
WACC	10.0%	10.0%	9.0%
Capital Employed	4,400,000	13,200,000	4,400,000
Economic Profit	\$22,000	\$66,000	\$66,000

**Exhibit 6-5. Relationship between economic profit and WACC**

Now look at two different scenarios for 2013. The first one is described in the middle column of Exhibit 6-5 labeled 200% growth. This scenario assumes the firm triples in size. Revenues, expenses, profits, and assets are all three times what they were in 2012. Not surprisingly, that generates an economic profit of \$66,000, three times the level of the previous year. Of course, few managers can ever achieve 200% growth in a single year. Is there an alternative way to triple the size of this division's economic profit? Consider the scenario in the third column of this exhibit. This scenario assumes no growth, that is, revenues, expenses, profits, and assets all unchanged from 2012. However, in this scenario the firm's weighted average cost of capital declines by one percentage point from 10% to 9%. A decline of that magnitude would increase economic profit by exactly as much as tripling the size of the firm with no change in its cost of capital. That occurs because the firm is saving 1% of the \$4,400,000 in assets tied up in this division. In this example, the impact of reducing the cost of capital was large because the amount of assets tied up in this division was large. In other situations the impact may not be as dramatic, but you must understand that changes in the cost of capital can be just as significant as changes in operating performance. Of course, it's not either-or. Firms must simultaneously strive to maximize their operating performance and minimize their cost of capital.



## Reducing the Weighted Average Cost of Capital

How can a firm reduce its cost of capital? Refer to the WACC calculation in [Exhibit 6-1](#). This firm raised 60% of its capital from equity investors and 40% of its capital through borrowing. Using the calculation shown in this exhibit, you can determine its weighted average cost of capital was 9%. Could this firm lower its weighted average cost of capital by using less of the expensive money (equity, which costs 11%) and more of the cheap money (debt that costs 6%)? If this firm reduced its equity proportion to 20% and raised its debt proportion to 80%, would its WACC fall to 7%? Probably not, even though  $[.20 \times 11\%] + [.80 \times 6\%] = 7\%$ . That result could be obtained only if the cost of debt and the cost of equity remained unchanged. If the company were to become more highly leveraged, relying more heavily on debt financing, it would be perceived as a riskier firm. As a result, its cost of equity and its cost of borrowing would probably both rise. Changing the amount of leverage might reduce or might increase this firm's weighted average cost of capital.<sup>3</sup> Choosing the optimal debt and equity proportions requires judgments about how equity investors, lenders, and bond rating agencies respond to the firm's capital structure. In practice, a firm's capital structure is often driven more by the need for external funds than by attempts to reach an optimal balance between debt and equity. Highly profitable firms with limited investment opportunities tend to pay down their debt. Firms whose investment opportunities exceed their internally generated funds tend to increase their debt.

## **Decisions Based on WACC**

*Capital budgeting* is the term often used to describe the planning process through which firms determine whether investments are worth pursuing. Such investments might include purchasing new machinery or replacement machinery, offering training programs, allocating R&D funds, undertaking advertising campaigns, introducing new products, engaging in mergers and acquisitions, and countless others. The weighted average cost of capital is critical to all these decisions and all long-term investments a firm makes. The WACC serves as the hurdle rate that must be surpassed before any of these projects can be approved. If a project does not offer a rate of return greater than the firm's WACC, undertaking it will destroy rather than create shareholder value. In many cases these investments are evaluated using the firmwide WACC. However, an even higher hurdle rate may be used if the project's risk level is greater than the risk level for the firm as a whole. HR managers need to understand this concept to allocate resources within the HR function and to design HR systems that encourage managers in all functional areas to develop and execute strategies that create shareholder value. The types of techniques and models typically used to make these decisions are discussed in the next chapter.

## 7. Capital Budgeting and Discounted Cash Flow Analysis

Discounted cash flow analysis is probably the most important financial tool that you will encounter.

Fortunately, present values are easy to understand and easy to calculate. If you had the opportunity to choose between receiving \$1,000 a year from today or receiving \$1,000 today, which would you prefer? Clearly you would prefer to receive the cash today. If you received the money today, you could invest it and earn a return during the upcoming year. If you could invest at 5%, at the end of the year you would have \$1,050 (your original \$1,000 plus \$50 in interest). So if 5% is the correct interest rate, a choice between \$1,000 a year from now and \$1,000 today is equivalent to a choice between \$1,000 a year from now and \$1,050 a year from now. Obviously, \$1,050 is the better outcome. A dollar received today is always worth more than a dollar received in the future. The sooner you receive the money, the sooner you can invest it and begin receiving a return or borrow less and avoid paying out interest.

### CALCULATING PRESENT VALUES

You'll no doubt hear financial analysts referring to the present value of future cash flows. The present value of any future amount is just the amount you would have to invest today to grow to that future amount in the assumed time period at the assumed interest rate. So at 5% interest, \$1,000 is the present value of \$1,100 to be received 2 years from now. This relationship can be summarized by the equation in Exhibit 7-1. In this equation, the interest rate is expressed in decimal form ( $5\% = .05$ ), and  $t$  is the number of years the funds remain invested.

**Present Value x (1 + Interest Rate)<sup>t</sup> = Future Value at End of Year t**

**\$1,000 x 1.05 x 1.05 = \$1,150 = Future Value at End of 2 Years**

**\$1,000 x 1.05<sup>2</sup> = \$1,150 = Future Value at End of 2 Years**

**Exhibit 7-1. Relationship between present value  
and future value**

This equation is nothing more than a sixth-grade compound interest formula. Fortunately, that's all you need to calculate present values and perform discounted cash flow analyses. You will usually find it more convenient to work with that equation if you rearrange the terms. When you divide both sides of that equation by  $(1 + \text{Interest rate})^t$  you get

**Present value = Future Value /  $(1 + \text{Interest rate})^t$**

Using that expression, it is straightforward to calculate the present value of any future amount.

## **Discounted Cash Flow Analysis (DCF)**

Present values are sometimes referred to as *discounted cash flows* (DCF), and the interest rate is sometimes referred to as the *discount rate*. Financial models that utilize present value calculations are therefore often referred to DCF analyses. Capital budgeting is the process corporations use to determine whether long-term investments are worth pursuing. This typically involves calculating the DCF valuation of each potential project. Discounted cash flow analyses are essential tools for assessing almost all corporate expenditures.

Examples could range from deciding which copy machine to purchase, to assessing the costs and benefits of an employee training program, to evaluating merger and acquisition (M&A) opportunities. It is, of course just as important to consider the time value of money when making personal financial decisions such as buying a house, saving for a child's education, or choosing whether to buy or lease a new car. DCF techniques are also used to value financial instruments such as stocks, bonds, and employee stock options. The basic concepts are illustrated next, and specific applications are discussed in later chapters.

## Reading a Present Value Table

Present value tables are tools that were created to reduce the amount of arithmetic involved in DCF calculations. They are seldom still used for that purpose because financial calculators and spreadsheets are now much better alternatives. However, before moving on to spreadsheets, the present value table in Exhibit 7-2 illustrates some basic time value of money concepts. Interpreting the numbers in the present value table is straightforward. If you think of the column headings as annual interest rates, you can think of the row headings as years. If the column headings were monthly interest rates, the row headings would represent months. Determining what interest rate to use is extremely important and is a topic discussed in detail later in this chapter in the section, “Selecting the Appropriate Discount Rate.” For the moment, assume the relevant annual interest rate is 10%. The table tells you that the present value of \$1.00 received 1 year from now is .909 dollars, or just under 91 cents. That figure was calculated by dividing \$1.00 by 1.10. If you put \$.91 into an account earning 10%, at the end of 1 year your account balance would be \$1.00. The table shows that the present value of \$1 received 2 years from now is .826 dollars, or just under 83 cents ( $\$1.00 / 1.10^2$ ). The present value of \$1 received 3 years from now is .751 dollars, or just more than 75 cents ( $\$1.00 / 1.10^3$ ). All other entries in the table were calculated in the same way.

# **Present Value of \$1 Discounted at Discount Rate $i$ , for $n$ Years**

n	Discount Rate (i)											
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909	0.901	0.893
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826	0.812	0.797
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751	0.731	0.712
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683	0.659	0.636
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621	0.593	0.567
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564	0.535	0.507
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513	0.482	0.452
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467	0.434	0.404
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424	0.391	0.361
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386	0.352	0.322
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350	0.317	0.287
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319	0.286	0.257
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290	0.258	0.229
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263	0.232	0.205
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239	0.209	0.183
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218	0.188	0.163
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198	0.170	0.146
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180	0.153	0.130
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164	0.138	0.116
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149	0.124	0.104
25	0.780	0.610	0.478	0.375	0.295	0.233	0.184	0.146	0.116	0.092	0.074	0.059
30	0.742	0.552	0.412	0.308	0.231	0.174	0.131	0.099	0.075	0.057	0.044	0.033

**Exhibit 7-2. Present value table**

## Basic Time Value of Money Concepts

So how can you use this present value table? If the table tells you the present value of \$1 received in the future, you can calculate the present value of any number of dollars. Suppose you want to buy your daughter a \$1,000 computer when she graduates from high school 1 year from now. How much would you need to put in a bank account tomorrow morning at 10% to have that \$1,000 ready when she graduates? You would need to deposit \$909 ( $\$1000 \times .909$ ), which is the present value of \$1,000 received or paid 1 year from now. How much would you need to invest today if she were not going to graduate for 10 years? The present value of \$1,000 in 10 years is only \$386 ( $\$1000 \times .386$ ). You would need to invest much less today because 10 years of compound interest, instead of just 1, would be added before you make your withdrawal. Other things equal, the present value will always be less when the time period is longer. Other things equal, the present value will always be larger when the interest rate is smaller. Suppose you will need \$1,000 in 10 years but the annual return on your investment will be only 2%. You would need to invest \$820 ( $\$1000 \times .820$ ) instead of \$386. That makes sense. If your investment will be growing more slowly, you need to start with an amount closer to your eventual target. When you start modeling corporate operating and strategic investments, it will be important to remember that, other things equal, a longer time period always reduces the present value of a future amount, and a lower interest rate always increases the present value of a future amount.



## **DO THE FUTURE BENEFITS JUSTIFY THE UPFRONT COSTS?**

Now assume that your time value of money is 10%, for example, your money is currently in an account earning 10% per year. The most you should pay for a \$1,000 benefit to be received 1 year from now is \$909. If you had to pay more than that, you would be better off leaving the money in the account where it was earning 10%. In that account any amount greater than \$909 would grow to more than \$1,000 by the end of the year. Similarly, if your firm's weighted average cost of capital were 10%, \$909,000 is the most it should pay for a benefit of \$1,000,000 to be received 1 year from now. If that same \$1,000,000 benefit would not be received for 10 years, the most your firm should pay is \$386,000.

## Calculating the Present Value of a Series of Cash Flows

The same approach you have used to calculate the present value of a single payment can be used to calculate the present value series of cash flows. Suppose you have just learned that you won \$1,000,000 in the New Jersey State lottery. You rush to the lottery commission office to pick up your \$1 million check. They say, “Sorry, that’s not how it is done.” They explain that they will pay you \$50,000 per year for the next 20 years and that  $\$50,000 \times 20$  is \$1,000,000. What lump sum amount would you be willing to accept today instead of receiving \$50,000 per year for the next 20 years? This calculation is shown in [Exhibit 7-3](#). The first two columns show the year and the amount to be received at the end of each year. The third column shows the 10% present value discount factors obtained from [Exhibit 7-2](#). The right column is the product of the cash flow in each year and the present value discount factor for that year. For example, \$45,455 is how much you would have to invest today to grow to \$50,000 at the end of 1 year. If your time value of money is 10%, you would be indifferent between receiving \$45,455 today or \$50,000 1 year from now. This table also illustrates how dramatic the impact of compound growth rates can be. You would be indifferent between receiving the final \$50,000 payment or only \$7,432 today. That’s true because if you put \$7,432 in an account earning 10%, it would after 20 years grow to exactly \$50,000. The present value of the series of twenty \$50,000 payments, the sum of the numbers in the right column, is \$425,678. If your time value of money is 10%, you would be indifferent between receiving \$425,678 today or \$1 million spread out in \$50,000 payments over the next 20 years. For the moment you are ignoring taxes and risk. Those factors are discussed in later chapters.

<b>Year</b>	<b><u>Cash Flow</u></b>	<b><u>PVDF@10%</u></b>	<b><u>PV</u></b>
1	\$ 50,000	0.909	\$ 45,455
2	\$ 50,000	0.826	\$ 41,322
3	\$ 50,000	0.751	\$ 37,566
4	\$ 50,000	0.683	\$ 34,151
5	\$ 50,000	0.621	\$ 31,046
6	\$ 50,000	0.564	\$ 28,224
7	\$ 50,000	0.513	\$ 25,658
8	\$ 50,000	0.467	\$ 23,325
9	\$ 50,000	0.424	\$ 21,205
10	\$ 50,000	0.386	\$ 19,277
11	\$ 50,000	0.350	\$ 17,525
12	\$ 50,000	0.319	\$ 15,932
13	\$ 50,000	0.290	\$ 14,483
14	\$ 50,000	0.263	\$ 13,167
15	\$ 50,000	0.239	\$ 11,970
16	\$ 50,000	0.218	\$ 10,881
17	\$ 50,000	0.198	\$ 9,892
18	\$ 50,000	0.180	\$ 8,993
19	\$ 50,000	0.164	\$ 8,175
20	\$ 50,000	0.149	\$ 7,432
			\$ 425,678 Total PV

**Exhibit 7-3. Calculating the present value of a series of payments**

## USING DCF ON THE JOB

In case you don't get to use this analysis in exactly that context, look at some work-related examples. Your colleague has calculated that if your firm were to purchase a more energy-efficient heating and cooling (HVAC) system for its corporate headquarters, it could reduce its energy bills by \$50,000 per year for the next 20 years. He has also determined that a system with the appropriate energy efficiency rating and the necessary heating and cooling capacity would cost \$600,000. He's proud of the memo he has written to the boss recommending that the firm spend the \$600,000 to achieve \$1,000,000 in energy savings. If your firm's weighted average cost of capital is 10%, would the investment he is recommending be a cost-effective one? No, if energy cost reductions are the only reason for putting in the new system, the most your firm should spend for the new system is \$425,678. A basic premise of DCF analysis is that the economic value of any asset is the present value of the cash flows you receive as a result of owning that asset. That's true whether the asset is an HVAC system, a piece of investment real estate, a share of stock, a bond, or even a company that you plan to acquire.

## HR APPLICATIONS

Here are some HR illustrations using the same numbers. Today is your 65th birthday, and you are about to retire. Under the terms of your company's defined-benefit pension plan, you have a choice of receiving a \$50,000 per year pension payment for the rest of your life or a one-time upfront lump sum payment of \$450,000. If you assume that you will live for 20 years after you retire and that your time value of money is 10%, which alternative would you choose? Under those assumptions you would be better off taking the \$450,000 upfront. Exhibit 7-3 showed that if you put \$425,678 into an account earning 10% and then withdrew \$50,000 at the end of each year, you would exactly empty that account at the end of the 20th year. That's true because the \$425,678 is the sum of the \$45,455 that you would have to put in to grow to the first \$50,000 withdrawal, the \$41,322 needed to cover the second \$50,000, and the amount needed to cover each of the other 18 withdrawals. If \$425,678 is how much you have to deposit inured to draw out \$50,000 per year, with a \$450,000 deposit you could withdraw more than \$50,000 in each of the next 20 years. That example could just as easily have been worded, "What's the most you should spend on a training program that will increase workforce productivity by \$50,000 per year in each of the next 20 years?" or "What's the most you should spend on a HRIS program that will in each of the next 20 years eliminate the need for one data-entry position costing \$50,000?" Of course, you may argue quite reasonably that you've never seen a software package with a useful life of 20 years. If the software package has a 3-year useful life, you just add up the first three rows ( $\$45,455 + \$41,322 + \$37,556 = \$124,343$ ). These are generic models that can be easily customized to fit almost any business investment you are considering. If appropriate, a different cash flow could be entered for each year, and the number of years could be

adjusted to reflect the length of the benefit stream you expect.

### **How Important Is It to Consider the Time Value of Money?**

You need to consider the time value of money whenever you are comparing, adding, subtracting, or performing any calculations on cash flows that occur during different time periods. A mile is not equal to a kilometer, so you would not add one distance expressed in miles to another distance expressed in kilometers. The result would be meaningless. Before doing any calculations on those two numbers, you would need to express them both in the same unit of measurement, that is, both in miles or both in kilometers. Just as a mile is always bigger than a kilometer, a dollar received today is always worth more than a dollar received in the future. So before performing any calculations involving cash flows from different time periods, you need to express them in the common metric of present value.

Individuals sometimes assume that time value of money adjustments are only of real-world importance when the time horizons are long. For example, constructing a new manufacturing facility or starting an R&D project that might produce cash flows over a 20- or 30-year time frame. Now look at the example described in [Exhibit 7-4](#) that involves a much shorter time horizon. In a past labor negotiation, the Chrysler Corporation offered the 70,000 members of its UAW collective-bargaining unit immediate lump sum bonuses averaging \$2,120 each. How much more would it have cost Chrysler to increase its lump sum offer to \$2,250, but spread the payments out over the 3-year life of the labor contract? Assume that at the time Chrysler's WACC was 10% and that under the second option the \$750 payments would be made at the end of each contract year. Because Option A involves only an immediate payment, there is no present value adjustment required. To calculate the present value

of the series of payments under Option B, multiply each payment by the appropriate discount factor from the 10% column of the present value table in Exhibit 7-2. You see that Chrysler, given its 10% cost of raising money, would be indifferent between paying each worker \$1,865 upfront, or \$750 at the end of each of the next 3 years. Now that both options have been expressed in present value terms, you can compare them. Option B costs \$256 less per worker. Because at the time Chrysler had 70,000 active employees, *increasing* its offer to \$2,250 would have *saved* Chrysler almost \$17.8 million! If you had ignored the time value of money, you would have mistakenly concluded that \$2,250 over the term of the contract was more expensive than \$2,120 upfront. This example demonstrates that even over relatively short time horizons ignoring the time value of money can lead to seriously flawed decisions.

Option A: \$2,120 Immediate Lump Sum Payment			
Year	Payment	Discount Factor @10%	Present Value
0	\$2,120		\$2,120
Option B: \$2,250 Spread Over Three Years			
Year	Payment	Discount Factor @10%	Present Value
0			
1	\$750	0.909	\$682
2	\$750	0.826	\$620
3	\$750	0.751	\$563
Total	\$2,250		\$1,865
Total			
Option B costs \$256 less per worker.			
\$256 x 70,000 covered employees is a savings of \$17,780,000.			

**Exhibit 7-4. Using present value to compare alternative compensation schemes**

Still need to convince yourself how real that \$17.8 million savings is? Suppose Chrysler were to

immediately deposit into a bank account earning 10% the amount needed to fund Option A and the amount needed to fund Option B. To fund Option A would require depositing  $70,000 \times \$2,120$ . To fund Option B would require depositing  $70,000 \times \$1,865$ . Do the math. That's a \$17.8 million difference. Less is needed to fund Option B because the initial deposit would grow by 10% before the first \$750 payments are made. The remainder would grow by another 10% in year 2 before the second payment is made, and the balance would grow by 10% in the third year before the last payment is made. The effect would be exactly the same as in that hypothetical, but a more likely scenario would be that instead of pre-funding these payments and investing the funds at 10%, the firm would simply not need to raise the money immediately, avoiding the 10% cost of capital on those amounts.

### **Using Spreadsheets to Calculate Present Values**

Although present value tables may be useful for illustrating how DCF models work, they are no longer the most efficient way to calculate them. The analysis in [Exhibit 7-3](#) could be accomplished easily using the time value of money functions built into Microsoft Excel and most other spreadsheet programs. [Exhibit 7-5](#) shows an Excel spreadsheet that does this. The cash flows are typed into any range of cells you prefer, and then in any cell you type the Excel formula to calculate the net present value of those cash flows. The general syntax of the Excel net present value formula is

**=NPV(Interest rate, Range of cells  
where the cash flows are located)**



	A	B	C	D	E
1	Year	Cash Flow			
2	1	\$ 50,000			
3	2	\$ 50,000		Discount Rate	10%
4	3	\$ 50,000		Present Value	\$425,678
5	4	\$ 50,000			
6	5	\$ 50,000			
7	6	\$ 50,000			
8	7	\$ 50,000			
9	8	\$ 50,000			
10	9	\$ 50,000			
11	10	\$ 50,000			
12	11	\$ 50,000			
13	12	\$ 50,000			
14	13	\$ 50,000			
15	14	\$ 50,000			
16	15	\$ 50,000			
17	16	\$ 50,000			
18	17	\$ 50,000			
19	18	\$ 50,000			
20	19	\$ 50,000			
21	20	\$ 50,000			

Exhibit 7-5. Using an Excel spreadsheet to replicate analysis in Exhibit 7-3

In Exhibit 7-5 the formula in cell E4 is =NPV(.10,B2:B21). The result returned is the same \$425,678 that you calculated in Exhibit 7-3. An alternative formula that would produce exactly the same result is =NPV(E3,B2:B21). In this second formula the interest rate is replaced with a cell address showing where the interest rate is located. The advantage of this second approach is that you can more easily plug in different discount rates to determine their impact on the present value. For example in this case, lowering the interest rate from 10% to 5% increases the present value to \$623,111. If this firm could raise money only at 10%, it should pay no more than \$425,678 for this stream of benefits. If this firm could raise money at a cost of 5%, it could pay up anything to \$623,111 for the same stream of

benefits. Obviously, a business deal is more attractive if the funds used to finance it can be raised at a lower cost.

In the earlier lottery example, you assumed the \$50,000 payment was received at the end of each year. If those amounts were received at the start of each year, you could adjust the spreadsheet, as shown in Exhibit 7-6. Note the difference is that only 19 cash flows are listed in Column A. Because the first \$50,000 would be received at the beginning of the first year, there is no time value of money adjustment required for that amount. The second payment would be received at the end of year 1 (the start of year 2), the third payment at the end of year 2, and so forth. The 20th payment would be received at the end of the 19th year. The present value of the 20 payments (\$468,246) is therefore the initial \$50,000 plus the \$418,246 present value of the 19 future cash flows.

	A	B	C	D	E
1	Year	Cash Flow			
2	1	\$ 50,000			
3	2	\$ 50,000		Discount Rate	10%
4	3	\$ 50,000		Present Value of Future Cash Flows	\$418,246
5	4	\$ 50,000			
6	5	\$ 50,000		Initial Upfront Payment	\$50,000
7	6	\$ 50,000			
8	7	\$ 50,000		Total	\$468,246
9	8	\$ 50,000			
10	9	\$ 50,000			
11	10	\$ 50,000			
12	11	\$ 50,000			
13	12	\$ 50,000			
14	13	\$ 50,000			
15	14	\$ 50,000			
16	15	\$ 50,000			
17	16	\$ 50,000			
18	17	\$ 50,000			
19	18	\$ 50,000			
20	19	\$ 50,000			

**Exhibit 7-6. Present value when cash flows occur  
at beginning of each period**

### Example of Using Excel's NPV Function to Analyze a Buy Versus Lease Decision

Now look at a buy versus lease analysis using Excel's built-in NPV function. You have decided that you need a new BMW 328i. The dealer says he agrees with you and explains that he has two ways that he can help you get that car. He will be glad to sell you the car for \$35,200, or he will be equally happy to lease it to you. The 4-year lease would require an immediate \$5,000 down payment, and then payments of \$5,400 at the end of each year. Assume all funds will be taken out of an account earning 8% per year. The first step is to write down the pattern of cash flows associated with each alternative, as shown in Exhibit 7-7. The negative numbers represent cash you will have to pay out, and the one positive number, \$18,300, is what you estimate you will receive if you sell the car at the end of year 4. The formula typed into cell B9 is  $=B2+NPV(0.08, B3:B6)$ . The formula typed into cell C9 is  $=C2+NPV(0.08, C3:C6)$ . In both cases the initial payment occurs at the present and is therefore not included in the range of cells specified in the NPV function. Excel assumes that the first entry in an NPV range is one period out, that the second is two periods out, and so forth. Had the \$35,200 purchase price or the \$5000 down payment been included within the NPV range, Excel would have treated them as occurring one year from now. The results in Exhibit 7-7 indicate that with this particular set of assumptions, buying the car would be approximately \$1,000 cheaper than leasing it. Suppose however that you were taking the funds out of an account earning 15% or that you were borrowing the money from your brother-in-law who was charging you 15%. To make this change you would simply alter the NPV formulas to  $=B2+NPV(0.15, B3:B6)$  and  $=C2+NPV(0.15, C3:C6)$ . At this higher cost of capital, the buy option becomes the more expensive one. Does that make intuitive sense? The buy option requires you to commit a much larger amount

up front. The greater your cost of capital is, the greater the cost of tying that much cash up right away.

	A	B	C
1	<u>Year</u>	<u>Buy</u>	<u>Lease</u>
2	0	-\$35,200	-\$5,000
3	1	0	-\$5,400
4	2	0	-\$5,400
5	3	0	-\$5,400
6	4	\$18,300	-\$5,400
7			
8			
9	NPV @ 8%	-\$21,749	-\$22,885
10			
11	NPV @ 15%	-\$24,737	-\$20,417

Exhibit 7-7. Lease or buy a BMW 328i

### Determining the Relevant Cash Flows

An important aspect of the previous example is that it assumed the same end points under both alternatives, that is, that you did not own the car at the end of the 4 years. You sold it after 4 years under the buy option or turned it in after 4 years under the lease option. Had you not modeled equivalent end points, you would not be evaluating just the difference between buying and leasing. You would have also included the difference between owning and not owning the car at the end of year 4. If the objective is to isolate the cost differences between buying and leasing, you must model the same end point under both alternatives.

Another key assumption in the previous example was the choice of the 4-year time horizon. How could you model the cash flows if you were not sure whether you would keep this new car for 4, 6, or even 10 years? The approach shown in [Exhibit 7-8](#) accommodates that scenario by assuming that you will own the car after 4 years under both options. Under the buy option you do not sell it and therefore receive no cash at the end of year

4. Under the lease option you purchase the car at the end of the lease for (you can assume) \$19,000 and therefore pay out \$24,400 (\$19,000 plus the final lease payment of \$5,400). Because under both alternatives you own the car at the end of year 4, how long you keep it after that is irrelevant to the original buy versus lease choice.

	A	B	C
1	<u>Year</u>	<u>Buy</u>	<u>Lease</u>
2	0	-\$35,200	-\$5,000
3	1	0	-\$5,400
4	2	0	-\$5,400
5	3	0	-\$5,400
6	4	\$0	-\$24,400
7			
8			
9	NPV @ 8%	-\$35,200	-\$36,851

**Exhibit 7-8. Lease/buy analysis when the time frame is unclear**

Should maintenance costs be included in the model when analyzing the buy-versus-lease decision? Yes, if maintenance costs would be different under the buy and lease options. No, if maintenance costs would be the same under both the buy and lease options. When constructing DCF analyses you can determine whether a particular cash flow needs to be considered using what is sometimes referred to as the with-without rule. The only relevant cash flows are those that differ with a particular choice versus without that choice. For example, suppose you must pay for gasoline whether you buy the car or lease a car. The cost of the gas is real. It's just not relevant to the choice between buying or leasing the car.

## Selecting the Appropriate Discount Rate

The interest rate in present value calculations is often referred to as the discount rate. The appropriate discount rate is the one that reflects the decision-maker's opportunity cost of capital, in other words how much the decision-maker could have benefited from the use of this money had it not been committed to this project. If the cash is already on hand, the appropriate discount rate is the rate of return you could have earned on alternative investments. If cash must be raised to undertake this project, the appropriate discount rate is the rate that must be paid to obtain those funds. The logic is the same whether the decision-maker is a for-profit corporation, a nonprofit organization, or you or your family. If you're going to make the payments on a car lease by taking the funds out of your bank account, the appropriate discount rate is the amount you would have earned had the money remained in that account. If you are going to make those payments by borrowing the money from your brother-in-law, the appropriate discount rate is the interest rate he charges you on that loan.

As discussed in Chapter 6, "Stocks, Bonds, and the Weighted Average Cost of Capital," most corporations are financed through a combination of debt and equity. The weighted average of the cost of debt and the cost of equity is the firm's cost of capital (WACC). The WACC is the interest rate that firms typically use when conducting discounted cash flow analyses. An important exception would be situations in which the investment being considered is of greater risk than the activities usually undertaken by that corporation. In such cases a risk-adjusted interest rate, one higher than the company's WACC, would be more appropriate. Incorporating risk considerations into DCF analyses is discussed in Chapter 9, "Financial Analysis of a Corporation's Strategic Initiatives."

## **MONEY HAS TIME VALUE BECAUSE OF INTEREST RATES, NOT BECAUSE OF INFLATION**

A dollar received in the future is always worth less than a dollar received today. That would be true even if you lived in a zero inflation world. Money has time value because if you receive it sooner, you can either invest it and earn interest or borrow less and avoid paying interest. If you lived in a zero inflation world, interest rates would be lower, but they would still exist. You would still need to make time value of money adjustments. Nominal interest rates, those that exist in the marketplace, are themselves affected by inflationary expectations. For example, a banker who requires a 2% real return and expects inflation to average 7% might offer you a mortgage at 9%. If the banker had expected inflation to average only 4%, she could have offered you a 6% mortgage. When performing DCF analyses you can use either real, that is, inflation-adjusted, interest rates or nominal interest rates, but you need to be consistent. If you project cash flows that do not include anticipated future price changes, you need to discount those using real interest rates. If you project nominal cash flows, you need to discount those using nominal interest rates. This second approach is usually the easier one for managers to understand and work with. Project the dollar amounts you think you will actually receive or have to pay in future years, and discount those using the firm's nominal weighted average cost of capital.

### Using NPV to Evaluate an Investment or Project

Consider the example shown in Exhibit 7-9. This project involves a \$100,000 upfront cost and then produces the benefits shown in years 1 through 5. The formula in cell B9 is  $=B2+NPV(A11,B3:B7)$ . Remember that because the  $-\$100,000$  shown in cell B2 is an immediate expenditure, it is not included within the range of cells specified within the NPV function. Excel assumes the first entry in that range is 1 year into the future. If this firm's weighted average cost of capital is 12%, this project would have an NPV of \$17,513. In other words, the net benefit to shareholders from this project is \$17,513. The present value of the benefits in years 1 to 5 is \$117,513, which is \$17,513 more than the \$100,000 initial cost. An investment is attractive when its NPV is greater than zero because that indicates that the present value of future benefits is greater than the upfront costs.

	A	B	
1	<b>Year</b>	<b>Cash Flow</b>	
2	<b>0</b>	<b>-\$100,000</b>	
3	<b>1</b>	<b>\$20,000</b>	
4	<b>2</b>	<b>\$30,000</b>	
5	<b>3</b>	<b>\$35,000</b>	
6	<b>4</b>	<b>\$40,000</b>	
7	<b>5</b>	<b>\$44,775</b>	
8			
9	<b>NPV</b>	<b>\$17,513</b>	
10			
11	<b>12% = Interest Rate</b>		

Exhibit 7-9. Find the interest rate that makes the  
NPV = 0

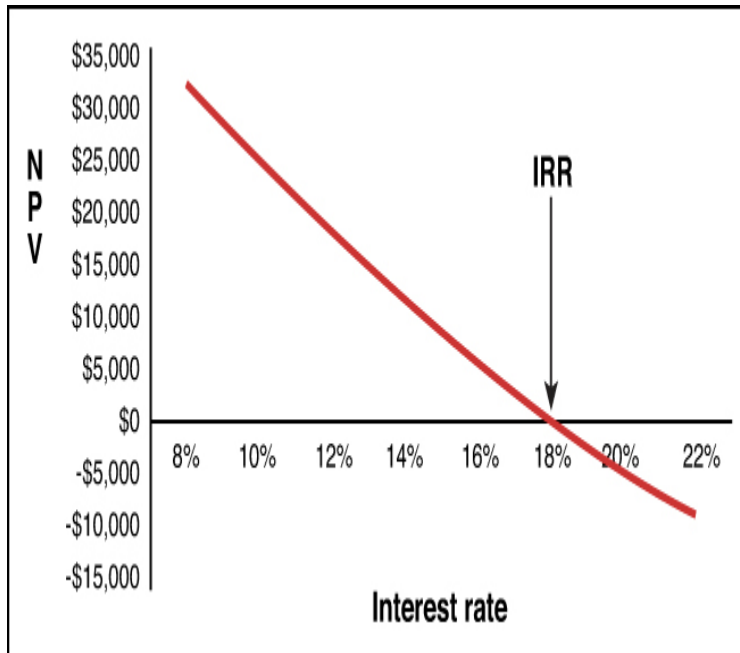


### IRR as an Alternative to Net Present Value

To make investment decisions using NPV analyses, you must start with an assumption about the appropriate discount rate. The internal rate of return (IRR) approach reverses that sequence. Instead of starting with an estimate of the appropriate discount rate, this approach calculates the largest rate that could be used and still have the investment be an attractive one. At any cost of capital less than the IRR the project is worth pursuing; that is, the present value of the future benefits is greater than the upfront cost. At any cost of capital greater than that, the project is not worth pursuing; that is, the present value of the future benefit is less than the costs. Suppose you returned to the spreadsheet in [Exhibit 7-9](#) and change the value in cell A11 to 14%. Discounting the benefits at this higher rate, the NPV would fall to \$11,190. If you continued to incrementally increase the interest rate in cell A11, you would see that as you discount the future benefits at higher and higher rates, the NPV continues to decline. As shown in [Exhibit 7-10](#), at an interest rate of 18%, the NPV reaches zero, and at any interest rate larger than 18%, the NPV is negative. The interest rate that makes the NPV equal the zero is defined as the IRR (see [Exhibit 7-11](#)).

Discount Rate	Present Value
8%	\$31,897
10%	\$24,394
12%	\$17,513
14%	\$11,190
16%	\$5,369
IRR 18%	\$0
20%	-\$4,961
22%	-\$9,553

**Exhibit 7-10. Present value of cash flows shown in [Exhibit 7-9](#), calculated at different discount rates**



**Exhibit 7-11. IRR is the interest rate that makes  
NPV = 0.**

### **Using Excel's Built-In IRR Functions**

Exhibit 7-10 used a trial-and-error process to find the IRR. You can always begin by plugging a discount rate into the NPV formula and observing whether the resulting NPV is a positive number. If it is, you could keep trying larger and larger discount rates until the NPV dropped to zero. If the initial NPV estimate were a negative number, you could plug in successively smaller discount rates until the NPV rose to zero. A more efficient approach would be to use Excel's built-in IRR function. The spreadsheet in Exhibit 7-12 contains the same cash flows shown in Exhibit 7-9. The general syntax of the Excel formula for calculating an internal rate of return is

**=IRR(range of cells where the cash flows are located)**

	A	B
1	<b>Year</b>	<b>Cash Flow</b>
2	<b>0</b>	<b>-\$100,000</b>
3	<b>1</b>	<b>\$20,000</b>
4	<b>2</b>	<b>\$30,000</b>
5	<b>3</b>	<b>\$35,000</b>
6	<b>4</b>	<b>\$40,000</b>
7	<b>5</b>	<b>\$44,775</b>
8		
9	<b>IRR</b>	<b>18%</b>

**Exhibit 7-12. Using Excel's built-in IRR function**

The formula in cell B9 of the spreadsheet in [Exhibit 7-12](#) is = IRR(B2:B7). Note that when working with the IRR function, the time zero cash flow is included in the range. The result calculated in cell B9 is exactly the same 18% you found by trial and error in [Exhibit 7-10](#).

IRR analyses are popular with CFOs and line executives for at least two reasons. In many cases, they enable you to avoid having to make estimates of the appropriate discount rate. For example, there might be a disagreement within the finance department about whether the NPV of a particular project should be calculated using a discount rate of 10%, 12%, or 14%. If you know the project has an IRR of 18%, you won't need to worry about resolving that disagreement. The project would add economic value to the firm at any of those rates and at any discount rate up to 18%. A second way IRR analyses are often used is to rank alternative investments. Giving up a project with an IRR of 20% would make economic sense if that were necessary to undertake a project with an IRR of 30%.

## **Two Different Ways to Answer the Same Question**

To summarize you have considered two alternative decision rules. To utilize the NPV decision rule, you must begin with an estimate of cash flows and an estimate of the appropriate discount rate. Using the IRR decision rule, on the other hand, does not require you to begin with an estimate of the appropriate discount rate. Instead, this approach calculates the largest discount rate that could be applied to these cash flows and still have their present value be large enough to offset the project's upfront costs. These two rules can be summarized as follows:

**NPV decision criteria: Invest if  $NPV > \text{zero}$**

**IRR decision criteria: Invest if  $IRR > WACC$**

The following example illustrates the use of these techniques to analyze financial securities such as bonds. Subsequent chapters utilize these two decision rules to evaluate HR initiatives and corporate operating and strategic investments.

### **Example of Using NPV to Price the Bonds in Your 401(k)**

Suppose today is June 30, 2013, and your broker phones to suggest a bond she believes you should purchase for your 401(k). The bond that was originally issued in 2003 has a \$1,000 par value, a coupon rate of 6%, and a maturity date of July 1, 2018. If you purchase the bond, the par value is the amount you will receive when the bond matures. The coupon rate is the percentage of par value the bond issuer promises to pay you annually as interest. The coupon rate was established based on market conditions existing at the time the bond was issued and is locked in for the life of the bond. The individual who purchased this bond in 2003 is now eager to sell it to you. How much would you pay for a \$1,000 par value bond with a 6% coupon that will mature in another 5 years? That, of course, depends on what bonds of comparable riskiness and maturity are yielding in today's market. Assume that in the current market 5-year bonds of comparable risk are yielding 8%.

Because the economic value of any asset is the present value of the cash flows you would get out of owning it, you can use the Excel NPV function to calculate an appropriate market price for this bond. The first step is to lay out cash flows you will receive if you purchase this bond, which are shown in Exhibit 7-13. Assume the interest is paid on the last day of each year. Each year you would receive \$60 interest (6% coupon  $\times$  \$1,000 par value). At the end of the fifth year when the bond matures, you would receive the final \$60 interest payment plus the \$1,000 par value. The Excel formula in cell A12 is =NPV(A10,B4:B8). This bond would sell in the current market for \$920, a substantial discount from its \$1,000 par value. The bond would sell at a discount because for the next 5 years it will pay only the 6% coupon rate, not the 8% available on comparable bonds. If you were to purchase this bond for \$920 today, receive \$60 interest in each of the next 5 years, and then \$1,000

when the bond matures, you would end up with exactly the same 8% yield to maturity as someone who purchased a newly issued \$1,000 bond at par, received \$80 interest the next 5 years, and then \$1,000 when that bond matured.

	A	B	C	D
1	<b>\$1,000 Bond with 6% Coupon Maturing in Five Years:</b>			
2				
3	<u><b>Year</b></u>	<u><b>Cash Flow</b></u>		
4	<b>1</b>	\$60		
5	<b>2</b>	\$60		
6	<b>3</b>	\$60		
7	<b>4</b>	\$60		
8	<b>5</b>	\$1,060		
9				
10	<b>8%</b>	<b>= Market Yield on Bonds of Same Maturity and Risk</b>		
11				
12	<b>\$920</b>	<b>= Bond Value</b>		

**Exhibit 7-13. Using NPV to calculate the value of a bond**

Bond prices always move in the opposite direction from interest rates. If you were to enter 5% in cell A10 of the spreadsheet in Exhibit 7-13, you would see that the bond value becomes \$1,043. The bond would sell at a premium to its par value because in that scenario the locked-in 6% coupon rate was greater than the 5% available on comparable bonds. If you pay \$1,043 to purchase the bond, you will receive only the \$1,000 par value when it matures. That \$43 loss will exactly offset the above market interest you earned, and you will net the same 5% yield to maturity available on comparable bonds.

### Example of Using IRR to Decide Which Bonds to Purchase

Suppose the investment manager for your firm's defined-benefit pension plan is choosing between two bonds of comparable maturity and riskiness. Both bonds have a \$1,000 par value and an 8-year maturity. Bond A is selling at par with a 9% coupon. Bond B has only an 8% coupon but can be purchased for \$879. Which bonds offers the higher yield to maturity? To determine this begin by typing the cash flows associated with each bond into the spreadsheet in Exhibit 7-14. You can then use Excel's built-in internal rate of return function to calculate the yield on each bond. The formula in cell B15 is =IRR(B5:B13). The formula cell in C15 is =IRR(C5:C13). You see that the yield on Bond A is 9%. That's no surprise because it is selling par and has a 9% coupon. Bond B had only a 7% coupon, but because you can purchase it at a deep discount, it actually offers a higher yield. Bond B with a 9.2% yield would be the better buy.

	A	B	C
1	<b>Bond A is selling at par with a 9% coupon.</b>		
2	<b>Bond B with a coupon rate of 7% is selling at \$879.</b>		
3			
4	<b>Year</b>	<b>Bond A</b>	<b>Bond B</b>
5	<b>0</b>	<b>-1000</b>	<b>-879</b>
6	<b>1</b>	<b>90</b>	<b>70</b>
7	<b>2</b>	<b>90</b>	<b>70</b>
8	<b>3</b>	<b>90</b>	<b>70</b>
9	<b>4</b>	<b>90</b>	<b>70</b>
10	<b>5</b>	<b>90</b>	<b>70</b>
11	<b>6</b>	<b>90</b>	<b>70</b>
12	<b>7</b>	<b>90</b>	<b>70</b>
13	<b>8</b>	<b>1090</b>	<b>1070</b>
14			
15	<b>IRR</b>	<b>9.00%</b>	<b>9.20%</b>

**Exhibit 7-14. Using IRR to calculate the yield on  
a bond**

**Caution About the IRR Reinvestment Rate Assumption**

The IRR criterion is extremely useful and widely used. Nevertheless, it has some potential weaknesses that you should understand. When comparing two projects, the one with the higher NPV will usually also have the higher IRR. There are however some situations in which that is not the case. The spreadsheet in Exhibit 7-15 calculates the IRR and NPV of Projects A and B. Project A has a higher IRR, but Project B has a higher NPV. That occurred because the IRR formula assumes the interim cash flows are reinvested at the same rate of return as the project that generated them. That assumption is too optimistic in situations in which the interim cash flows are reinvested at something closer to the firm's weighted average cost of capital. In this example, Project A had larger cash flows in the early years and was therefore more affected by the high reinvestment rate assumption.

	A	B	C	D
1		A		B
2	0	-\$20,000		-\$20,000
3	1	\$15,000		\$0
4	2	\$10,000		\$5,000
5	3	\$5,000		\$10,000
6	4	\$5,000		\$35,000
7				
8	IRR	36%		30%
9				
10	NPV @ 10%	\$9,072		\$15,551
11				
12	MIRR	21%		27%

**Exhibit 7-15. IRR and NPV do not always provide  
the same ranking.**



Which project should you select when the NPV and IRR imply different rankings? You should base your choice on the NPV measures because there is no risk that they will be distorted by an unrealistically high unrealistic reinvestment rate assumption.<sup>1</sup> An alternative would be to re-evaluate the projects using Excel's MIRR function. The Excel formula for calculating this modified internal rate of return measure is

**=MIRR(range, initial financing right,  
reinvestment rate)**

This function enables you to specify the rate that will be earned by reinvesting the cash flows that are received prior to the project's end. In Exhibit 7-15, the entries in cells B12 and D12 were =MIRR(B2:B6,10%,10%) and =MIRR(D2:D6,10%,10%). Project A had the larger IRR, but after entering a more realistic reinvestment rate assumption into the MIRR function, it is clear that Project B would be the better choice. As a practical matter, the capital budgeting spreadsheets illustrated in Chapter 9 include both NPV and IRR measures. This practice requires only a few extra keystrokes and will highlight any instances in which the NPV and IRR criterion might lead to different choices.

## Why Decisions Should Not Be Based on Payback Periods

The *payback period* is usually defined as the original investment divided by the annual benefit. For example, if a new energy-efficient furnace costs \$4,000 and then reduces fuel bills \$800 per year, it would “pay for itself” in 5 years. The usual assumption is that the shorter the payback period, the more attractive the investment. Because they are easy to understand and easy to calculate, payback periods are often used in capital budgeting. Unfortunately, relying on payback periods can lead to a serious misallocation of resources. One problem with simple payback formulas is that they do not take into account the time value of money. This limitation can, of course, be overcome by calculating the number of periods it takes for the present value of future cash flows to just equal the initial investment. A more serious weakness in payback measures, even if based on discounted cash flows, is that they completely ignore the magnitude and duration of all benefits that occur after the payback period. Consider the two alternative projects described in [Exhibit 7-16](#). Using the payback decision rule, you would prefer Project A because costs are recovered in 5 years instead of 7. In this case, that would be a bad choice. The NPV of Project B is \$4.6 million, twice what this firm would earn on Project A. If you’re still not convinced of the limitations of payback models, consider that the option with the shortest payback period is always to do nothing at all. You might want to use payback periods as a tie-breaker if two projects are close in terms of projected NPV. That would be the equivalent of adopting a bird-in-hand philosophy assuming that the option with the shorter payback involves less risk. You should avoid, however, using payback periods instead of an NPV- or IRR-based decision model.

(Cash Flows in Millions of Dollars)		
<u>Year</u>	<u>Project A Cash Flows</u>	<u>Project B Cash Flows</u>
0	-10	-10
1	2	1
2	2	1
3	2	1
4	2	1
5	2	2
6	2	2
7	2	2
8	2	5
9	2	7
10	2	7
<b>Payback Period</b>	<b>5 Years</b>	<b>7 Years</b>
<b>NPV @10%</b>	<b>\$2.3</b>	<b>\$4.6</b>

Exhibit 7-16. Payback periods can lead to the wrong decision.

## 8. Financial Analysis of Human Resource Initiatives

Obviously, making good HR decisions does not always require developing spreadsheets and utilizing their built-in financial functions. However, it does always require thinking logically and carefully about the financial implications of your recommendations and actions. It is neither possible, nor desirable, for this chapter to provide plug-in templates for all the kinds of decisions your HR department will make. Instead, this chapter has three goals. The first is to highlight situations in which financial analyses can improve HR decision making. The second is to provide examples of how you can apply the simple financial tools discussed in the previous chapter in these situations. The third is to convince you that even if you have had no formal training in finance you can use these tools and concepts to develop useful financial models tailored to the specific HR issues your firm faces.

These tools and models can also do more than just improve your own decision making. They can be extremely valuable for packaging and communicating your “bright idea” to others. The ability to support your recommendations or resource requests with the kinds of analyses and metrics that management is used to seeing can dramatically increase the probability that you will get the approvals you are seeking. If every \$1,000 that the HR department spends doesn’t produce a greater return on investment (ROI) than that amount could have earned in some other functional area, then those funds should be shifted out of the HR budget. This chapter provides a number of examples of how to think through HR issues from a ROI perspective. Later chapters make use of many of these same financial tools to analyze other

HR topics such as pensions, stock options, and incentive pay.

### **DECISIONS INVOLVING CASH FLOW THAT OCCUR AT DIFFERENT POINTS IN TIME**

Almost all the decisions that an HR department makes involve cash flow that occurs at different points in time. You spend money now, and if things go well, you reap the benefits months or years later. Few, if any, of the expenditures your HR department makes for recruitment, selection, training, and compensation can be properly analyzed without being sensitive to, if not to actually calculating, the net present value of the associated cash flows. Remember the discussion in Chapter 7, “Capital Budgeting and Discounted Cash Flow Analysis,” of Chrysler’s choice between offering its employees either one immediate payment or a series of three future payments? In that example, you saw that without calculating the present value of each alternative, it was impossible to know which one would cost Chrysler more.

## **Decision About Overtime Usage**

For an example of how you should incorporate present value considerations into your HR decision making, look at the question of whether to ask employees to work overtime. Having employees work overtime usually means paying them time and one-half. That's a 50% increase in wage costs. Why would you ever do that instead of hiring additional workers who would receive the base wage but not the overtime premium? The answer is obvious. Bringing on new workers would require to you incur additional recruitment, selection, and training cost and quite possibly additional health insurance and other employee benefits costs. You would pay the overtime premiums when its cost is less than the cost of hiring the additional workers. To make that determination you need to first express the cost of both alternatives in present value terms.

Exhibit 8-1 contains a spreadsheet that illustrates an analysis of this type. Assume that one of your manufacturing units has 2,000 employees working 40 hours per week. Your firm has just signed a large contract that will mean for the next 3 years the output of this unit will need to be expanded by 10%. You quickly realize that you could expand output in one of two ways.

- 1.** You could keep hours per week constant and expand the workforce by 10%. That would mean hiring 200 new employees. In addition to their wages, each new employee would receive a benefits package costing \$8,850 per year.
- 2.** You could hire no new employees but have the current employees increase their workweek by 10%. That would mean each worker would work 44 hours instead of 40, with the last 4 being paid at time and one-half. If the current average hourly wage in this unit is \$18.50, the overtime premium would be \$9.25 per hour.

	A	B	C	D	E	F	G	H	
1	<b>Cost to Use Overtime</b>								
2	400,000	Hours of Overtime							
3	\$ 9.25	Overtime Premium							
4									
5	\$ 3,700,000	Premium Cost of Overtime in Year 1							
6	\$ 3,700,000	Premium Cost of Overtime in Year 2							
7	\$ 3,700,000	Premium Cost of Overtime in Year 3							
8									
9	<b>\$9,201,352</b>	Present Value of Overtime Costs							
10									
11									
12	<b>Cost to Hire Additional Workers</b>								
13	200	Additional Workers Needed							
14	\$10,000	Recruitment, Selection, Processing, & Training Cost per Worker							
15	<b>\$2,000,000</b>	Total Recruitment, Selection, Processing, & Training Costs							
16									
17	\$ 1,770,000	Extra Benefits Costs in Year 1							
18	\$ 1,770,000	Extra Benefits Costs in Year 2							
19	\$ 1,770,000	Extra Benefits Costs in Year 3							
20	<b>\$4,401,728</b>	Present Value of Extra Benefits							
21									
22	\$ 1,800	End of Year 3 Termination Costs per Worker							
23	80	Number of Employees Terminated (40%)							
24	<b>\$ 108,189</b>	Present Value of Total Termination Costs							
25									
26	<b>\$ (901,578)</b>	Savings on Recruitment, Selection, Processing, & Training Costs (60%)							
27									
28									
29	<b>\$5,608,340</b>	Total Cost of Hiring Additional Workers							

**Exhibit 8-1. Using present values to make decisions about overtime usage**

Begin by costing out the overtime option. Because the overtime costs will be spread over 3 years, you cannot simply sum them. You must first express them as present values. Cell A2 in this spreadsheet shows the number of overtime hours that would be needed per year ((10% of 40) × 50 weeks × 2000 workers). Multiplying this number by the overtime premium in cell A3 produces the annual overtime costs shown in cells A5, A6, and A7. If you thought wage rates would rise in the second and

third years, it would be easy to increase the amounts in cells A6 and A7 by the appropriate percentages. Because the firm's WACC is 10%, the formula in cell A9 is  $=NPV(0.1,A5:A7)$ . You see that the present value of the 3 years of overtime premiums is \$9,201,352. Note that following the with-without logic described in the previous chapter, you must consider only the premium costs of the overtime, not the base wage costs. The base wage will be paid whether the additional work is done by new employees who would receive no overtime premium or by current employees who would receive an overtime premium. It is therefore not relevant to the choice between using overtime or hiring new employees.

Now cost out the hiring alternative. If you assume that recruitment, selection, processing, and training costs would average \$10,000 per new hire, the cost for 200 hires would be \$2,000,000, and this amount is shown in cell A15. If 200 new employees were hired, the firm's benefits costs would rise by \$1,777,000 per year ( $200 \times \$8,840$ ). These amounts are shown in cells A17, A18, and A19. If you project benefits costs to rise in years 2 and 3, you could easily multiply the amounts in these cells by the appropriate percentages. Entering the formula  $=NPV(0.1,A17:A19)$  into cell A20 reveals that the present value of the 3 years of benefits costs is \$4,401,728.

This spreadsheet model also assumes that at the end of the 3-year spike in demand it will be necessary to terminate some of the recently hired workers. If 80 employees must be terminated at an average termination cost (processing, unemployment insurance, and so on) of \$1,800, the total would be \$144,000. However, because that amount would be spent 3 years from now, you enter the present value of that amount (\$108,189) into cell A24. The formula in cell A24 is  $=+(A22*A23)/(1.1^3)$ . The present value adjustment was accomplished by dividing by  $(1+i)^t$ , in this case  $(1.10^3)$ .



The final assumption incorporated into this spreadsheet was that the remaining 120 of the recent hires would be moved into vacancies elsewhere in the firm. That would avoid having to spend an additional \$10,000 to fill each of those vacancies, saving the firm \$1,200,000. The present value of that amount, \$901,578, was entered into cell A26. The formula in cell A26 is =  
$$(-120*10000)/(1.1^3)$$

You can now sum the values in cells A15, A20, A24, and A26 to find that the total cost of the additional hires option is \$5,608,340. With this set of assumptions, hiring 200 additional employees for 3 years would cost the firm almost \$3.6 million less than having all current employees work an extra 4 hours per week at time and one-half. Of course, had the additional work effort been needed for only a short period of time, the overtime option would have been the cheaper alternative. It would not be difficult to do a sensitivity analysis to determine the minimum period of increased labor demand required before the hiring option becomes the more cost-effective one. This example was not intended as a one-size-fits-all template but rather as an illustration of how HR decisions involving cash flow over a period of time could be modeled. Certainly you could improve this model by changing the assumptions or incorporating additional factors that would make it more appropriate for use in your organization. The important thing is that you understand that this and all other choices between alternatives involving cash flow at different time periods should not be made without first adjusting for the time value of money. In each case you must draw upon your knowledge of HR to identify the factors and cash flows that need to be considered. After you have done that, it is relatively easy to build a spreadsheet and let Excel do the present value calculations.

## Using NPV and IRR to Guide HR Budget Allocations

Before looking at examples to calculate the NPV of specific HR initiatives, consider the use of NPV and IRR as budget allocation tools. Suppose you are the training manager for a large firm with a division in each of the four states, as shown in Exhibit 8-2. That figure also shows your estimates of the cost to train the workers in each state and the net present value and internal rate of return that you believe the training would produce. The total cost to train the workers in all four divisions would be \$8,500,000. How would you allocate a \$4 million training budget across these four divisions? The answer is that you shouldn't need to. You have already generated data that show that increasing the training budget to \$8,500,000 would be in the best interest of the firm and its shareholders. A firm should undertake every investment that has a positive NPV. The NPV is an estimate of how much value will be created and how much shareholder wealth will be increased, as a result of that project. If your firm can raise the funds necessary to train all four groups at its 10% cost of capital, it should do so. HR managers need to make that kind of reasoned and documented argument to the CFO or others who make the budgetary decisions. Value creation consistent with the firm's business strategy, not fixed operating budgets, should determine which projects to undertake. Nevertheless, the planning requirements in large organizations do often constrain investments, at least in the short term, to the amount available in a fixed budget. So assume that in spite of your well-reasoned and well-documented arguments your training budget remains fixed at \$4 million. What's the most you can do for the shareholders within this constraint? More specifically, what's the maximum NPV you can generate with this \$4 million budget?

How would you allocate your \$4 million training budget?			
<u>Division</u>	<u>Cost</u>	<u>NPV @10%</u>	<u>IRR</u>
Ohio	\$4,000,000	\$210,000	12.5%
Michigan	\$2,000,000	\$150,000	13.3%
Wisconsin	\$1,500,000	\$170,000	15.8%
Indiana	\$1,000,000	\$120,000	16.8%

**Exhibit 8-2. Four divisions whose employees could benefit from training**

Before making that determination you must answer one additional question. Is it practical to train just some of the workers in a division, or will the training be useful only if everyone in that division is trained? Suppose your answer was that it would be useful to train some individuals even if it is not possible to train everyone in that division. In that situation you would maximize the return on your \$4 million budget by ranking the divisions in terms of IRR. Allocate your budget first to the division offering the highest IRR and then work down the list until your budget is exhausted. In this example that would mean training the Indiana division, the Wisconsin division, and 75% of the Michigan division. The combined cost of training the Indiana and Wisconsin divisions would be \$2.5 million. That would leave you with \$1.5 million in unallocated funds. That \$1.5 million would be enough to train only 75% of the Michigan division (\$1.5 million available / \$2 million cost). When partial investments are practical, you can fully utilize your budget. You can maximize the NPV generated by the total budget by allocating that budget over the projects that offer the highest rate of return.

If it were not practical to train just a portion of the employees in a division, you would maximize the return on your budget by comparing all clusters of investments that are possible within your budget constraint and then selecting the cluster that produces the largest NPV. This

approach is illustrated in Exhibit 8-3. After reviewing the cost estimates in Exhibit 8-2, you can realize there are four possible ways to allocate your \$4 million budget. You could train just the Ohio division, the Michigan and Wisconsin divisions, the Wisconsin and Indiana divisions, or the Michigan and Indiana divisions. Of these four possibilities providing the training to the Michigan and Wisconsin divisions produces the largest total NPV and would be the most effective use of your training dollars. Note that the Indiana division, which was the highest priority allocation when partial investments were practical, would not be among the divisions trained if partial investments were inappropriate.

<b>If it is not practical to train just part of a division:</b>		
<u><b>Divisions Trained</b></u>	<u><b>Cost</b></u>	<u><b>NPV</b></u>
Ohio	\$4,000,000	\$210,000
Michigan & Wisconsin	\$3,500,000	\$320,000
Wisconsin & Indiana	\$2,500,000	\$290,000
Michigan & Indiana	\$3,000,000	\$270,000

**Exhibit 8-3. Budget allocation if partial investments are not practical**

To review, when partial investments are not practical, it may not be impossible to fully utilize the funds in your budget. You can, however, maximize the achievable return on your budget by selecting the bundle of affordable investment opportunities with the highest NPV. The goal is the same as in the case when partial investments were practical. The difference is in the way you should go about identifying the projects to achieve that goal. In the first case you would rank projects by IRR and then allocate your budget over those offering the highest rates of return. In the second case in which partial investments were not practical, you should select the bundle of projects that offer the highest NPV.

## **ALLOCATING BUDGETS WHEN THERE ARE A LARGER NUMBER OF ALTERNATIVES**

In the previous example there were only four bundles of projects that could have been undertaken within the \$4 million budget. That made it relatively easy to do the calculations (refer to [Exhibit 8-3](#)) and identify the bundle that would produce the largest total NPV. Suppose however that you must allocate your budget not just across four divisions but across the 15 potential projects. The logic is exactly the same, but the number of different bundles of projects to be considered is extremely large. Fortunately, Excel has a built-in function that simplifies tasks such as this. [Exhibit 8-4](#) shows the estimated NPV and cost of these 15 projects. Column F will be set to 1 for each project you choose to fund out of this budget, and to 0 for each project you choose not to fund. Only three cells have formulas entered into them:

C20: =SUMPRODUCT(C4:C18,F4:F18)

C21: =SUM(F4:F18)

C22: =SUMPRODUCT(E4:E18,F4:F18)

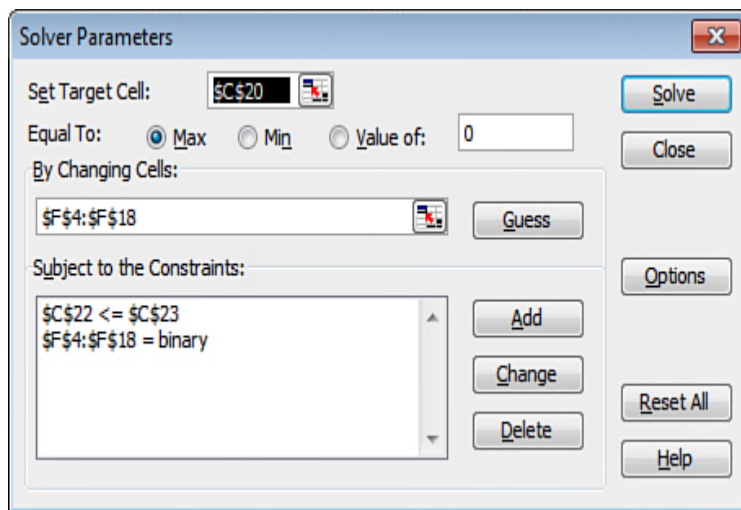
	A	B	C	D	E	F
1			Estimated NPV		Current Cost	Fund ?
2		Project	in Millions of \$		in Millions of \$	Yes = 1, No = 0
3						
4		1	57.28		4.19	0
5		2	11.85		6.80	0
6		3	709.64		28.06	0
7		4	983.55		64.90	0
8		5	419.77		17.64	0
9		6	876.98		7.88	0
10		7	112.89		2.52	0
11		8	53.28		3.47	0
12		9	31.98		1.78	0
13		10	84.47		6.91	0
14		11	260.43		18.01	0
15		12	102.52		3.16	0
16		13	587.82		11.10	0
17		14	74.59		6.40	0
18		15	135.12		3.78	0
19						
20		Total NPV	0.00			
21		Projects Funded	0			
22		Total Spent	0.00			
23		Budget	60.00			

**Exhibit 8-4. How would you allocate a \$60 million budget across these 15 projects?**

The total NPV is calculated in cell C20, which multiplies each project's NPV by 1 if the project is funded and by 0 if it is not. These products are then summed. Obviously, NPVs multiplied by zero add nothing to the total. The total cost is calculated in C22 using the same approach. Each project's cost is multiplied by 1 if the project is funded and by 0 if it is not. Costs multiplied by zero add nothing to the total. You can now use Excel's Solver function to select the projects to pursue.

The Solver function can be accessed by clicking the Data tab at the top of an Excel spreadsheet. (If Solver is not visible on the right side of the Data menu, you must enable this add-in. The Excel Help function describes the

steps for doing that.) When the Solver window opens, you can enter the parameters shown in [Exhibit 8-5](#). These parameters instruct Excel to find the bundle of projects that will maximize the total NPV shown in cell C20. Excel will do this by comparing all possible combinations of ones and zeros in the range F4 to F18. The values in F4 to F18 are restricted to one or zero by the constraint defining this range as binary. The other constraint simply says the total cost in C22 must be less than or equal to the \$60 million budget shown in cell C23.



**Exhibit 8-5. Setting parameters in Excel's Solver function**

As soon as you click the Solve button, the spreadsheet is adjusted, as shown in [Exhibit 8-6](#). Pursuing the seven projects identified by 1s in column F produces the largest total NPV achievable within this budget. This calculation is, of course, only as good as your estimates of the NPVs and the costs. [Chapter 9, "Financial Analysis of a Corporation's Strategic Initiatives,"](#) illustrates techniques for incorporating risk and uncertainty into estimates of this type.

	A	B	C	D	E	F
1			Estimated NPV		Current Cost	Fund ?
2		Project	in Millions of \$		in Millions of \$	= 1, No = 0
3						
4		1	57.28		4.19	0
5		2	11.85		6.80	0
6		3	709.64		28.06	1
7		4	983.55		64.90	0
8		5	419.77		17.64	0
9		6	876.98		7.88	1
10		7	112.89		2.52	1
11		8	53.28		3.47	1
12		9	31.98		1.78	0
13		10	84.47		6.91	0
14		11	260.43		18.01	0
15		12	102.52		3.16	1
16		13	587.82		11.10	1
17		14	74.59		6.40	0
18		15	135.12		3.78	1
19						
20		Total NPV	2578.25			
21		Projects Funded	7			
22		Total Spent	59.96			
23		Budget	60.00			

Exhibit 8-6. Optimal allocation of \$60 million  
budget across these 15 projects



### **Are Models Such as the Previous One Really Useful for HR Managers?**

There are potentially three benefits HR managers can gain from understanding models such as the previous one. First, they provide a framework for thinking about the choices managers must make. It is almost always the case that the number of plausible projects is larger than what can be accomplished within the available budget. Whenever this is true, some procedure will be used to determine which projects to fund. The objective of that procedure should be to select the bundle of projects that maximizes the total NPV that can be achieved within this budget. Even in a situation in which no numerical estimates of the potential benefits are produced, that principle should guide decision making. Second, on some occasions it will be useful to prepare a spreadsheet such as the one in Exhibit 8-6, even if the numbers plugged into it are only rough estimates. Suppose the numbers in column C of Exhibit 8-6 were your best estimates of the net benefit from each project. Without the spreadsheet, identifying the subset of projects that would maximize the return on your budget would require a trial-and-error process that could take hours to complete. Finally, HR managers must understand models of this type if they are going to be successful in their role as strategic partners. HR managers often encounter models of this type while working with colleagues in finance, R&D, manufacturing, or marketing.

## **CALCULATING NPV OF SPECIFIC HR INITIATIVES**

HR initiatives can, of course, take many forms. Examples could include enhancing the firm's selection procedures, in-person or online training programs, job redesign, employee wellness programs, efforts to increase employee engagement, updating the HRIS system, changing the compensation mix, and countless other activities. Though quite diverse in their substance and perhaps significance, all these should be considered from an ROI perspective. Because it is not feasible in this chapter to provide dozens of templates each focused on a different HR activity, the discussion focuses on four examples chosen to illustrate a range of analytical issues. These four examples (purchasing HRIS software, cost-benefit analysis of a training program, a turnover reduction effort, and building a daycare center for the children of your employees) will hopefully contribute to your understanding of and comfort with approaches that you can then adapt to fit the specific HR initiatives that your firm is considering.

### Mutually Exclusive Alternatives: Which HRIS Software to Purchase?

Your firm is considering a major investment in human resource information system (HRIS) software. After months of research you have narrowed the choice to the two alternatives described in Exhibit 8-7. The first is a basic HRIS package that would cost \$1 million to purchase and install. You estimate that having that package would reduce your data entry and data processing costs by \$250,000 per year for the next 10 years. The other alternative is a high-end HRIS package that would cost \$3 million to purchase and install. This software, you estimate, would reduce your data entry and data processing costs by \$650,000 per year for the next 10 years. You have estimated the IRR and NPV for both alternatives. The formulas in cells C16 and E16 are =IRR(C3:C13) and =IRR(E3:E13). The formulas in cells C18 and E18 are =C3+NPV(0.1,C4:C13) and =E3+NPV(0.1,E4:E13).

	A	B	C	D	E
1			<b>Basic</b>		<b>High-End</b>
2	<b><u>Year</u></b>		<b><u>HRIS</u></b>		<b><u>HRIS</u></b>
3	<b>0</b>		-\$1,000,000		-\$3,000,000
4	<b>1</b>		\$250,000		\$650,000
5	<b>2</b>		\$250,000		\$650,000
6	<b>3</b>		\$250,000		\$650,000
7	<b>4</b>		\$250,000		\$650,000
8	<b>5</b>		\$250,000		\$650,000
9	<b>6</b>		\$250,000		\$650,000
10	<b>7</b>		\$250,000		\$650,000
11	<b>8</b>		\$250,000		\$650,000
12	<b>9</b>		\$250,000		\$650,000
13	<b>10</b>		\$250,000		\$650,000
14					
15					
16	<b>IRR</b>		<b>21%</b>		<b>17%</b>
17					
18	<b>NPV @10%</b>		<b>\$536,142</b>		<b>\$993,969</b>

**Exhibit 8-7. Use NPV, not IRR, to rank mutually exclusive alternatives.**

Which software package will you recommend to your boss? The IRRs tell you the basic package can provide your company with a higher rate of return on the company's investment. On the other hand, the high-end package will produce a larger NPV. You should recommend the high-end system. It will provide your firm with a much larger net benefit. Yes, it costs more, but the NPV calculation has already taken into consideration the 10% cost of raising those additional amounts. When alternatives are mutually exclusive (if you purchase one, you won't purchase the other), you should rank them using NPV, not IRR. It's true that if you could buy and use three of the basic systems, your total NPV would be even greater. Of course, that is not practical in this case.

**Sunk Costs Are Irrelevant**

Suppose the HRIS software your firm has purchased must be customized to fit your firm's HR practices. Actually, in some cases you may need to modify your HR practices so that they can be accommodated using this software. Those are both time-consuming and expensive activities. At the time the project was approved, you estimated that process would cost \$1 million and take 1 year. You were willing to make that investment because you believed that when implemented the new HRIS system would produce benefits with a present value of \$1.5 million. In other words, you thought this HRIS project would have an NPV of \$500,000. Things didn't turn out exactly as planned. It's now been 2 years. You have already spent \$2 million, and the system is still not ready to go live.

When you ask the team leader what happened, he responds, "Well, we've learned a lot. With another \$500,000 and another year, we can get the system up

and running.” Should you fire the team leader and dump the project? Whether you should fire the team leader depends on whether you think the delays were his fault. Now focus on the second question: Should you dump the project? Assuming the latest forecast is an accurate one, 1 year from now you will have spent a total of \$2.5 million for a project that provides benefits with a present value of \$1.5 million. You will wish you had never started this project, but at this point you should continue it. The only cash flows relevant in making that decision are the additional \$500,000 you must put in to complete the project and the \$1.5 million benefit you will receive after it is completed. The \$2 million that has already been spent is a sunk cost. That amount will be unchanged by what you decide today, so it should not influence what you decide today. Even if the sunk costs were \$100 million (or any other number), you would continue the project if you thought spending \$500,000 now would produce \$1.5 million in benefits. At any given point in the life of a project, the only two things that should influence a continuation decision are the costs to complete the project and the present value of the cash flow that will be obtained if the project is completed.

### **Cost-Benefit Analysis of a Training Program**

If training is successful it produces increases in employee performance in the months or years following the training program. To judge the ROI from training, you must determine whether the present value of the future performance increases is greater than the upfront training costs. It is easy to do this in a spreadsheet after the costs and benefits have been estimated. Obtaining useful estimates of the training costs is usually straightforward. You can begin by preparing a laundry list of cost components and attempting to put a dollar value on each of them. Exhibit 8-8 contains a checklist of potential training cost components. In your situation some of these may be insignificant, and there may be others not shown on this list that you will want to include.

**Program development costs:**

Out-of-pocket costs for materials and supplies

Number of hours spent on program development x average hourly compensation of program developers

Number of hours spent consulting with program developers x average hourly compensation of managers involved in program design

Payments to outside consultants or vendors

**Program planning costs:**

Out-of-pocket costs for materials and supplies

Number of hours spent recruiting and selecting trainees x average hourly compensation of individuals performing this task

Number of hours spent on scheduling trainers, facilities, and trainees x average hourly compensation of individuals performing this task

Payments to outside consultants or vendors

**Program delivery costs:**

Out-of-pocket costs for materials and supplies

Cost of facilities used

Length of training in hours x average hourly compensation of trainees x number of trainees

Total hours of participation by all trainers x average hourly compensation of trainers

Costs to replace trainees or trainers while they are participating in training

Payments to outside consultants or vendors

**Program evaluation costs:**

Number of hours spent on post-program evaluation x average hourly compensation of individuals performing this task

**Exhibit 8-8. Examples of possible training  
program costs**

## **DETERMINING PROGRAM IMPACTS USING PRE-POST CHANGES**

Estimating the cost of training is almost always easier than estimating the benefits from training. Conceptually, the benefit is the dollar value of the increased employee performance that results from the training. Measuring that requires you to determine how much performance has changed as a result of the training, and to place a dollar value on that performance change. In some cases direct measures of performance are available. Examples of directly measurable outputs might be the revenues generated by a group of sales reps or the number of manufacturing defects attributable to worker error. In both of these cases, it would be easy to determine how much performance changed between the pre- and post-training periods. It would also be relatively straightforward to calculate the profits resulting from the increased sales or reduction in manufacturing costs due to a lower defect rate. However, even in situations such as these, you must be extremely cautious about the assumption that the pre-post change was caused by the training. Is it possible that pre-post-changes were fully or partially the result of other factors? For example, could the higher sales during the post-training period be because external business conditions improved? Could the lower defect rate be because business conditions weakened allowing workers to operate at a less frantic pace? Or could the lower defect rate be because workers were more experienced in the post-period than during the pre-period? Only if you are comfortable ruling out alternative causes of the pre-post change, can you be confident using that pre-post change as a measure of the training effect.



## **DETERMINING PROGRAM IMPACTS USING COMPARISON GROUPS**

If you are not confident that most of the observed pre-post change was caused by the training, things become more complex. One option might be to compare the performance change of the trainees to the performance change in a group of similar employees who did not receive the training. If the trainees improved more than the nontrainees, this might be a reasonable measure of the training's effect.

Even when a comparison group is available, the data needs to be interpreted cautiously. Suppose you send a group of managers to a week-long executive education program at a prestigious university. You observe that their performance ratings after participating in this program are substantially higher than they were in the past. That's encouraging, but before reaching any conclusions, you decide to review the change in performance ratings during the same period for a group of managers who did not attend this program. You find that the average performance rating increase among the attendees was much larger than the average performance rating increase among the nonattendees. Is that solid evidence that the program was effective? Maybe. What determined why some managers attended the program and others did not? For example, if you selected your highest potential managers to attend this program, even if the training program had no effect, those high-potential individuals would have probably performed better than the nonattendees in the year after the training. Those differences in individual ability might be misinterpreted as program effects.

You should always ask yourself what caused some individuals to end up in the treated group and others to end up in the comparison group. The answer to that question may suggest there would be post-program

differences between the participants and the nonparticipants even if the program itself had no effect. HR managers seldom achieve laboratory-like conditions for isolating the effect of training programs or other initiatives. However, you need to carefully think about the program impact numbers you enter into your NPV models. Hopefully, you can rule out alternative explanations and be relatively confident that the observed changes came about because of the program being evaluated. Unless that can be done, there is a danger that the financial analyses based on these numbers will be misleading.

### **...But What If Everybody Gets the Training?**

Identifying a comparable group of nontrainees can be difficult in situations in which management wants everyone to be trained. However, if all employees do not receive the training at the same time, it may be possible to utilize the individuals who are trained in later periods as the comparison group for the individuals trained in earlier periods. In the following diagram, the Os represent observations about employee performance, and the Xs represent training or some other HR program.

	Time 1	Time 2	Time 3	Time 4
Group 1	O X	O		
Group 2	O	O X	O	
Group 3	O	O	O X	O

You could between Time 1 and Time 2 use the experience of Groups 2 and 3 as the comparison for the trainees in Group 1. Between Time 2 and Time 3, you could use the experience of Group 3 as the comparison for the trainees in Group 2. If it is not possible to construct a reasonable comparison group, managers will be forced to rely upon

their judgment about what percentage the pre-post performance change was the result of the training.

### **Measuring the Dollar Value of Program Impacts**

Determining what portion of the change in employee performance was the result of a training program or other HR initiative is only one of two challenges you will face. The second is putting a dollar value on the change that occurred as a result of this training. In cases like the manufacturing worker or sales rep examples previously discussed, calculating these values is relatively straightforward. At other times, such as sending managers for advanced training in strategic planning, quantifying and valuing the results is extremely difficult. What can you do when the dollar value of the performance change is not directly measurable? Some HR scholars<sup>1</sup> have proposed statistical techniques for estimating the value of a high performer compared to an average performer. If an organization can measure, in financial terms, output at the workgroup level and has performance data on individual employees, regression analysis can be used to estimate the dollar value of a one standard deviation increase in performance. If the dollar value of a one standard deviation increase in performance was, say, \$30,000 per year, then a training program that increased performance ratings on average by 0.5 standard deviations could be assumed to produce a benefit of \$15,000 per worker per year. Of course, in addition to the possible imprecision in the estimate of the dollar value of one standard deviation of performance, this approach offers no assistance in answering the previous question: “By how much (or how many standard deviations) did the training increase performance?” That question still must be answered by looking at pre-post changes in performance ratings or comparisons to a group of nontrainees.

### **Using Breakeven Levels as a Planning Tool**

In situations in which the dollar value of performance increases is not directly measurable, and where the data required to generate statistical estimates are not available, managers may find that the most practical approach is to work with breakeven levels. Suppose your best estimate is that a proposed training program will increase productivity by 10% to 30%. You realize that's a large range but unfortunately do not have any sound basis to make a more precise forecast. One option would be to calculate the minimum increase in productivity necessary for the program to cover its own costs, that is, a breakeven level. If the breakeven level were 5%, you could approve the program, believing an impact of at least that size was likely. Had the breakeven level been 40%, you might have rejected the program because you felt a benefit of that magnitude was unrealistically optimistic. Making a judgment about whether a breakeven level can be reached is often much easier than making a point estimate of what a program's effect will be.

Exhibit 8-9 provides an example of applying a breakeven approach within the context of an NPV analysis. Assume one of your high-potential managers approaches you and says she would like to enroll in an executive MBA program at a local university. The degree can be completed in 1 year. She will do the course work during evenings and weekends but wants the company to pay the \$75,000 tuition costs. Would this be a cost-effective investment for your firm?

	A	B	C	D	E
1	Year	Cash Flow	Cash Flow	Cash Flow	Cash Flow
2	1	-\$75,000	-\$75,000	-\$75,000	-\$75,000
3	2	\$10,000	\$20,000	\$30,000	\$40,000
4	3	\$10,000	\$20,000	\$30,000	\$40,000
5	4	\$10,000	\$20,000	\$30,000	\$40,000
6	5	\$10,000	\$20,000	\$30,000	\$40,000
7	6	\$10,000	\$20,000	\$30,000	\$40,000
8					
9	NPV	-\$33,720	\$742	\$35,203	\$69,665

**Exhibit 8-9. Estimating breakeven level benefits  
of a training program**

Your experience has been that employees stay with your firm for on average 6 years after completing their MBA. For that reason, you decide to model the benefits over a 6-year time horizon. Columns B, C, D, and E calculate the NPV at a 10% discount rate under four different assumptions. The assumptions are that completion of her MBA would increase this employee's value to your firm by 10, 20, 30, or 40 thousand dollars per year. This simple analysis reveals that paying these tuition expenses will not be cost-effective unless as a result of obtaining her degree the employee's value to your firm increases by at least \$20,000 per year. If you think that's a realistic expectation, there is a solid basis for approving this employee's request.

### **Training That Doesn't Increase Productivity Could Still Be a Good Investment**

When interpreting a specific NPV or IRR result, you must not lose sight of the broader context. Suppose that paying for this individual's MBA did not have a large impact on her productivity at your firm but did signal to her that she was a highly appreciated and highly valued member of the organization. That signal might be important in her decision to stay with your firm rather than jump to a competitor. In that scenario the training served not to increase productivity but as a way to retain highly valued talent. If the MBA increased her productivity by only \$10,000 per year, the NPV would be negative (refer to Column B of [Exhibit 8-9](#)). You must decide whether you are willing to pay \$33,720 to increase your chances of retaining this employee. Note that the cost of this retention device would be the NPV of this training, not the full \$75,000. There may be times when you know you will undertake a project even if its NPV is negative. That does not necessarily mean calculating the NPV is unimportant. A supermarket may sell string beans at a loss to make money on steak. It does, however, need to calculate how much it loses on the string beans to ensure it can more than make up that amount on the steak.

### **Benefit/Cost Analysis of a Turnover Reduction Program**

Costing turnover presents methodological problems of a different type. If you knew that employee turnover was costing your firm \$600,000 per year, it would be simple to determine the maximum you should spend per year to reduce turnover costs by 25% ( $.25 \times \$600,000 = \$150,000$ ). You could easily justify spending \$100,000 per year to increase wages, restructure your benefits package, or undertake any other HR program you thought would reduce turnover by 25%. Obviously, before making such judgments you need an estimate of your current turnover costs. Think of turnover costs as the sum of the following five components:

- Separation costs
- Replacement costs
- Training costs
- Change in compensation costs
- Change in performance

The process for calculating separation, replacement, and training costs is relatively straightforward. You sum all the out-of-pocket costs for each activity plus the cost of the staff time devoted to each activity. Exhibit 8-10 provides a list of potential turnover cost components. The Society for Human Resource Management (SHRM) also provides a useful and free web-based tool designed by Wayne Cascio and John Boudreau<sup>2</sup> for calculating separation, replacement, and training costs.

**Examples of separation costs:**

- Time spent conducting exit interviews and processing exit interview data
- Time spent on administrative functions related to separation
- Separation pay
- Unemployment insurance taxes
- Lost productivity during the period the position remains vacant

**Examples of replacement costs:**

- Time spent preparing job descriptions and gaining approvals
- Costs of advertising the open positions
- Fees paid to search firms
- Time spent reviewing applications and identifying finalists
- Time spent traveling to and conducting on-campus interviews
- Expenses for travel to conduct on-campus and other off-site interviews
- Travel costs for applicants invited for on-site interviews
- Time spent conducting on-site interviews
- Preemployment testing of applicants
- Medical exams and background screening for applicants
- Time spent in meetings to identify preferred applicants
- Time spent negotiating the terms of employment offers
- Travel and moving expenses for new hires
- Time spent on administrative functions related to hiring (HRIS, payroll, benefits, and so on)

**Training and orientation costs:**

- Time spent on orientation and on-boarding activities
- Formal training program costs as described in Figure 8-7
- Informal training costs
  - Extra supervisor time devoted to new hires
  - Reduced productivity before new hire is fully up to speed

(The cost of time spent is the hours devoted by each group x average hourly wage for that group. Groups that should be included are the HR staff, non-HR staff, leaving employees, and new hires who devote compensated time to each activity.)

**Exhibit 8-10. Examples of turnover cost components**



### **The Composition of Turnover Can Be More Important Than the Level of Turnover**

The change in performance between departing employees and their replacements is a factor that can be of far greater strategic significance than the types of costs listed in Exhibit 8-10. If departing employees are below average performers, replacing them with individuals who will perform at an average or above-average level can contribute dramatically to a firm's competitiveness. You would actually want to increase turnover when the value of the increased productivity is larger than the increases in separation, replacement, and training costs.

Conversely, if employees with above-average talent are disproportionately represented among those choosing to leave, the cost of turnover to your firm will be far greater than on the kinds of activities listed in Exhibit 8-10. In some positions productivity differences resulting from turnover will impact only a firm's operating costs.

Turnover in other positions, those that are critical to the successful implementation of the firm's business strategy, can be a primary determinant of a firm's success or failure. Changing the composition of turnover (who leaves) can be more important than reducing the level of turnover (how many leave).

## **Comparing the Leavers and Their Replacements**

If the difference in performance between employees who leave and their replacements is a critical factor, can the financial impact of this difference be measured? The SHRM website previously referenced includes a module designed by Cascio and Boudreau that generates an estimate of the dollar value of the change in performance between employees who leave and their replacements. Cascio and Boudreau assume, “The difference in pay between leavers and their replacements is an indicator, although an imperfect one, of the uncompensated performance differential due to firm-specific human capital.”<sup>3</sup> The idea is that employees who have firm-specific human capital, that is, knowledge or skill that is valuable only to their current employer, will not need to be fully compensated for the value of these skills. The employee does not have the bargaining leverage to demand full compensation for these skills because they could not be sold to other employers. That implies that when employees have firm-specific skills, employers are getting some value they don’t need to pay for.

Casico and Boudreau assume that the amount of firm-specific skill and therefore the amount of uncompensated performance is positively correlated with wages. In other words, if the replacement earns more than the leaver, the firm is gaining more of this uncompensated value. If the replacement is paid less than the leaver, they assume the amount of uncompensated value declines. The module they designed for SHRM assumes turnover costs go down when you pay the replacement more and go up when you pay the replacement less. For example, if an employee paid \$65,000 leaves and is replaced by an individual paid \$75,000, their model assumes turnover costs are \$10,000 less than if the replacement had been paid \$65,000. Their model assumes that a more highly paid replacement will have more (uncompensated) firm-

specific skills. That may not be the case. In many organizations, replacement employees, regardless of wage level, will have limited or no firm-specific skills at the time they are hired.

Managers in many organizations would argue that paying replacements more has the opposite effect—it increases turnover costs. That argument would certainly be valid when replacements are paid more—not because they have more skills, but just because salary rates in the external job market have risen.

If you do not feel the replacement assumptions made by the Cascio-Boudreau model are appropriate for your organization, you can calculate turnover costs by adding to the sum of the separation, replacement, and training costs the actual change in salaries between the leavers and the replacements, and your own estimate of the dollar value of any increase or decrease in performance. In some situations firms can directly measure performance difference between the leavers and their replacements. In others, you may need to rely upon a judgment made by an appropriate supervisor. For example, suppose a group of employees earning on average \$50,000 per year leave and are replaced by individuals earning on average \$60,000. If the supervisor estimates that the replacements are 10% more productive than the employees who left, you could add to the sum of the separation, replacement, and training costs the salary increase of \$10,000 per employee minus the productivity increase of \$5,000 per employee ( $10\% \times \$50,000$ ). If the supervisor estimated that the replacements were 10% less productive than employees who left, you could add to the sum of the separation, replacement, and training costs the salary increase of \$10,000 per employee plus the productivity decrease of \$5,000 per employee.

### Net Present Value of an Investment Involving Facilities and Equipment

This example differs from the previous ones in that it involves investments in facilities and equipment. To analyze such investments properly, you need to consider depreciation expense and taxes and the differences between profit and cash flow. Suppose your firm is considering constructing a daycare facility for the children of your employees. You have carefully estimated that the new facility would have the following benefits and costs.

Initial cost	\$500,000
Annual benefits	\$165,000
Annual operating costs exclusive of depreciation	\$85,000
Expected life	8 years
Salvage value after taxes	\$100,000
Annual depreciation	\$50,000
Tax rate	30%

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Your only remaining task is to draft a memo to your boss explaining what your estimates imply about the economic feasibility of the proposed childcare center. If your firm's weighted average cost of capital is 11%, what is the expected net present value of this project?

As in all DCF analyses, you must begin by laying out the pattern of cash flow associated with this project. You know the initial cash outflow will be the \$500,000 you estimated it will cost to build this facility. Exhibit 8-11 contains a spreadsheet that calculates the annual cash inflow for years 1 to 8. Cell B2 contains your estimate of the annual benefits. Factors you considered when deriving that estimate might have included decreased absenteeism because fewer employees will miss work

because their childcare arrangements are disrupted; increased work effort if employees are less likely to arrive late or leave early because of childcare responsibilities; and perhaps increased productivity or lower required salaries if this childcare facility makes it easier for you to attract highly qualified employees. From your estimate of the annual benefit, subtract annual operating expenses and the depreciation expense. In this example the depreciation expense was calculated on a straight-line basis over 10 years ( $\$500,000/10 \text{ years} = \$50,000 \text{ per year}$ ). If your estimates are correct, your firm's pretax profit will increase by \$30,000 per year and its after-tax profit by \$21,000 per year.

	A	B	C	D	E	F
1						
2	Benefits	165,000		<u>Year</u>		<u>Cash Flow</u>
3	- Operating Expenses	85,000		0		-\$500,000
4	- Depreciation	50,000		1		\$71,000
5	Pretax Income	30,000		2		\$71,000
6	- Tax @ 30%	9,000		3		\$71,000
7	Net Income	21,000		4		\$71,000
8	+ Depreciation	50,000		5		\$71,000
9	Cash Flow	\$ 71,000		6		\$71,000
10				7		\$71,000
11				8		\$171,000
12						
13				NPV		-\$91,233

**Exhibit 8-11. NPV of proposed childcare center**

DCF analyses, however, must be based on changes in cash flows, not on changes in profit. To properly analyze this investment, you must first determine how much cash is paid out in each year and how much cash will come in for each year. To convert your profit estimate in cell B7 to a cash flow estimate, add back the \$50,000 depreciation expense. As you know the annual

depreciation expense is not an additional cash outflow. It is an accounting reallocation of the \$500,000 that was paid out initially. You may be wondering why you should subtract out the depreciation expense on row 4 if you are going to add it back on row 8. If you don't subtract out the depreciation expense on row 4, you have overestimated the pretax income and therefore the amount of tax due. Taxes are a real cash outflow, so it is important to accurately estimate the tax payments.

Column F in this spreadsheet shows the pattern of cash flow associated with this project. Year zero is the \$500,000 initial expenditure to construct the facility. The \$71,000 annual cash flow you just calculated is shown in years 1 through 7. The year 8 cash flow is the sum of the final \$71,000 annual cash flow net plus the \$100,000 salvage value. In the interest of brevity, this example assumed the annual cash flow was the same in each of the 8 years. This is probably unrealistic, and you could easily expand this spreadsheet to model different benefits, costs, and therefore cash flow for each of the 8 year. The net present value of the nine cash flow amounts is calculated in cell F13 with the formula  $=F3+NPV(11\%,F4:F11)$ . If this project is evaluated on a standalone economic basis, it would not be good idea. It would produce no net economic benefit and would consume \$91,233 of shareholder wealth. Of course, there might be other reasons, not reflected in your estimate of the annual benefits, for undertaking this project. If that is the case, you have demonstrated that it will cost your firm \$91,233 (not \$500,000) to pursue those other benefits.

## WHAT IS YOUR FIRM'S HR BUDGET?

What does your firm spend per year to attract, develop, compensate, and retain its human resources? That seems like a simple question, but it's surprising how many firms cannot answer it. If you don't know the size of your total HR budget, how can you be sure you have allocated it optimally? If firm level aggregations are difficult, you might begin by thinking about the total HR budget for divisions or departments. The annual human resource cost for a firm or unit is far more than just the budget of the HR department. The total cost can be thought of as having the following four components: recruitment and selection, training and development, compensation, and administration. Typically, compensation costs and perhaps also some of the recruitment, selection, and training costs appear in the budgets of the operating units not in the budget the HR department. The HR department budget often consists primarily of administrative costs but may not include all administrative costs. Payroll processing costs, for example, are often not included in the budget of the HR department. Because HR costs are distributed across a range of budgets it is difficult to identify and sum them. More important, it makes it difficult to manage them from an HR systems perspective.

The complexities of managing total HR costs from a systems perspective is probably easiest to illustrate at the job level. Assume your firm's IT department is recruiting to fill an applications engineer position. In your firm the average tenure in these positions is 7 years. The components of the total cost to fill this position for 7 years are calculated in the spreadsheet shown in Exhibit 8-12. If the cost of the individual's starting salary and benefits is \$100,000 and increases by 5% per year, the present value of the compensation cost discounted at a 10% cost of capital over 7 years is \$555,870 (cell B11). The total cost is shown in cell A19. If your firm spends

\$633,000 to fill this position, is the allocation shown in Exhibit 8-12 the optimal one? Could performance have been improved or costs reduced by spending more on one component and less on another? Perhaps the \$100,000 initial compensation was required because you needed an individual familiar with a particular software application. Could you have hired an individual without this specialized knowledge for \$80,000 and then brought her up to speed through a carefully designed training program? At that lower compensation level, the present value of the compensation cost over the 7 years would be \$444,696 (cell D11). You could have spent anything up to \$111,000 on the training and still saved money.

	A	B	C	D	E
1		Compensation		Compensation	
2	<u>year</u>	<u>Scenario 1</u>		<u>Scenario 2</u>	
3	1	\$100,000		\$80,000	
4	2	\$105,000		\$84,000	
5	3	\$110,250		\$88,200	
6	4	\$115,763		\$92,610	
7	5	\$121,551		\$97,241	
8	6	\$127,628		\$102,103	
9	7	\$134,010		\$107,208	
10					
11	NPV at 10%	\$555,870		\$444,696	
12					
13					
14	\$30,000	Recruitment and Selection Costs			
15	\$10,000	Initial Training			
16	\$32,000	Present Value of Other Development Costs			
17	\$555,870	Present Value of Compensation Costs			
18	<u>\$5,000</u>	Present Value of Administrative Costs			
19	\$632,870	Total Cost to Fill Position for Seven Years			

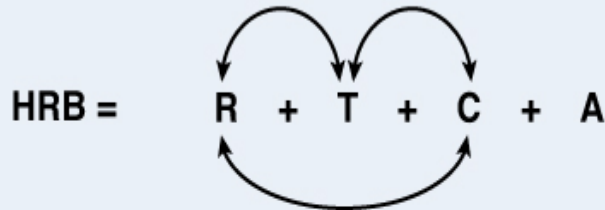
Exhibit 8-12. Cost of filling applications engineer position for 7 years



## IS YOUR HR BUDGET ALLOCATION OPTIMAL?

Should a firm spend more on training to save money on compensation, or spend more on compensation to save money on training? Such make-or-buy choices are not the only possible trade-offs. As illustrated in Exhibit 8-13, there are trade-offs possible among all the HR budget components. Here are some examples. Should a firm spend more on selection to save money on training, or spend more on training to save money on selection? Spending \$10,000 more on selection might enable a firm to identify individuals who can complete the training more quickly and therefore more cheaply. That would be a good idea if the reduction in training cost were greater than \$10,000. On the other hand, spending \$10,000 less on selection might be a good idea even if it meant the incoming employees were slightly less well-qualified. That trade-off would make sense if the reduction in new-hire quality could be more than offset by a \$5,000 increase in training expenditures. Should a firm spend more on compensation to save money on recruitment and selection, or spend more on recruitment and selection to save money on compensation? Offering higher wages might attract more and better applicants and therefore reduce recruitment and selection costs. If so, that would be a good trade-off if the present value the extra wages were less than the savings in recruitment and selection. They are not highlighted in Exhibit 8-13, but there might also be trade-offs between administrative cost and these other factors. Spending more on any component of the HR budget could potentially save you money on the others. Those savings may or may not be large enough to justify the extra costs. Who in your organization analyzes questions like whether HR should shift money from A to B or from B to A?

**Double-headed arrows indicate funds could be shifted in either direction.**



**where:**

<b>HRB</b>	<b>= total human resource budget</b>
<b>R</b>	<b>= recruitment and selection costs</b>
<b>T</b>	<b>= training and development costs</b>
<b>C</b>	<b>= compensation costs</b>
<b>A</b>	<b>= HR administrative costs</b>

**Exhibit 8-13. Trade-offs among HR budget components**

For every position in your organization, there is a total cost to fill that position and a current allocation of that total cost across recruitment and selection, training and development, and compensation. Is that allocation optimal? How was that allocation determined? Too often it is the unplanned result of disjointed decisions by individuals responsible for unrelated budgets. Do the individuals setting compensation levels think about whether paying more could produce an even larger decrease in other HR costs? Do the individuals responsible for the recruitment, selection, training, and development of budgets think about questions such as whether increasing another unit's expenditures by \$10,000 would enable them to cut their own budget by more than \$10,000? In many organizations questions like those fall through the cracks. It is possible to model

these kinds of trade-offs formally, but in many organizations simply requiring managers to think about the allocation of the total HR budget (not the budget of the HR department) can produce major benefits. Those benefits can include substantial cost-savings or perhaps much more important, an increase in the quality of the workforce that can be achieved at a given budget level.

## **MAXIMIZING THE ROI ON YOUR ANALYSIS EFFORTS**

A consideration of the potential financial costs and benefits is essential in all HR decision making. Not all decisions, however, require the development of spreadsheets or other quantitative models. You won't want to spend a lot of time developing such models unless the issues you deal with are of financial or strategic significance. The criterion for assessing financial significance is clear; the dollar value of the potential costs and benefits is large. In making that determination you must consider which projects will have widespread impact. The individual case you analyze may not involve large budgets, but if it will set a precedent for companywide practice, its importance may be substantial. Projects of strategic significance (those that constitute a critical link in the firm's value creation process) certainly warrant careful analysis. In these cases, however, successful execution may be more important than cost minimization. Spending additional funds to reduce the risk that the activity will not be completed properly and on time is often the appropriate course of action.

You won't want to spend a lot of time on the analysis of projects that are not of financial or strategic significance. However, don't overestimate the amount of time the analysis will require. The most time-consuming component of the types of analyses described in this chapter is the data collection. If you are fortunate enough

to have an HRIS system that can generate the specific data needed, the amount of time required to analyze that data is often not large. When hard data is not available, models of the type described in this chapter may still be useful based on your own or your colleagues' best estimates. Any time you decide to go ahead with a specific HR initiative, you are at least implicitly saying you believe the NPV from the activity will be positive. Any time you decide not to go ahead, you are saying you believe the NPV from that project will be negative. Plugging your own best estimates about potential costs and benefits into a spreadsheet can help you determine whether your gut feeling about whether to proceed with the project is consistent with your best estimates about the specifics. Constructing those spreadsheets is usually not a difficult or time-consuming activity.

When constructed, these models can also be useful for thinking through alternative possibilities. Before plugging in the numbers, it's not always intuitively obvious how large the impact would be if one of the input variables turns is above or below what you anticipate. "What-if" models of this type are often a valuable planning tool. The bottom line is that the benefits from such models can be large, and the costs of creating them are usually low.

## 9. Financial Analysis of a Corporation's Strategic Initiatives

Successful HR strategies are those that align with and support the firm's business strategy. Successful business strategies are those that create shareholder value. To align a firm's HR strategy with its business strategy, HR professionals must have at least a basic understanding of the financial models firms use to develop, describe, and evaluate strategic initiatives. That understanding is as important as, or maybe more important than, the ability to use financial models to evaluate operational decisions within the HR function. Recent survey data indicate that approximately 80% of all firms and more than 90% of large firms use discounted cash flow techniques to evaluate strategic investments.<sup>1</sup>

This chapter has two goals. The first is to demonstrate to HR professionals that they can easily understand enough about these models to be valuable contributors to cross-functional teams using these approaches. The second is to clarify that even when formal modeling is not used, the logic of these models provides an essential framework for thinking about business strategy and the creation of shareholder value. This chapter provides illustrations of models for

- Estimating the NPV of a strategic initiative
- Estimating multiple NPVs using scenario analysis
- Estimating an expected NPV based on judgments about the likelihood of each scenario
- Estimating the NPV when an strategic initiative involves real options

- Estimating the distribution of possible outcomes around an expected NPV
- Calculating the DCF value of a potential acquisition

## ESTIMATING THE NPV OF A STRATEGIC INITIATIVE SUCH AS A NEW PRODUCT INTRODUCTION

The logic behind the financial analysis of a strategic investment is, of course, no different than the logic behind the analysis of any other investment. Strategic investment decisions do usually differ in that a larger number of inputs will need to be considered, the amount of risk exposure will be greater, and the consequences of success or failure will be much larger. As an initial example of a strategic investment, consider the introduction of a new product line. Assume your firm is considering producing and marketing a new version of windows. These are energy-efficient, dual casement, out-swing windows for use in new home construction.

Exhibit 9-1 is spreadsheet of the type that might be used for modeling this decision. The overall logic of this spreadsheet is to forecast revenues by year, subtract all costs to determine projected profits, and then convert the profit estimates to cash flows. After that is done, it's straightforward to calculate the NPV and IRR of the proposed product introduction.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	YEAR	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
2	Capital Expenditures	\$30,000	\$70,000	\$50,000	\$100,000						\$100,000			
3	Planning and Startup Costs	\$11,677	\$50,000	\$50,000	\$50,000									
4														
5	New Homes Constructed	2,000,000	2,060,000	2,121,000	2,185,454	2,251,016	2,318,548	2,388,105	2,459,748	2,533,540	2,609,546	2,687,833	2,768,468	2,851,522
6	% Growth		3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
7	% Using Thermal Dual Casement Windows				18%	18%	18%	18%	18%	18%	18%	18%	18%	18%
8	Average Number per House				8	8	8	8	8	8	8	8	8	8
9	Market Share				10%	18%	26%	30%	35%	40%	40%	40%	40%	40%
10	Sales Price / Unit				\$87	\$88	\$89	\$90	\$91	\$91	\$92	\$93	\$94	\$95
11	Sales Volume in Units				9,441	17,504	26,042	30,950	37,191	44,011	45,093	46,446	47,839	49,274

12	Sales Revenue				\$821,381	\$1,538,063	\$2,311,188	\$2,774,225	\$3,367,031	\$4,024,295	\$4,164,437	\$4,332,253	\$4,506,854	\$4,688,480
13														
14	Raw Material per Unit				\$26	\$27	\$27	\$28	\$28	\$29	\$29	\$30	\$30	\$31
15	Utilities per Unit				\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4	\$4
16	Packaging per Unit				\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8	\$8
17	Sales & Distribution per Unit				\$24	\$24	\$24	\$24	\$24	\$24	\$24	\$24	\$24	\$24
18	Total Variable Cost per Unit				\$62	\$63	\$63	\$64	\$64	\$65	\$65	\$66	\$66	\$67
19	Total Variable Costs				\$86,352	\$1,094,346	\$1,641,954	\$1,968,144	\$2,386,576	\$2,847,796	\$2,943,679	\$3,058,188	\$3,179,538	\$3,304,946
20	Contribution per Unit				\$25	\$25	\$26	\$26	\$26	\$27	\$27	\$27	\$28	\$28
21	Total contribution to Profit				\$236,029	\$443,724	\$669,233	\$806,082	\$981,455	\$1,176,499	\$1,220,758	\$1,273,076	\$1,327,315	\$1,383,534
22														
23	Depreciation (P,P,& E /10)				\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000
24	Personnel				\$400,000	\$408,000	\$416,160	\$424,483	\$432,973	\$441,632	\$450,465	\$459,474	\$468,664	\$478,037
25	Maintenance & Repairs				\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000	\$6,000
26	Consumables				\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000
27	Other Costs or Savings				\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
28	Corporate Overhead (4% of Sales)				\$32,855	\$61,523	\$92,448	\$110,969	\$134,681	\$160,972	\$166,577	\$173,291	\$180,274	\$187,539
29	Total Fixed Costs	\$0	\$0	\$0	\$441,855	\$478,523	\$517,608	\$544,452	\$576,654	\$611,604	\$626,042	\$641,765	\$657,938	\$674,576
30														
31	Operating Profit Before Tax (EBI)	\$0	\$0	\$0	-\$205,826	-\$34,799	\$151,626	\$261,629	\$404,801	\$564,895	\$594,716	\$631,311	\$669,377	\$708,958
32	Taxes on Income	\$0	\$0	\$0	\$0	\$0	\$45,498	\$78,489	\$121,440	\$169,468	\$178,415	\$189,393	\$200,813	\$212,687
33	Operating Profit After Tax	\$0	\$0	\$0	-\$205,826	-\$34,799	\$106,138	\$183,141	\$283,361	\$395,426	\$416,301	\$441,918	\$468,564	\$496,271
34	+ Depreciation				\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$35,000	\$35,000	\$35,000	\$35,000	\$35,000
35	Working Cap. (Inv.+AR-AP@35%of sales)				\$287,483	\$538,324	\$808,916	\$970,979	\$1,178,461	\$1,408,503	\$1,457,553	\$1,516,292	\$1,577,399	\$1,640,968
36	- Increase in Working Capital				\$287,483	\$250,841	\$270,592	\$162,063	\$207,482	\$230,042	\$49,050	\$58,739	\$61,107	\$63,569
37	- Increase in Property, Plant, & Equipment	\$41,677	\$120,000	\$100,000	\$150,000	\$0	\$0	\$0	\$0	\$0	\$100,000	\$0	\$0	\$0
38	+Cash out of WC & P, P, & Equip.													\$1,700,968
39														
40	Cash Flow	(\$41,677)	(\$120,000)	(\$100,000)	(\$618,310)	(\$260,639)	(\$139,453)	\$46,077	\$100,879	\$190,384	\$302,251	\$418,178	\$442,457	\$2,168,669
41	WACC	11%												
42	NPV	\$244,049												
43	IRR	14.3%												

**Exhibit 9-1. Estimating NPV and IRR of a strategic initiative**

### **Capital Expenditures and Revenue Forecasts**

Rows 2 and 3 of this spreadsheet show the initial capital and planning expenditures that must be made before this new manufacturing facility can be put into operation.

Rows 5 through 12 are used to generate a sales forecast.

You can begin in cell B5 with government or industry data on the number of new homes currently constructed each year. That number is then increased annually by the estimated growth rates you enter in Row 6. Multiplying the number of homes constructed each year times the Row 7 estimate of the percentage of homes using this type of window times the Row 8 estimate of average number of these windows per house produces an estimate of the industry sales volume in units.

Multiplying the industry sales volume by your anticipated market share provides the Row 11 estimate of the number of windows you expect to sell each year.

Multiplying the number of windows you expect to sell times the anticipated sales price per window generates the sales revenue projections on Row 12.



## **Variable Costs and Breakeven Levels**

Variable costs are costs that vary with the level of output. In this example, the variable costs are raw materials, utilities, packaging, and sales and distribution costs. Fixed costs are costs that do not vary with the level of output. In this example the fixed costs are property, plant, and equipment (P, P, & E), personnel costs, maintenance and repairs, consumables, and corporate overhead charges. Row 20 shows the contribution to profit per unit. This is calculated as price per unit minus the variable cost per unit. For example, in the year 2016, the sales price of each window (shown on Row 10) is \$87, and the total variable cost per window is \$62 (shown on Row 18). Therefore, the contribution to profit per window is \$25 ( $\$87 - \$62$ ). In other words, each window sold covers its own variable cost and provides \$25 toward covering the division's fixed costs. What's the value in knowing the contribution to profit? You can use that number to calculate the breakeven sales level. If you divide the year 2016 total fixed costs of \$441,855 (shown on row 29) by the \$25 per window contribution to profit, you see that you must sell 17,674 windows just to cover your fixed costs. This division will be profitable only if sales exceed that number.

## Converting Profits Back to Cash Flows

As explained in the previous chapter, your investment decision must be based on the present value of the cash flow in each year, not on the present value of the profits. That is the only way you can answer the question, “Does it make sense to inject cash into this project during the early years to draw out cash in the later years?” The annual profit estimates are not measurements of how much cash will be paid out or received in a given year. To derive the cash flow estimates on Row 40 from the profit estimates on Row 33, you must do three things. Exhibit 9-2 illustrates this process using the data for the year 2019. First, you add back on Row 34 whatever depreciation expense was subtracted out on Row 23. As you know, the annual depreciation expenses are not additional cash outflows but just reallocations for accounting and tax purposes of cash used in earlier periods to purchase long-term assets such as plant and equipment. Second, in any year when you do utilize cash to purchase long-term assets, those amounts are subtracted on Row 37. The third and final step is to subtract on Row 36 the cash used to increase working capital. *Working capital* is the net amount of cash the firm has tied up in inventories and accounts receivable. Remember that when calculating profit you did not subtract the cost of additions to inventory but only the cost of the windows actually sold in each year. If additional cash were used to build up inventories beyond what was sold that year, we now have to subtract that from the cash on hand. On Row 40, you see that the firm must inject substantial amounts of cash into this venture in the years 2013 to 2018. The cash flows are then projected to become positive in 2019 to 2025. This model, in cell N38, assumes that at the end of year 2025, the firm will cash out the working capital and the property, plant, and equipment invested in this project for \$1,700,968. Even if the firm does not actually liquidate these assets, this would be a reasonable way to

model the fact that at the end of 2025 this firm will own assets worth \$1,700,968.

(Example Using Data for Year 2019)		<u>Shown in Cell</u>
Operating Profit After Tax	\$183,141	H33
+ Depreciation	\$25,000	H34
- Increase in Property, Plant, & Equipment	\$0	H37
- Increase in Working Capital	<u>-\$162,063</u>	H36
Cash Flow from Operations	\$46,077	H40

**Exhibit 9-2. Converting profits to cash flows**

### **Should You Introduce This New Product Line?**

This project requires your firm to inject substantial amounts of cash into this venture in the years 2013–2018 to receive the positive cash flow projected for years 2019 to 2025. If you express all those outflows and inflows in present value terms and then sum them, will this project produce a net gain or a net loss for the shareholders? That is the question answered by the NPV formula in cell B42. That formula is =B40+NPV(B41,C40:N40). If the firm's weighted average cost of capital is 11% and the cash flow turns out as projected, shareholder value increases by 244,049. An alternative way to evaluate this project would be to calculate its internal rate of return. The formula in cell B43 is =IRR(B40:N40). Remember that the IRR decision rule is that you would proceed with the project only if the IRR is greater than the cost of capital. In this case, the 14% IRR is greater than the firm's 11% cost of capital, so the project is an attractive one. The NPV in cell B42 was calculated using an 11% discount rate. If the IRR had not been larger than 11%, this NPV would have been negative.

### **How Useful Are Models of This Type?**

A common reaction to models of the type shown in Exhibit 9-1 is that their real-world usefulness is limited by the large number of input assumptions required. It's true that models of this type are vulnerable to the GIGO (garbage in, garbage out) problem. If your input assumptions are all garbage, the model's output will be garbage. But think carefully before concluding that is a reason to reject this type of model. There is no assumption that is any more important because you typed it into a spreadsheet than if you made the decision without using a spreadsheet. If whether this initiative is a good idea depends on production costs in year 5, or market share year 2, or interest rates in year 8, you cannot escape that risk reality. Your only choice is to make strategic decisions with or without thinking through the underlying assumptions. Every time you decide to go ahead with a project, you assume that those factors will play out in a way that permits the project's success. Spreadsheet modeling does not increase the number of assumptions required; it makes those assumptions explicit.

There are, of course, a number of potential benefits from the use of models such as the one in Exhibit 9-1. First, they provide guidance as to how you should proceed given your own best estimates of the input factors. Few people, even if they were extremely confident in their estimates of all the input factors shown in Exhibit 9-1, could determine without using a spreadsheet or similar model whether the project would produce a gain or a loss. A second major benefit of making all input assumptions explicit is that they can then be reviewed by your colleagues. If a colleague believes one of your assumptions is too high or too low, it is easy to plug in their estimates instead of yours to determine whether that difference would change the go/no-go policy implications for this project. A third potential benefit

from models of this type is the ability to determine which input assumptions are particularly critical and which are of more limited importance. Suppose, for example, you adjust each of the input assumptions up and down by 10%. You might find, for example, that small differences in market share have a much larger impact than small differences in raw materials cost, or you might find the reverse. Identifying which input variables are most critical can help you determine which factors must be studied most carefully during the planning process, and perhaps which factors must be managed most carefully after the project has been implemented.

Models of this type might also assist you in redesigning a strategic initiative. Suppose based on your best assumptions the new initiative you are considering would have a negative NPV. Spreadsheet models of this type may enable you to determine what changes must be made for the project to become an attractive one. How much larger would the selling price need to be? How much lower would the costs need to be? How much larger would our market share need to be? Using spreadsheets it would be easy to answer these and similar questions. You could then determine which, if any, of these changes would be achievable with a project redesign.

### **Estimating Multiple NPVs Using Scenario Analysis**

A natural extension of the previous approach would be to estimate multiple NPVs using scenario analysis. In the previous example, the product was an energy-efficient window used in new home construction. The firm might want to re-estimate the spreadsheet in Exhibit 9-1 under multiple scenarios about how quickly the demand for new homes will grow or how high energy costs will be. Each of these re-estimations would, of course, yield a different potential NPV for this product introduction. The benefit of scenario analysis is that management can now see a range of possible outcomes before making a decision on this project. The limitation of this approach is that it does not explicitly incorporate any information about the likelihood of the various scenarios. When judgments can be made about the relative likelihood of alternatives scenarios, it is possible to utilize this information to calculate an expected NPV. An example of that approach is provided in the next section.

### **Estimating an Expected NPV Based on Judgments About the Likelihood of Each Scenario**

Before illustrating the estimation of expected NPVs, it may be useful to review the concept of expected values. Suppose you are playing a casino game that requires you to make a \$50 bet. If you win, you get back \$100. If you lose, you get back nothing. The casino has designed the game so that on each play you have a 30% chance of winning and a 70% chance of losing. What would your average outcome be if you played that game 1,000 times? With that many plays, you can be relatively confident that you would win approximately 300 times and lose approximately 700 times. You could calculate your average outcome by adding up your winnings ( $300 \times +\$100$ ) and your losses ( $700 \times -\$50$ ) and dividing by 1,000. Your average outcome would be a loss of \$5.00 per game. You could do exactly the same calculation more quickly by adding the probability of a win times the amount of a win, plus the probability of a loss times the amount of a loss. In this example that would be  $(.30 \times \$100) + (.70 \times -\$50) = -\$5$ . Note that if you play this game only once there is no chance that you will lose \$5. You will either lose \$50 or win \$100. The  $-\$5$  is an estimate of what the average outcome will be if you play this game many times. Looking at it this way, you can see that expected values are just weighted averages. Each potential outcome is weighted by the probability that it will occur.

You can use this same logic to calculate the expected net present value when there are multiple scenarios describing potential business outcomes. The example in Exhibit 9-3 assumes your firm is considering the introduction of a new cell phone model. Introducing this new phone would have an upfront cost of \$100 million. If consumers prefer your phone to the competition, you will in years 1 to 5 receive the positive cash flow shown on Row 2. If consumers prefer the competition over your

phone, your firm will experience the negative cash flow shown on Row 3. You could, of course, calculate the NPV for the success scenario and the NPV for the failure scenario. However, if you can make a business judgment about the probabilities of these two scenarios, you can calculate the expected net present value from this product introduction. Your marketing department tells you predicting consumer preferences is difficult and that the new cell phone would have only a 50% probability of success. Using that information you can calculate the expected cash flow shown on Row 5 of the spreadsheet. Each one is calculated by multiplying the probability of success times the cash flow if the product is successful and adding that to the probability of failure times the cash flow if the product is not successful. For example, the year 1 expected cash flow is  $(.50 \times \$60) + (.50 \times -\$40)$ , which is \$10. Had you assumed the year 1 probability of success was 70%, the expected cash flow would have been  $(.70 \times \$60) + (.30 \times -\$40)$ , which is \$30. Because Row 5 now shows the expected cash flow series, the NPV of this row is the expected NPV of this risky new product introduction. The formula in cell C6 is  $=C5+NPV(0.12,D5:H5)$ . You would not proceed with the project because the expected outcome is a loss of \$40 million. Note that if you introduce this new phone, there is no chance that the expected NPV will result. The project will either be successful or not successful. The expected NPV is an estimate of the average result you would obtain if you made business decisions like this many times. You can improve your organization's long-run probability of success if you invest only in projects where the expected NPV is positive.



	A	B	C	D	E	F	G	H
1	U.S. Launch of New Cell Phone Model		0	1	2	3	4	5
2		Success (50% Probability)	-\$100	\$60	\$70	\$80	\$75	\$50
3		Failure (50% Probability)	-\$100	-\$40	-\$30	-\$20	-\$40	-\$40
4								
5		Expected	-\$100	\$10	\$20	\$30	\$18	\$5
6		NPV@12%	-\$40					

**Exhibit 9-3. Calculating the expected NPV when there are multiple scenarios (all dollar amounts in millions)**

### **The NPV When There Are Real Options Like the Ability to Abandon or Expand the Project**

The analysis contained [Exhibit 9-3](#) suggests the introduction of the new cell phone would have a negative NPV of \$40 million. Obviously, you would not undertake the project if you thought it would reduce shareholder value by \$40 million. Perhaps, however, your analysis did not go far enough. If this new product launch goes badly in years 1 and 2, you may be able to withdraw the product and cut your losses. If you believe that is a realistic option, you must adjust the cash flow projections for the failure scenario. Row 2 in [Exhibit 9-4](#) differs from row 2 in [Exhibit 9-3](#) in that the negative cash flow for years 3, 4, and 5 have been replaced with zeros. The assumption is that after the product is withdrawn there will be no more positive or negative cash flows. Changing this scenario changes the expected cash flow series and the expected NPV. The expected NPV from the U.S. launch is now –\$9 million, instead of –\$40 million. The option to abandon this project if it goes badly was worth \$31 million. Of course, you would still not undertake a project with an expected NPV of \$–9 million.

	A	B	Formula Bar	C	D	E	F	G	H	I	J
1	U.S. Launch if Have Option to Abandon			0	1	2	3	4	5		
2		Success (50% Probability)		-\$100	\$60	\$70	\$80	\$75	\$50		
3		Failure (50% Probability)		-\$100	-\$40	-\$30	\$0	\$0	\$0		
4											
5		Expected		-\$100	\$10	\$20	\$40	\$38	\$25		
6		NPV@12%		-\$9							
7											
8	Global Expansion if U.S. Launch Is Successful			0	1	2	3	4	5	6	7
9		Success (80% Probability)		\$0	\$0	-\$500	\$250	\$300	\$300	\$250	\$225
10		Failure (20% Probability)		\$0	\$0	-\$500	-\$200	-\$200	\$100	\$0	\$0
11											
12		Expected		\$0	\$0	-\$500	\$160	\$200	\$260	\$200	\$180
13		NPV@12%		\$173							
14											
15											
16	NPV with Options to Abandon and Expand										
17	U.S. NPV of -\$9 Plus (.50 x Global NPV of \$1			\$78							

**Exhibit 9-4. Calculating the expected NPV when there are options to abandon or expand (all dollar amounts in millions)**

There may, however, be an additional option that you should consider. You know that if this project goes badly you can abandon it and cut your losses. But what if the project is a success? Can you expand it and magnify your gains? Suppose that if the U.S. launch of this new phone is successful in years 1 and 2, you will in year 3 introduce it in Europe and Asia. This global expansion option is modeled in Rows 9 and 10 of the spreadsheet in [Exhibit 9-4](#). Because the global expansion will not occur unless the U.S. launch has already proven successful, you might assign a higher success probability to the global launch. The example in [Exhibit 9-3](#) assumes the global launch will have an 80% probability of success. The NPV of the expected cash flow from the global launch is \$173 million.

You can now calculate the expected NPV of this new product introduction incorporating both the option to

abandon the project if it goes badly and the option to expand it if it goes well. To do this, add the expected NPV of the U.S. launch to one-half of the expected NPV from the global launch. You are including only one-half of the expected NPV from the global launch because it will happen only if the U.S. launch has already been successful and there is only a 50% probability that the U.S. launch will succeed ( $-9 + .5 \times 173 = 78$ ). Options such as the ability to abandon or expand a project are often referred to as real options to differentiate them from financial options of the type that will be discussed in the next chapter. In this example, had the new product introduction been evaluated without consideration of these real options, the project would have been rejected because its expected NPV was negative. Only when the value of the real options was recognized did it become clear that the expected NPV of the proposal was positive and quite large.

## **Estimating the Distribution of Possible Outcomes Around an Expected NPV**

The previous examples illustrate approaches corporations can use to estimate the expected net present value of a strategic initiative. If possible strategic planners would, of course, like to know more than just the expected NPV from a project under consideration. They would also like to know the distribution of possible NPVs around that expectation. Suppose for example, the most likely NPV from Project A were \$10 million and you were confident the actual NPV would fall between \$7 million and \$13 million. Contrast that with Project B that also has an expected NPV of \$10 million, but where the range of possible outcomes is between –\$5 million and +\$25 million. Even though both projects have the same expected NPV, Project B is a much higher risk. Firms that could not tolerate the possibility of a \$5 million loss would need to rule out Project B entirely. Having estimates of the distribution potential investment outcomes can be extremely helpful to those contemplating high-risk business strategies.

All firms making risky investments must consider both the most likely outcome and the range of possible outcomes. Some firms find it useful to develop formal models to estimate those items. The pharmaceutical industry is one that makes large, high-risk investments. Large pharmaceutical companies spend \$4 to \$8 billion per year per firm on research and development. Ninety-five percent of the projects they initiate end up at a dead end; that is, they do not result in an FDA approvable drug. Because the stakes are so high and the risks are so large, that industry has devoted substantial effort to developing models for assessing the risk associated with strategic investments. Hopefully reviewing the pharmaceutical industry example shown in Exhibit 9-5 demonstrates just how generic these models are and that they can be utilized by firms in most industries.

The spreadsheet reproduced in Exhibits 9-5a and 9-5b describes a strategic choice faced by large pharmaceutical firm. The choice is whether to in-license, that is, license the rights to, a new drug for treating type II diabetes. Rows 1 through 25 of this spreadsheet are shown in Exhibit 9-5a. The approach used to generate the revenue forecasts is similar to the approach used in Exhibit 9-1, so there is probably no need to review each of the steps. It starts with the estimate that 24.5 million people in the United States had type II diabetes in the year 2010. The assumptions shown are then used to calculate the revenue that year. The formula in cell E20 is  $=+E3*E6*E8*E10*E12*E14*E16*E18$ . The same approach was used to estimate revenue in each of the other years. The second half of this spreadsheet is shown in Exhibit 9-5b. Rows 27 to 42 contain estimates of the variable and fixed costs to manufacture and sell this drug. The deal costs are shown on Row 44. To in-license this drug would require an upfront payment of \$100 million in 2010 and then additional milestone payments in the years 2013 to 2020. With this information you can calculate the after-tax profit shown on row 50. Then using the same logic described earlier, you convert the profit estimates to cash flow estimates. The cash flow is shown on Row 56. The NPV of the proposed deal is shown in cell B58 where the formula is  $=+B56+NPV(B57,C56:L56)$ . The IRR for this project is shown in cell B59 where the formula is  $=IRR(B56:L56)$ . The NPV is positive (\$188.6 million), and the IRR is greater than the weighted average cost of capital. Both measures suggest this is a project worth pursuing.

	A	B	C	D	E	F	G	H	I	J	K	L
1	Type II Diabetes - U.S. Opportunity		Project: In-license of new oral antihyperglycemic agent									
2		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
3	Disease Prevalence (thousands)	24,500	25,235	25,992	26,772	27,575	28,402	29,254	30,132	31,036	31,967	32,926
4	% growth		3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
5												
6	Diagnosis Rate	60%	60%	61%	62%	63%	64%	65%	65%	65%	65%	65%
7												
8	% Treated with Drug	70%	70%	71%	72%	73%	74%	75%	75%	75%	75%	75%
9												
10	% treated with Drug Class	20%	20%	20%	22%	23%	24%	26%	28%	30%	30%	30%
11												
12	Market share	0%	0%	0%	1%	3%	6%	10%	13%	15%	16%	16%
13												
14	Price per Day	\$4.00	\$4.12	\$4.24	\$4.37	\$4.50	\$4.64	\$4.78	\$4.92	\$5.07	\$5.22	\$5.38
15												
16	Average days of Therapy	300	315	330	345	360	360	360	360	360	360	360
17												
18	Persistence Rate	42%	43%	44%	45%	46%	47%	48%	49%	50%	50%	50%
19												
20	Gross Sales Revenue (thousands)	0	0	0	\$17,841	\$65,237	\$151,975	\$306,030	\$464,004	\$620,985	\$782,724	\$745,519
21	% growth					266%	133%	101%	52%	34%	13%	6%
22												
23	Gross to Net Discounts	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%
24												
25	Net Sales revenue (thousands)				\$15,700	\$57,409	\$133,738	\$269,307	\$408,324	\$546,467	\$618,397	\$656,057
26												

**Exhibit 9-5a. Monte Carlo simulation of a strategic initiative**

	A	B	C	D	E	F	G	H	I	J	K	L
1	Type II Diabetes - U.S. Opportunity		Project: In-license of new oral antihyperglycemic agent									
2		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
25	Net Sales revenue (thousands)				\$15,700	\$57,409	\$133,738	\$269,307	\$408,324	\$546,467	\$618,397	\$656,057
26												
27	Cost of Sales				\$2,355	\$8,611	\$20,061	\$40,396	\$61,249	\$81,970	\$92,760	\$98,409
28												
29	Gross Margin				\$13,345	\$48,798	\$113,677	\$228,911	\$347,075	\$464,497	\$525,637	\$557,648
30	% of sales				85%	85%	85%	85%	85%	85%	85%	85%
31												
32	Distribution				\$51	\$186	\$432	\$868	\$1,312	\$1,751	\$1,803	\$1,858
33	Advertising/Promotion			\$15,000	\$35,000	\$35,000	\$35,000	\$35,000	\$39,362	\$52,522	\$54,100	\$55,575
34	Sales Force				\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$52,000	\$52,522	\$54,100
35	Medical Education				\$2,500	\$2,500	\$2,529	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
36	Depreciation		\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
37												
38	Product Contribution			(\$16,500)	(\$75,706)	(\$40,388)	\$24,216	\$136,543	\$249,901	\$351,724	\$410,712	\$439,615
39												
40	Marketing				\$1,000	\$1,000	\$1,000	\$1,730	\$3,000	\$3,000	\$3,000	\$3,000
41	G&A				\$500	\$500	\$865	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
42	R&D Development	\$45,000	\$30,000									
43												
44	Licensing/Royalties (thousands)	\$100,000			\$25,000	\$25,000	\$25,000	\$25,000	\$26,241	\$35,014	\$36,066	\$37,150
45												
46	Pre-Tax Earnings	(\$145,000)	(\$30,000)	(\$16,500)	(\$102,206)	(\$66,888)	(\$2,649)	\$108,813	\$219,660	\$312,710	\$370,646	\$398,465
47												
48	Taxes @ 30%	-\$43,500	-\$9,000	-\$4,950	-\$30,662	-\$20,067	-\$795	\$32,644	\$65,898	\$93,813	\$111,194	\$119,540
49												
50	After-tax Earnings (thousands)	(\$101,500)	(\$21,000)	(\$11,550)	(\$71,544)	(\$46,822)	(\$1,854)	\$76,169	\$153,762	\$218,897	\$259,452	\$278,926
51												
52	add back Depreciation		\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
53	subtract increase in Working Capital				\$1,531	\$4,045	\$7,397	\$13,075	\$13,314	\$13,159	\$1,578	\$1,625
54	subtract Capital Expenditures	\$15,000										
55												
56	After-tax cashflow (thousands)	(\$116,500)	(\$19,500)	(\$10,050)	(\$71,575)	(\$49,367)	(\$7,751)	\$64,594	\$141,948	\$207,238	\$259,374	\$278,801
57	WACC	10%										
58	NPV	\$188,832										
59	IRR	19.7%										

**Exhibit 9-5b. Monte Carlo simulation of a strategic initiative (second half)**

## USING THE SPREADSHEET TO STRUCTURE THE DEAL

Before expanding this model to include a Monte Carlo simulation, look at how it could be used to help negotiate the proposed drug in-licensing. Suppose you are on the team deciding whether to in-license this drug. The firm you are negotiating with feels the terms you have offered, and shown on Row 44, are not sufficiently generous. How attractive would this deal be for your firm if you increased your offer by \$10 million? The answer depends heavily on how you structure the payments. Reducing the initial year 2010 payment by \$50 million and increasing the year 2020 payments by \$60 million would increase your total payments by \$10 million. What impact would those changes have on the NPV of this deal? Exhibit 9-5c reveals that entering this altered payment series into Row 44 of the spreadsheet would increase your NPV from \$188,632,000 to \$207,439,000. Offering to pay an additional \$10 million but restructuring the payment sequence would increase your firm's net benefit by almost \$19 million. How is that possible? It is a consequence of the time value of money. In this hypothetical you moved a \$50 million payment from 2010 to 2020. If the firm's weighted average cost of capital is 10% each year that the firm does not have to come up with this \$50 million, the firm saves \$5 million ( $\$50 \text{ million} \times 10\%$ ). Those savings more than offset the present value of the extra \$10 million added in year 2020.



	A	B	C	D	E	F	G	H	I	J	K	L
1	<b>Type II Diabetes - U.S. Opportunity</b>		<b>Project: In-license of new oral antihyperglycemic agent</b>									
2		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
35	Net Sales revenue (thousands)				\$15,700	\$57,409	\$133,738	\$269,307	\$408,324	\$546,467	\$618,397	\$656,057
36												
37	Cost of Sales				\$2,355	\$8,611	\$20,061	\$40,396	\$61,249	\$81,970	\$92,760	\$98,409
38												
39	Gross Margin				\$13,345	\$48,798	\$113,677	\$228,911	\$347,075	\$464,497	\$525,637	\$557,648
40	% of sales				85%	85%	85%	85%	85%	85%	85%	85%
41												
42	Distribution				\$51	\$186	\$432	\$868	\$1,312	\$1,751	\$1,803	\$1,858
43	Advertising/Promotion			\$15,000	\$35,000	\$35,000	\$35,000	\$35,000	\$39,362	\$52,522	\$54,100	\$55,575
44	Sales Force				\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$52,000	\$52,522	\$54,100
45	Medical Education				\$2,500	\$2,500	\$2,529	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
46	Depreciation		\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
47												
48	Product Contribution			(\$16,500)	(\$75,706)	(\$40,388)	\$24,216	\$136,543	\$249,901	\$351,724	\$410,712	\$438,615
49												
50	Marketing				\$1,000	\$1,000	\$1,000	\$1,730	\$3,000	\$3,000	\$3,000	\$3,000
51	G&A				\$500	\$500	\$865	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
52	R&D Development	\$45,000	\$30,000									
53												
54	Licensing/Royalties (thousands)	\$50,000			\$25,000	\$25,000	\$25,000	\$25,000	\$26,241	\$35,014	\$36,066	\$97,150
55												
56	Pre-Tax Earnings	(\$95,000)	(\$30,000)	(\$16,500)	(\$102,206)	(\$66,888)	(\$2,649)	\$108,813	\$219,660	\$312,710	\$370,646	\$338,465
57												
58	Taxes @ 30%	-\$28,500	-\$9,000	-\$4,950	-\$30,662	-\$20,067	-\$795	\$32,644	\$65,898	\$93,813	\$111,194	\$101,540
59												
60	After-tax Earnings (thousands)	(\$66,500)	(\$21,000)	(\$11,550)	(\$71,544)	(\$46,822)	(\$1,854)	\$76,169	\$153,762	\$218,897	\$259,452	\$236,926
61												
62	add back Depreciation		\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500
63	subtract increase in Working Capital				\$1,531	\$4,045	\$7,397	\$13,075	\$13,314	\$13,159	\$1,578	\$1,625
64	subtract Capital Expenditures	\$15,000										
65												
66	After-tax cashflow (thousands)	(\$81,500)	(\$19,500)	(\$10,050)	(\$71,575)	(\$49,367)	(\$7,751)	\$64,594	\$141,948	\$207,238	\$259,374	\$236,801
67												
68	WACC	10%										
69	NPV	\$207,439										
70	IRR	22.4%										

**Exhibit 9-5c. Impact on NPV of restructuring  
licensing and royalty payments**

## USING MONTE CARLO SIMULATIONS TO MODEL RISK AND UNCERTAINTY

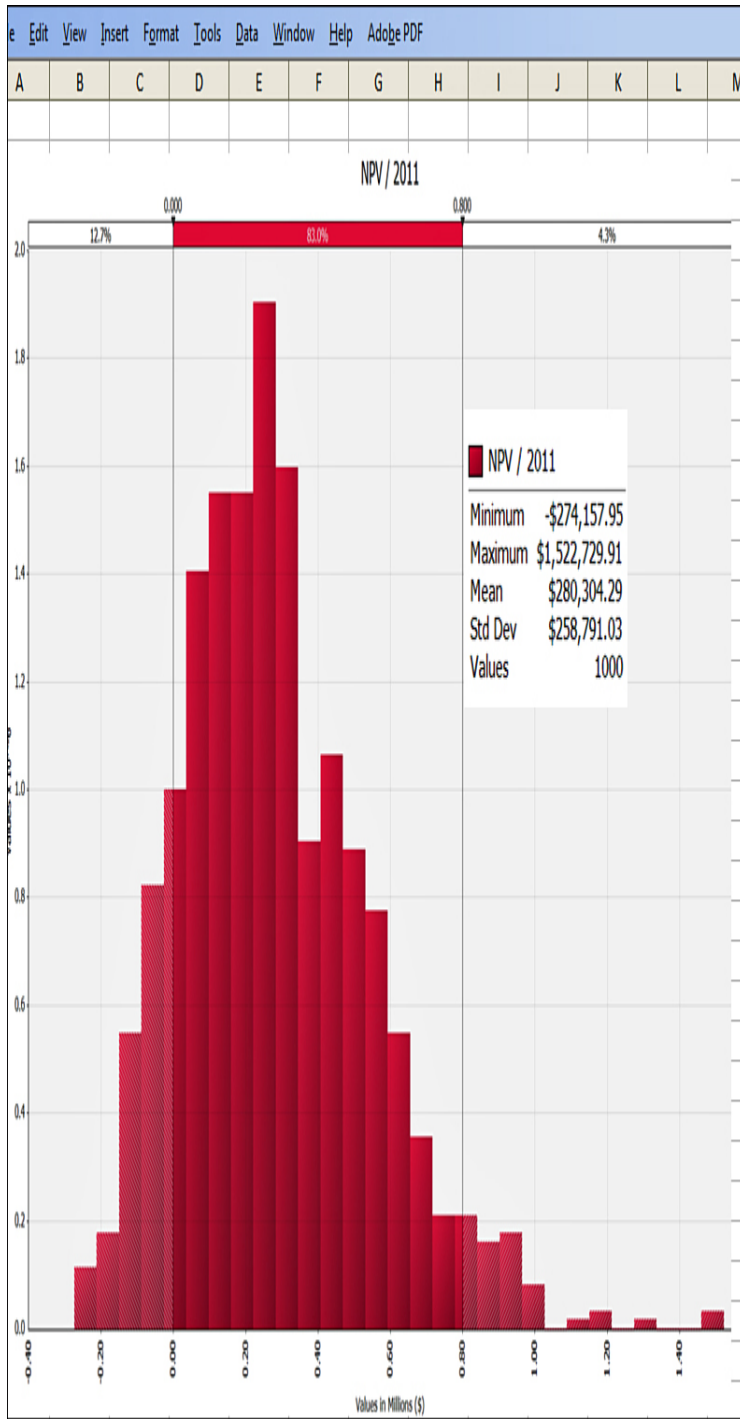
If your estimate for each of the input variables is correct, the proposed drug in-licensing deal will produce a large net benefit for your firm. Of course, there's almost no chance that all your estimates are correct. It has been said that whenever you make a cash flow forecast, you know you are wrong. You just don't know by how much or in which direction. Monte Carlo simulation is a technique that can be used to model the uncertainty in your forecasts and to assess the implications of this uncertainty. When Monte Carlo simulations are applied to spreadsheets such as the one in [Exhibit 9-5](#), you have the option to enter into each input cell not just your best estimate but also information about the possible distribution around that estimate. For example, in cell F14 of this spreadsheet, the year 2014 price per dose for this drug is shown as \$4.50. Assume that number was the best estimate that your marketing team could provide. However, when pressed they acknowledged that it was only an estimate and that the actual price might be above or below that. If further questioning revealed that they believed the price could be \$3.50, \$4.50, or \$5.50, you could then ask them for their judgments about how likely it was that each of these prices would occur. Suppose their judgment is that there is a 30% chance the price will be \$3.50, a 50% chance the price will be \$4.50, and a 20% chance the price will be \$5.50. How can their judgments about the likelihood of each of the different prices be incorporated into a spreadsheet? Before discussing software for doing that, review what you are trying to achieve.

Suppose you take 10 scraps of paper. On three of them you write \$3.50. On five you write \$4.50, and on two you write \$5.50. You then put all 10 pieces of paper into your desk drawer. You could now recalculate the spreadsheet in [Exhibit 9-5](#) with one difference. When you get to cell

F14, you reach into your desk drawer and without looking randomly pull out one of the pieces of paper. Whatever price is on that piece of paper is the number you plug into cell F14. If you did that once, the resulting NPV would be meaningless. However, suppose you repeated that exercise 1,000 times and recorded the 1,000 NPVs that resulted. You could now plot those 1,000 NPVs on a graph and observe both the range of possible NPVs and the frequency with which each NPV occurred. That is in essence what a Monte Carlo simulation does. You could replicate that process in the cells with the price for each of the other years. Actually, you could apply a similar process in any or all of the almost 200 input cells in Exhibit 9-5. Assume you identified 50 key input cells where you thought it was important to consider not just information about the most likely value but also information about the range of possible values. If you were doing this manually, you would need to make a random draw from each of 50 different distributions, plug in those values, and then calculate the first NPV. Make a second draw from each of those 50 distributions, calculate the second NPV, and so on. To repeat that process 1,000 times would be tedious and slow. Fortunately, there is software available that can perform equivalent analyses quickly and simply.

Several companies sell Monte Carlo simulation software that works as an Excel add-in. When this software runs, you have the option to enter into any spreadsheet cell either a specific value or information about the distribution of possible values. The distribution information can be entered in a variety of formats. You could, as in the previous example, enter three prices and estimates of the probability that each of those prices will occur. You could specify a normal distribution by providing the mean and standard deviation. You could specify a distribution that is skewed left or skewed right, or truncated at a particular minimum and/or maximum

value. Because these software packages provide a graphical image of the distribution you have specified, using them does not require a mathematics background. When you start the simulation, the software evaluates the spreadsheet 1,000 times (or whatever number of times you specify). Each time, for any cells in which you have specified a distribution, it makes a random draw from that distribution. It then plots the 1,000 NPVs in a graph similar to the one shown in Exhibit 9-6.



**Exhibit 9-6. Output from Monte Carlo simulation showing range of possible NPVs**

## **Interpreting the Output from a Monte Carlo Simulation**

You use a simulation like this when you are concerned about the uncertainty of key assumptions. You don't know whether when you implement this project each of those factors will turn out to be close to what you assumed, or perhaps more favorable or less favorable for the success of the project. Most of the time most of the factors will have values close to their expectation. However, it is possible that all or most of the factors could turn out to be much less favorable than anticipated causing the project to have a much lower than expected NPV. On the other hand, all or most the factors could turn out to be much more favorable than anticipated causing the project to have a much higher than expected NPV. Monte Carlo simulation gives you a way to estimate the magnitude and likelihood of these extreme outcomes. It attempts to answer the questions, "What would the distribution of NPVs be if you undertook projects like this one many times? What would be the average outcome? How much could you lose if things go badly, and what is the likelihood of that? How much could you make if things go well, and what is likelihood of that?"

Exhibit 9-6 is a plot of the NPV value in cell B58 from each of 1,000 independent recalculations on the spreadsheet shown in Exhibit 9-5. In each recalculation when Excel reached a cell where a distribution rather than a single value had been entered, the Monte Carlo add-in made a random draw from that distribution, and the resulting value was used in the spreadsheet calculation. It is exactly analogous to your reaching into your desk drawer and randomly picking one of those 10 scraps of paper to determine which price to plug in to the spreadsheet. In this example, you see that the mean NPV from those 1,000 recalculations of the spreadsheet was \$280,304,000. This suggests that if your company made business investments like this many times, you would have an average net benefit of approximately \$280

million. In that sense, this project is an attractive one. However, the simulation results also revealed a wide distribution around that average. The largest NPV that occurred during those 1,000 trials was \$1,522,730. The smallest NPV was a loss of \$274,158. The percentages on the top row of the graph show that the NPV was below zero; that is, the company lost money in 12.7% of those 1,000 trials. A large company that makes many such investments might approve projects such as this because on average they would produce a net gain. A small company making only one such investment might choose to reject it to avoid exposing itself to a 12.7% chance of losing money.

## Using DCF to Analyze Mergers and Acquisitions

Discounted cash flow techniques similar to the ones illustrated in the previous examples can be used to estimate the value of a potential acquisition. As in the previous examples, the most challenging part of the process is estimating the future cash flow. Even with a detailed knowledge of the firm to be acquired, its business strategy, its markets, its cost structure, and its competitors, it is difficult to estimate future cash flow. Nevertheless, most buyers use both discounted cash flow models and comparables to estimate the maximum purchase price they should offer. The use of comparables involves comparing the target company to similar companies whose stock is publicly traded or have been acquired recently. If a comparable company's P/E ratio (stock price divided by earnings per share) was, say, 14, that would imply that its market cap (the value of its outstanding stock) is 14 times its net income. You might then conclude that the appropriate price to pay for the target company is an amount equal to 14 times the target company's net income. In addition to price to net income, other comparable measures that might be used include a price to EBIT, price to EBITDA, price to sales, price to book value of assets, and price to book value of equity. The two major challenges in using the comparables approach are, of course, identifying companies that are sufficiently similar to the acquisition target and deciding which comparables measure to use. Because using different measures can produce widely varying estimates of the value of a target company, a common approach is to value the target company using multiple comparables measures and discounted cash flow analysis.

An example of using discounted cash flow analysis to evaluate a potential acquisition is shown in Exhibit 9-7. The spreadsheet reproduced in this exhibit assumes that an analysis is being done in the year 2012 for an



acquisition that would take place at the beginning of 2013. Rows 6 through 13 contain the forecasts of sales, expenses, and profits for the years 2013 to 2020. Following exactly the same process and logic that was discussed in the earlier capital budgeting examples, you must convert the profit estimates to cash flow estimates. On Row 14, the depreciation expense is added back because it does not represent a cash outflow in that year. On Row 15 and Row 16, any cash used to expand property plant and equipment and to increase the firm's working capital are subtracted. The resulting cash flow is shown on Row 17.

	A	B	C	D	E	F	G	H	I	J
1	Discounted Cash Flow Analysis of Firm Value									
2	(\$ in Millions Except per Share)									
3										
4		2013	2014	2015	2016	2017	2018	2019	2020	
5										
6	Sales Revenue	2,888	3,032	3,184	3,343	3,510	3,686	3,870	4,064	
7	- Cost of Goods Sold	1,502	1,577	1,656	1,738	1,825	1,917	2,013	2,113	
8	Gross Profit	1,386	1,456	1,528	1,605	1,685	1,769	1,858	1,951	
9	- Operating Expenses	481	505	531	557	585	614	645	677	
10	- Depreciation	232	253	276	300	327	341	330	330	
11	EBIT	673	697	722	748	773	814	883	943	
12	Tax at 35%	236	244	253	262	271	285	309	330	
13	Earnings After Tax	437	453	469	486	502	529	574	613	
14	+ Depreciation	232	253	276	300	327	341	330	330	
15	- Increase in P, P, & E	234	239	243	248	253	258	264	269	
16	- Increase in Working Capital	144	151	159	167	175	184	193	203	
17	Free Cash Flow	\$ 291	\$ 316	\$ 343	\$ 371	\$ 401	\$ 428	\$ 447	\$ 472	
18										
19										
20				Present Value of Cash Flows 2013 to 2019 =						\$ 1,639
21		Terminal Value at End of 2019 Using Perpetual Growth model =					\$ 5,897			
22						PV of Terminal Value =			\$ 2,667	
23										
24						Value of Operations =			\$ 4,306	
25				Add Value of Excess Marketable Securities			\$ 1,100			
26							Value of Firm =			\$ 5,406
27						Subtract Value of Liabilities			\$ 851	
28						Value of Equity =			\$ 4,555	
29				Number of Shares Outstanding =			175 million			
30						Value per Share =			\$ 26.03	
31	Assumptions:									
32	Weighted average cost of capital is	12%								
33	Beginning in 2020 annual growth in FCF will be	4%								
34	* Perpetual growth terminal value calculated as [FCF in 2020 / WACC - g]									

**Exhibit 9-7. Using DCF analyses to evaluate  
mergers and acquisitions (M&A)**

## **Dividing Cash Flows into an Initial Time Horizon and a Terminal Value**

Theoretically, the value of a company is the present value of all future cash flow. However, when estimating the value of a potential takeover target, a common approach is to estimate the present value of cash flow over an initial time horizon of 5 to 15 years and then add to that an estimate of what the company will be worth at the end of that initial time horizon. That estimate of what the company will be worth at the end of the initial time horizon is referred to as the terminal value. The assumption is that during this initial time horizon the company driven by its new owners will be undergoing change and that a specific forecast of the cash flow for each year is warranted, but that by the end of this time horizon the company will have reached a steady-state and that cash flow will begin to grow at a constant rate. Selecting the right time horizon is difficult and is just one of the practical problems faced when trying to apply DCF models. Recent survey data indicates that almost one-half of all firms (46%) discount an explicit cash flow forecast for the first 5 years and then add to that an estimate of the terminal value. Just more than one-third (34%) reported using a 10-year explicit forecast period, and only 4% incorporated a specific forecast for 20 years or more.<sup>2</sup> The spreadsheet in [Exhibit 9-7](#) treats the years 2013 to 2019 as the initial time horizon and the year 2020 as the estimate of the steady-state condition. The present value of the cash flow in 2013 to 2019 is calculated in cell J20. The formula in that cell is =NPV(D32,B17:H17). D32 is a reference to the cell where the weighted average cost of capital is located.

### **Which Cost of Capital Should Be Used?**

Firms do not typically use their own WACC when valuing a potential acquisition. To more accurately reflect the risk level associated with the target company, it is common to use the target company's cost of capital or the cost of capital for a group of companies comparable to the target company.

### **Present Value of a No-Growth Perpetuity**

The terminal value at the end of 2019 is calculated in cell I20. The terminal value is estimated as what the finance literature sometimes referred to as a perpetuity. A *perpetuity* is a perpetual or never-ending annuity. If you assume a no-growth perpetuity, that is, that the cash flow this firm was generating in 2020 would continue unchanged for the indefinite future, the present of that series value could be calculated using this formula:

$$\text{Present value of a fixed perpetuity} = \frac{\text{annual cash flow}}{\text{discount rate}}$$

You may feel it is counterintuitive to put a finite value on an infinite series of payments, but perhaps the following example will make this seem more reasonable. How much would you pay for the right to receive \$10,000 per year forever? Suppose you put \$100,000 in a bank account paying 10% and instructed that bank to send you your interest at the end of each year and roll over the principal to the next year. For a single \$100,000 payment, you could receive \$10,000 per year forever. That is assuming the bank continued to exist and to follow your instructions, and that 10% continued to be the correct interest rate. Applying the perpetuity formula you see that at a discount rate of 10% the present value of a cash flow \$10,000 per year forever is  $\$10,000 / .10$  or \$100,000.

### **Present Value of a Growth Perpetuity**

In this example is it unrealistic to assume that cash flow would remain indefinitely at the year 2020 level. If you can estimate the rate at which these cash flows grow, you can calculate the present value of a growth perpetuity using this formula:

$$\text{Present value of a growth perpetuity} = \frac{\text{annual cash flow}}{(\text{discount rate} - \text{growth rate})}$$

Subtracting the growth rate from the discount rate makes the denominator of this fraction smaller, and therefore the present value is larger. The larger the assumed growth rate, the greater the present value of this cash flow series. The formula in cell I20 of this spreadsheet is  $=I17/(D32-D33)$ . That formula divides the 2020 cash flows of \$472 million by the 12% weighted average cost of capital minus the 4% growth rate. The result is an estimate that at the end of 2019 this firm's value will be \$5.897 billion. Because that is the value at the end of 2019, you need to convert it to today's present value by dividing by  $(1+i)^t$ . The formula in cell J22 is  $=I21/(1+D32)^7$ . The Excel symbol for exponentiation, raising a number to a power, is  $^$ . A recent survey of corporate financial professionals revealed that the perpetuity growth model is the approach most frequently used to estimate the terminal or continuing value of a project or other strategic investment.<sup>3</sup> The present value of this firm's business operations is therefore estimated in cell J24 to be \$4.306 billion. That is the sum of present value of the cash flows during the initial time horizon (cell J20) and the present value of the terminal value (cell J22). If this firm has cash or marketable securities in an amount greater than what is needed to support the firm's business operations, this excess cash represents additional real value to the acquirer. When this amount is added to the value of the firm's operations, you see that the value of the firm is \$5.406

billion. Firm value minus liabilities is the value of the equity in this firm. Dividing the \$4.555 billion equity value by the number of shares of stock outstanding yields a price per share of \$26.03. Acquisitions are, of course, a negotiation process, and \$26.03 per share is the maximum that one would pay. The initial offer would almost certainly be much below that.

### **Stand-Alone Value Plus Synergies Minus Deal Costs Equals Acquisition Value**

The previous example considered only the stand-alone value of the potential acquisition. Anticipated synergies between the purchasing company and the acquired company are often a primary motivation for undertaking an acquisition. Synergies may increase revenues and/or decrease costs. The acquired company's sales may increase because its products are now marketed through the distribution networks of the purchasing company or because they benefit from association with the purchasing company's brand. The sales of the purchasing company might increase because the products of the acquired company fill out its product line providing greater access to those customers who prefer a full-service vendor. Cost reductions can result from economies of scale. The combined firms may not need two full scale finance departments, HR departments, IT departments, and so on. These cost-reducing restructurings can, of course, be difficult for the individuals involved even when they make the combined organization more efficient. In addition to improving cash flow, acquisitions also have the potential to decrease the riskiness (volatility) in the cash flow of the combined firm. Having a diversified portfolio of products will reduce volatility by the greatest amount when the cash flow from different products are negatively correlated. For example, aggregate cash flow volatility is reduced if the firm has some products that do well when energy prices are high and other products that do well when energy prices are low.

The spreadsheet reproduced in Exhibit 9-8 illustrates that an acquisition's value is its stand-alone value plus the value of synergies achieved, minus the price paid and related deal costs. This summary spreadsheet utilizes stand-alone and synergy cash flow projections that were estimated through a process similar to that described in

Exhibit 9-7. The synergy cash flow is negative in the first year because substantial one-time restructuring costs were anticipated. Unlike the example in Exhibit 9-7 where the transaction involved purchasing the stock of the acquired company, this example assumes the assets within one division of a corporation are being purchased. In an asset purchase, the purchasing firm does not assume responsibility for the liabilities of the division or company being acquired. This spreadsheet models a \$4 billion purchase price plus \$120 million in deal costs spread over 3 years. The net present value of the cash flow shown on Row 10 is calculated in cell B12. The approach is exactly the same as the one used in Exhibit 9-7. The formula in cell B12 is =NPV(C16,B10:H10)+(I10/(C16-C17)). If all these assumptions turned out to be correct, the acquisition would add \$740 million in shareholder value.

	A	B	C	D	E	F	G	H	I
1	<b>NPV of a Strategic Acquisition</b>								
2	(\$ in Millions)	2013	2014	2015	2016	2017	2018	2019	2020
3									
4	Stand-Alone Cashflows	\$ 113	\$ 119	\$ 125	\$ 131	\$ 138	\$ 145	\$ 152	\$ 160
5									
6	Cash Flows from Synergies	\$ (63)	\$ 8	\$ 8	\$ 12	\$ 16	\$ 18	\$ 20	\$ 21
7									
8	Price Pay-Out + Deal Costs	\$ 2,120	\$ 1,000	\$ 1,000					
9									
10	Stand Alone + Synergies - Price - Deal Costs	\$ (2,070)	\$ (873)	\$ (867)	\$ 143	\$ 154	\$ 163	\$ 172	\$ 181
11									
12	NPV of Acquisition	\$740							
13									
14									
15	Assumptions:								
16	Weighted average cost of capital is	10%							
17	Beginning in 2020, annual growth in FCF will be	5%							
18	* Perpetual growth terminal value calculated as [FCF in 2020 / WACC - g]								

**Exhibit 9-8. The pursuit of synergies can motivate M&A activity.**



### **Weak Assumptions or Weak Execution?**

Unfortunately, the empirical evidence suggests most acquisitions don't create much, if any, value for the acquiring company's shareholders. A study by the consulting firm McKinsey and Company looked at 1,415 acquisitions from 1997 through 2009. Its conclusion was that roughly one-third created value, one-third did not, and for the final third, the empirical results were inconclusive.<sup>4</sup> Why do so many acquisitions fail to achieve the benefits projected by models such as the ones previously illustrated? It's not because of flaws in the logic of these models. It's because either the assumptions plugged into these models were unrealistic or firms could not execute on the activities required to achieve these outcomes. Estimating a target company's current worth is always difficult, and projecting the synergies an acquisition will create is even more problematic. Cost reduction synergies may be relatively easy to quantify and deliver. Sales growth synergies are harder to project and attain. An acquisition that would not make economic sense without the projected synergies is a high-risk acquisition.

HR managers in their strategic partner role can greatly influence the likelihood that M&A activity leads to true value creation. HR's initial point of influence is in the design of a compensation system that rewards managers for pursuing value creating acquisitions without encouraging them to take excessive risks. This challenge is discussed in Chapter 12, "Creating Value and Rewarding Value Creation." HR plays a key role during the due diligence phase of the acquisition planning. Determining the value of the targeted company's workforce is an essential task that most investment bankers are unqualified to perform. Projecting the workforce restructuring costs and synergies is also an area in which substantial input from HR managers will be needed. Post-merger HR must, of course, play a

central role in the merging of the workforces, systems, and cultures. This last step can be the primary determinant of whether an acquisition succeeds or fails. To function in these critical roles, HR managers must understand the firm's business strategy, the acquisition strategy, and the basics of the financial models used to evaluate the acquisition. This chapter has provided illustrations of the types of models you are likely to encounter. HR managers should not underestimate their ability to understand these models and to contribute to discussions of M&A plans or other strategic initiatives. Constructing these models will be done by the finance group. It has the easy job. The difficult task is determining the correct assumptions to plug in to these models. That's an area in which HR can make a huge contribution.

## 10. Equity-Based Compensation: Stock and Stock Options

During the 1980s, the pay packages of top executives were often unrelated to the success of the corporations they managed. How could that have occurred when their compensation consisted of salaries plus bonuses that were paid only if certain financial targets were achieved? In fact, CEOs received about 50% of their pay in the form of bonuses. The assumption was that the total compensation (salary plus bonus) received by these executives would be highly correlated with changes in company performance. The empirical data, however, failed to support that assumption. A frequently cited 1990 *Harvard Business Review* article by Michael C. Jensen and Kevin J. Murphy reported an extensive statistical analysis showing that annual changes in executive compensation did not reflect changes in corporate performance. Even though bonuses represented a large proportion of total compensation, Jensen and Murphy concluded that compensation for CEOs was “no more variable than compensation for hourly and salaried employees.”<sup>1</sup> They and others argued for more aggressive pay-for-performance systems. Heeding this call, in the early 1990s corporate boards began to emphasize the creation of shareholder value. Equity compensation—that is, paying in stock and stock options—was seen as the most direct way to align shareholder interests and financial interests of managers. The use of equity compensation, particularly the granting of stock options, expanded dramatically during the 1990s. By 2003, 99% of large U.S. public corporations were granting stock options.<sup>2</sup>

## HOW DO STOCK OPTIONS WORK?

Before looking at the specific characteristics of employee stock options, it may be helpful to review the use of exchange traded options. These are options publicly traded on a regulated exchange. These stock options are contracts that guarantee the option's owner the right to either buy or sell the underlying stock at a specified price during a specified time period. The key point is that the option owner has the right, but not the obligation, to make this transaction. A call option provides the right to purchase a share of stock, that is, to call it in. A put option provides the right to sell a share of stock, that is, to put it to the other person. Now look first at a real estate analogy to see why one person might sell an option and another might purchase an option. Suppose you want to buy my house but only if your company transfers you to central New Jersey. We could sign a contract giving you the right to buy my home for a specified price, say \$500,000, anytime during the next 12 months. That contract would require me to sell you my home if you decide to go forward with the deal but would not require you to purchase it if you chose not to. Why would I agree to take my home off the market for 12 months waiting for you to make a decision? I would do that only if you paid me some negotiated amount, say \$10,000, to purchase that call option on my house. If you decided not to go through with the deal, I would keep your \$10,000 and put my house back on the market. Stock options are similar in that the option purchasers pay for the right to make a transaction at a future date if they decide it is in their interest to do so. The option sellers receive a fee for agreeing to those terms. The amount paid to purchase an option is usually referred to as the *premium*.

## WHAT IS THE INTRINSIC VALUE OF AN OPTION? WHAT'S THE TIME VALUE OF AN OPTION?

For a call option, the *intrinsic value* is the current stock price minus the exercise price. The *exercise price* is the price at which you have the right to exercise your option to purchase the stock. If a stock is currently selling for \$45 and you have the right to buy it for \$30, the intrinsic or minimum value of this option is \$15. You could make a \$15 profit by purchasing the stock at \$30 and immediately reselling it at the current market price of \$45. Why might the price of an option be greater than this minimum value? The possibility that the stock price could rise prior to the date the option expires makes its market value greater than its intrinsic value. If potential option buyers believe this stock's price will rise above \$45 before the option expires, they will be willing to pay more than \$15 for the option. In fact, an option with an intrinsic value of zero (for example, the right to buy any time during the next year for \$80 a share a stock that is currently selling for \$80 a share) could have a market value well above zero. The portion of an option's value attributable to the amount of time remaining before the option expires is referred to as the *time value* of that option.

## **Exchange Traded Options Are Sometimes Referred to as Listed Options**

Exchange traded options are options traded on a regulated exchange that standardizes the contracts so that the underlying asset, quantity, expiration date, and strike price are known in advance. For example, Exhibit 10-1 shows the June 14, 2012, market price of call and put options on shares of Johnson & Johnson stock. On that date Johnson & Johnson stock was selling for \$66.01 per share. The table shows the cost of purchasing call options with exercise prices (also called strike prices) ranging from \$40 per share to \$90 per share. For example, the market price of an option to purchase one share of J&J stock for \$75.00 was \$1.05. Why would anyone pay a \$1.05 for the right to buy J&J stock at \$75.00 when it was currently available for \$66.01? You would buy that call option only if you believed that prior to the option's expiration on the third Friday of June 2013, the J&J stock price would exceed \$76.05 (the \$75.00 you would pay for the stock plus the \$1.05 you have already paid for the option). Suppose, for example, prior to the option's expiration, the J&J stock price reaches \$95.00. You could exercise your option to purchase the stock at \$75.00 and then immediately resell it for \$95.00. That \$20.00 gain minus the \$1.05 you paid for the option would leave you with a net profit of \$18.95. If, on the other hand, on the day the option expired, the J&J stock price were below \$75, you would let the option expire unexercised. There is an analogous case of buying a put option. You would pay \$16 for the option to sell one share of J&J stock at \$75 if you thought prior to the options expiration the J&J stock price would fall below \$59 per share. If, for example, it fell to \$40 per share, you could buy it at that price and then exercise your option to sell it at \$75. Your profit would be \$19 per share, the \$35 per share gain minus the \$16 you paid for the put option. You can profit from call options when the

price of a stock goes up and from put options when the price of a stock goes down.

Price on June 14, 2012, of one share of Johnson & Johnson (JNJ) stock was \$66.01.		
Price on June 14, 2012, of calls & puts on JNJ stock expiring January 18, 2014.		
STRIKE PRICE	Call	Put
\$ 40.00	\$ 26.00	\$ 0.60
\$ 45.00	\$ 18.10	\$ 0.80
\$ 50.00	\$ 15.75	\$ 1.43
\$ 55.00	\$ 11.40	\$ 2.26
\$ 60.00	\$ 7.35	\$ 3.80
\$ 65.00	\$ 4.23	\$ 6.30
\$ 67.50	\$ 3.05	\$ 9.90
\$ 70.00	\$ 2.19	\$ 11.90
\$ 75.00	\$ 1.05	\$ 16.00
\$ 80.00	\$ 0.43	\$ 21.00
\$ 85.00	\$ 0.42	\$ 22.95
\$ 90.00	\$ 0.13	\$ 28.15

**Exhibit 10-1. Example of exchange traded options**

Source: <http://investing.money.msn.com/investments/equity-options?symbol=us%3ajnj>.

## ARE OPTIONS HIGH-RISK INVESTMENTS?

Are options high-risk investments? The answer to that question (and the answer to most questions) is, “It depends.” *Naked options* is the term used to describe trades in which the option purchaser does not also own shares of the underlying stock. Naked options can be extremely risky investments. Suppose the price of company X stock fell from \$40 a share to \$36 a share. If you had purchased \$100,000 worth of stock when the price was at \$40, you would have a 10% loss, but your investment would still be worth \$90,000. What would your investment be worth if you had instead invested your \$100,000 in options to buy company X stock at \$40 per share? It would be worthless if on the day those options expired the stock price was \$36. For the same movement in the stock price, the stock investment declined by 10% and the options investment declined by 100%. Covered options, on the other hand, can be a risk-reducing instrument. Covered options refer to trades in which the option buyer also owns shares of the underlying stock. Suppose you own 1,000 shares of Apple stock worth \$700,000. You plan to retire in 1 year and are concerned that if the Apple stock price drops dramatically, your retirement will be much less comfortable. If you purchased for \$8.00 each 1,000 put options giving you the option to sell 1,000 shares of Apple stock for \$700 per share, you have limited your loss to \$8,000. If the stock price fell to \$350 per share but you have the right to sell your shares at \$700, the \$8,000 you paid for the put options prevented a \$350,000 loss on the stock. You could think of that \$8,000 as the cost of buying portfolio insurance. Of course, if the Apple stock price had risen by 10%, what would have been a \$70,000 gain would be reduced by what you paid for the (unused) puts, and your net benefit would be only \$62,000.



## Options Trading Can Involve Many Different Strategies

Clever, but not always successful, traders have devised a large number of sometimes complex strategies for using options. These have colorful names such as Guts, Butterfly, Straddle, Strangle, Risk reversal, Bull put spreads, and on and on. You don't need to understand any of those to design and manage employee stock option programs. However, illustrating one simple one may provide some insight into how calls and puts can be pieced together. A strategy referred to as a *straddle* involves buying a put and a call on the same stock.

Suppose Boeing and Airbus compete for a large jetliner contract. You don't have an opinion about which firm will win the contract, but you do believe that as soon as the winner is announced, the price of Boeing stock will soar if Boeing wins the contract or plummet if Boeing loses the contract. If Boeing stock price is currently selling for \$75 per share, you could bet on that anticipated volatility by simultaneously buying calls giving you the right to purchase Boeing stock at \$75 and puts giving you the right to sell Boeing stock at \$75 a share. If the calls cost you, for example, \$3 each and the puts \$2 each, you have invested \$5 per share to create this trade. If the stock moves up by more than \$5, you exercise the call and make a profit. If the stock price falls by more than \$5, you exercise the put and make a profit. Using straddles you can make money whether a stock price rises or falls, as long as the movement in one direction or the other is large enough.

## **How Do Employee Stock Options Differ from Exchange Traded Options?**

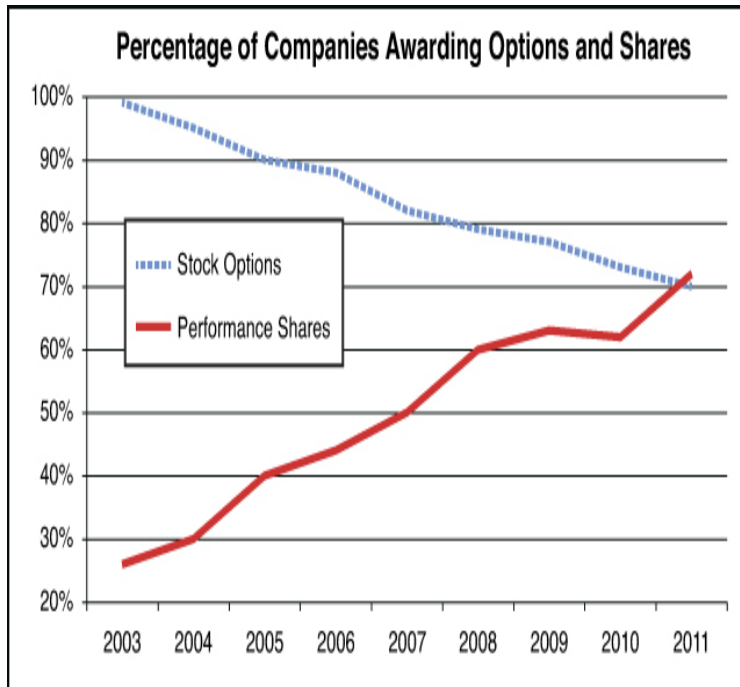
Employee stock options cannot be bought or sold on public stock exchanges. Employers grant them, usually at no cost, to senior executives and sometimes also to non-executive employees. Employee stock options give the employee the right purchase shares of the employing company's stock at a specific price during a fixed time period. Suppose for example, the company's stock is currently selling for \$50 a share and the employee is granted the right to purchase 1,000 shares at today's price any time in the next 10 years. If 6 years from now, the stock is selling for \$80 a share and the employee exercises her option to buy 1,000 shares at \$50 each, she will have an immediate gain of \$30,000 ( $(80 - 50) \times 1000$ ). The hope is that the prospect of such gains will create an incentive for employees to behave in ways that will make the firm more successful and cause the stock price to rise faster. Employee stock options are by definition call options because they provide the right to purchase shares of stock. Employee stock options differ from exchange traded options in a number of important ways:

- They are granted or given to employees, so there is no purchase price.
- They are usually nontransferable; that is, they cannot be sold prior to exercise.
- They often have a vesting period, that is, the options are forfeited if the employee does not stay with that firm for a specified period of time.
- They tend to have longer exercise periods than exchange traded options. The average life of employee stock options is often 7 to 10 years. The exercise period for exchange traded options is typically months or at most a year or two.

As will be discussed next, these differences mean that the market price of exchange traded options is not usually a good proxy for the value of employee stock options.

### **Equity Compensation Can Be Options, Shares, or Both**

The graph in Exhibit 10-2 is based on data reported by Frederic W. Cook and Company, Inc.,<sup>3</sup> a large consulting firm specializing in executive compensation. This firm conducts an annual survey of the executive compensation practices of the 250 largest U.S. companies in the Standard & Poor's 500 index. The trends shown in this graph are quite dramatic. In 2003, 99% of these large firms granted stock options to their senior executives. By 2011, the percentage granting options had declined to 70%. During the same period the proportion of firms offering their employees performance shares increased from 26% to 72%. Performance shares are shares of company stock given to managers only if certain companywide performance targets, such as an increase in revenues or earnings-per-share, are reached. The percentage of firms granting stock options may continue to decline, but for the foreseeable future, it is likely that options will continue to be used by the majority of large firms. Stock options are increasingly granted in combination with outright share grants or share grants contingent upon company performance. Possible explanations for the decreasing reliance on employee stock options are discussed in the following sections.



**Exhibit 10-2. Trends in equity compensation**

Source: Graph prepared with data extracted from the following reports released by Frederic W. Cook & Co., Inc.: *The 2004 Top 250*, September 2004, page 4. *The 2008 Top 250*, October 2008, page 5. *The 2011 Top 250*, October 2011, page 7.

## **DO EMPLOYEES PREFER OPTIONS OR STOCK?**

What are the key differences between paying in options and paying in shares of stock? If given the choice would employees prefer to receive options or shares? To explore these questions use the specific example described in Exhibit 10-3. The assumptions are that a company whose stock price is currently \$40 per share is considering two alternatives. This firm will give employees either A) 1,000 shares of company stock or B) options to buy 8,000 shares of stock at today's \$40 price any time during the next 10 years. These employee stock options are valued at \$5 each. Is it more expensive to grant stock or options? As this example illustrates there need not be any cost difference. By adjusting either the number of shares or the number of options, it is straightforward to define two alternatives that would have the same cost to the company. If the cost is the same, how would you choose between these alternatives? That choice should not be left to the firm's finance department but should be based on the HR department's assessment of which alternative would have the most beneficial incentive effects. To begin that analysis look at the impact a \$20 change in the stock price would have on stockholders and on option holders.

Assumptions:			
Current stock price is \$40 per share.			
Company will offer employees either A or B.		Cost to Employer	
A. 1,000 shares @ \$40 each		1,000 x \$40 =	\$40,000
B. 8,000 options valued at \$5 each to buy shares @ \$40		8,000 x \$5 =	\$40,000
Which would cost the company more, A or B?			
Which would employees prefer?			
Which would encourage more productivity?			
	If stock price falls from \$40 to \$20	If stock price remains at \$40	If stock price rises from \$40 to \$60
Value of 1,000 shares	\$20,000	\$40,000	\$60,000
Value of option to buy 8,000 shares at \$40	\$0	\$0	\$160,000

**Exhibit 10-3. Does a \$40 change in stock have the same impact on stockholders and option holders?**

### **Employees Granted Shares Benefit Even When the Stock Price Goes Down**

This example reveals clearly that paying with options is a highly leveraged form of compensation. If the stock price is still \$40 at the time the options expire, the value of the 8,000 options will be zero. Had employees received 1,000 shares instead of options and the stock price remained at \$40, their equity compensation would be worth \$40,000. That's a big difference. If the stock price doesn't change or falls, employees benefit substantially more from a grant of shares than from a grant of options. The situation reverses, however, if the stock price rises. If on the day the options expire the stock price is \$60, the employee's 8,000 options will be worth \$160,000 ( $[\$60 - \$40] \times 8,000$ ). The value of 1,000 shares on that date would be \$60,000. That's \$100,000 less than the value of 8,000 options.

### **Do All Employees Have the Same Risk Preferences?**

Which alternative would employees prefer, and which alternative would create the stronger incentive effects?

The answer to those questions depends upon the personalities of the employees involved and their positions in your organization. Risk-averse employees would probably prefer to receive shares instead of options. For them it may be important to know that their equity compensation will be worth something even if share prices remain flat or decline. Regardless of personal risk preferences, employees at lower income levels may prefer shares because they would be less able to adjust their personal finances to accommodate large fluctuations in the value of their equity compensation. Less risk-averse employees and employees at higher income levels will probably prefer to receive a larger percentage of their compensation as options. These employees may be willing to accept some additional risk to have the possibility of a much larger payout. In the previous numerical illustration, at a stock price of \$60 per share, the option holders received a payout of \$160,000 compared to the \$60,000 benefit they would've gotten from 1,000 shares. That's a \$100,000 difference for the same movement in stock price. The difference gets even bigger as the share price continues to climb. At \$85 per share 1,000 shares would be worth \$85,000, whereas 8,000 options would be worth \$360,000 ( $[\$85 - \$40] \times 8000$ ). At that the price level, the difference is \$275,000!

The finance department can calculate the cost differences, but the HR department should be assessing which combinations of stock and options are more likely to motivate and retain key employees. The mix preferred by employees is not necessarily the mix corporations will prefer. HR managers must determine whether increasing the amount of at-risk pay is a desirable compensation

strategy in each of the specific situations they encounter. Risk-averse employees might prefer cash over either stock or options, but that would not create the wanted incentive effects. Risk tolerant executives might prefer options over stock. Would a highly leveraged compensation package like that optimize executive incentives to increase performance, or would it encourage them to swing for the fences and expose the firm to unwarranted risk? These are not easy questions to answer, and the analysis of these behavioral issues should not be left to the finance department. For HR managers to participate in that discussion, they must understand the financial and accounting aspects of options so they can make judgments about how employees will respond. The data in Exhibit 10-2 shows a significant and consistent decline in the granting of stock options. What triggered this decline? Part of the explanation may be that firms concluded that the overuse of employee stock options was encouraging excessive risk-taking. That is, however, not the primary reason. The primary reason for this change in compensation practices was a change in accounting practices.



## **The Debate over the Expensing of Stock Options**

The Financial Accounting Standards Board (FASB) in 2004 altered the existing generally accepted accounting principles to require for the first time that employee stock options had to be expensed in the year they are issued.<sup>4</sup> Prior to that time a company could choose to either include or not include the cost of employee stock options along with the other expenses shown on its income statement. If it chose not to recognize the cost of employee stock options on its income statement, it was required to show only in a footnote how large that expense would have been had it been included in its income statement. Sound like a strange rule? It was. Only a handful of major companies (for example, Coca-Cola, General Electric, Wachovia Bank, Bank One, and the Washington Post) chose to subtract the cost of employee stock options on their income statement.<sup>5</sup> Companies were reluctant to expense options because doing so would lower their reported net income and earnings per share. Of course, where on the page you chose to show that expense affects only the reported net income, not the actual business reality. The decision to expense or not expense options sometimes had a substantial effect on a firm's reported bottom line. One study by Merrill Lynch estimated that by not expensing options, companies in the Standard & Poor's 500 index overstated their earnings by 10%.<sup>6</sup>

The FASB decision followed years of debate during which much of corporate America argued that the expensing of options was not necessary because option grants were not a business expense but merely the transfer of an ownership interest from one group of individuals to another, that is, from current stockholders to employees. If that argument had prevailed, it would have implied that paying in stock was also a nonexpense because it is also just a transfer of an ownership interest from current stockholders to employees. Direct stock grants have

always been treated as a compensation expense, and there were no serious proposals to change that practice. The argument for expensing options is that if these equity instruments were not given to employees, they could be sold the public. The price the public would have paid for these options is the opportunity cost of giving them to a firm's employees. Berkshire Hathaway CEO Warren Buffett summarized the case for expensing option well when he asked, "If stock options aren't a form of compensation, what are they? If compensation isn't an expense, what is it? And, if expenses shouldn't go into the calculation of earnings, where in the world do they go?"<sup>2</sup>

## **Changes in the Accounting Treatment of Options Does Not Change Their True Cost**

Now that the expensing of employee stock options is mandatory, firms are reducing the number of options granted. In 2003, 99% of large firms granted options to their top executives. The expensing of options became mandatory in 2004, and as was shown in Exhibit 10-2, the percentage of large firms granting options declined in that year and each subsequent year. By 2011, that percentage was down to 72%. Was this a rational response to the changing accounting rules? There are legitimate reasons to be concerned about the precision of the approaches used to estimate the cost of the employee stock options. Nevertheless, whatever the true cost of granting options is, the change in the accounting rules did not increase that true cost by one cent. If the accounting rules didn't increase the true cost of options, why are fewer firms using them? It seems that the extensive use of options prior to 2004 was not driven by judgments about the optimal compensation strategy but by the desire to maximize reported earnings. Speaking in 1998, Warren Buffet observed, "Accounting principles offer management a choice: Pay employees in one form and count the cost, or pay them in another form and ignore the cost. Small wonder then that the use of options has mushroomed."<sup>8</sup> This emphasis on reported, as opposed to true, earnings was obviously not in the best long-run interest of shareholders. Now that both option grants and stock grants must be expensed, the playing field has been leveled. Firms can now choose the mix of option and stock grants that they believe will create value for shareholders without having this decision distorted by the accounting rules.

## **Using Black-Scholes to Estimate the Cost of the Options Granted**

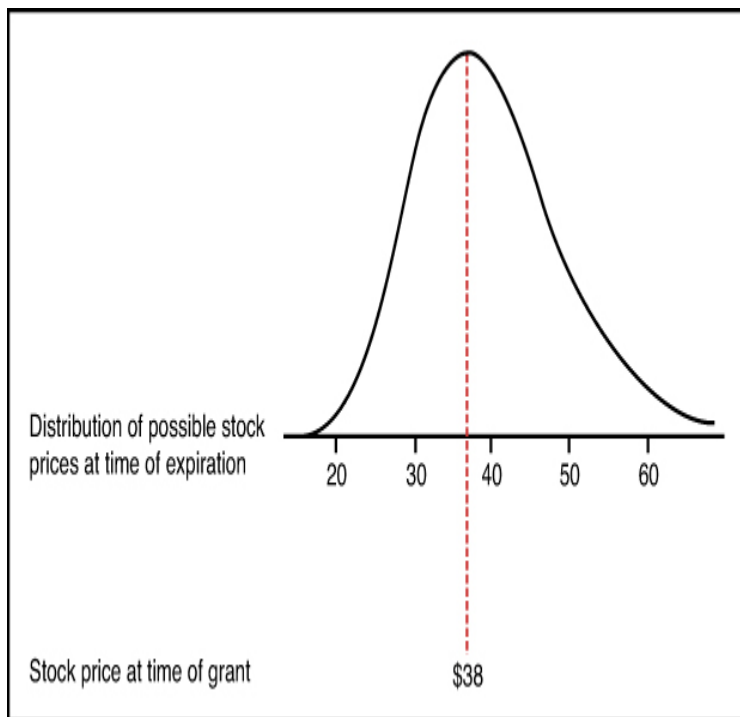
Now that options expensing is mandatory, firms are paying greater attention to the methodologies used to calculate the dollar cost of option grants to their employees. The choice of methodology can have a direct effect on the firm's bottom line. The price of exchange traded options is set by the marketplace. It is determined by what buyers are willing to pay and what sellers are willing to accept. Because employee stock options usually differ from exchange traded options in a number of significant ways, the price of options traded in the marketplace is not a useful proxy for the value of options granted to employees. Most firms must rely on financial models to estimate the cost of their employee stock options. The most widely used of these is the Black-Scholes model,<sup>9</sup> named for Fisher Black and Myron Scholes, the two Nobel prize-winning economists who developed it. However, over the last few years, a significant number of firms have shifted to alternatives such as lattice models or Monte Carlo simulations. These alternatives are discussed next. Decisions about which model to use should not be left to the finance department. An understanding of employee behavior is required when choosing among alternative models, and the choice of model may influence future compensation strategy decisions. HR managers should be active contributors to these discussions.

The equations underlying the Black-Scholes model are complex, but HR managers without a mathematics background can still achieve a good intuitive understanding of what the model does and how they can use it to design and manage employee stock option programs. The Black-Scholes value of an option can be calculated by plugging a few numbers into a spreadsheet of the type described next. The Black-Scholes model estimates the present value of the expected payoff an

employee will receive from an options grant. The logic and calculation of present values is discussed in Chapter 7, “Capital Budgeting and Discounted Cash Flow Analysis.” The expected payoff is just the average payoff that an individual would receive if she purchased (or was granted) an option with these characteristics on many occasions. If you go to a casino and play a game where there is a 30% chance of winning \$50 and a 70% chance of losing \$25, the expected payoff is  $-\$2.50 (.30 \times \$50 + .70 \times -\$25)$ . If you played that game 1,000 times, your average outcome would be close to a loss of \$2.50 per play. That expected payoff was calculated by multiplying each of the possible outcomes by the probability that outcome would occur and then summing those products. As you see next, the Black-Scholes model estimates all the possible payoffs from an option and the probability that each of those payoffs will occur. It then uses that information to calculate an expected payoff and expresses that expected payoff in present value terms.

The Black-Scholes model estimates the range of potential payoffs to an option by assuming that on average the price of the underlying stock will increase at the risk-free interest rate. The risk-free interest rate is the rate you could earn on a riskless investment such as U.S. government bonds. This assumption is illustrated in Exhibit 10-4. If the annual risk-free interest rate is 5%, the assumption is that stocks that trade at \$38 a share at the beginning of the year will on average trade at \$40 ( $\$38 \times 1.05$ ) at year's end. Of course, that number is only an average. Roughly one-half the time, the price will be greater than \$40 and roughly one-half the time less than \$40. The distribution of possible stock prices around the expectation of \$40 is represented by the curve in Exhibit 10-4. The specific shape of the curve assumed by the Black-Scholes is a lognormal distribution. This is just a variation on the normal or bell-shaped curve that you may be familiar with. Important characteristics of

lognormal distributions are that they do not include values below zero and are skewed to the right. That makes sense because a stock's price can never fall below zero and has no fixed limit on the upside. The distribution is skewed to the right because a stock's price can drop only 100% but can rise by more than 100%. Because the distribution is skewed to the right, the mean of the distribution (\$40) is slightly to the right of the dotted vertical line.



**Exhibit 10-4. Log-normal curve to describe distribution of possible future stock prices**

Stock prices slightly above or slightly below the mean are assumed to be more likely to occur than prices far above or far below the mean. In this example, stock prices between \$40 a share and \$50 a share are more likely to occur than prices between \$50 and \$60. Prices between \$50 and \$60 a share are more likely than prices between \$60 and \$70. Prices above \$70 (or below \$20) are possible but have an even lower likelihood of occurring. How rapidly the probability of occurrence drops off as

the price deviates from the mean is determined by what statisticians call *the standard deviation of the distribution*. Roughly speaking the standard deviation is just the average deviation around the mean stock price. In this example, a low standard deviation would mean prices cluster tightly around the expected value of \$40. A large standard deviation would mean prices are spread out over a much larger range. The simplest way to calculate the standard deviation in a stock's price is to use past history. Some analysts, however, prefer to use an estimate of what future price volatility will be. After you have an estimate of the mean stock price and standard deviation of the distribution, you can use the known properties of the lognormal distribution to calculate the probability of each possible stock price occurring. In Exhibit 10-4 that probability is shown graphically as the height of the curve at each stock price.

You can then convert your estimate of the distribution of possible stock prices at the time of exercise into an estimate of the distribution of possible option payoffs. For example, if the exercise price is \$38 and the stock price at expiration is \$50, the value of the option is \$12 ( $\$50 - \$38$ ). And analogous calculation could be done for all possible stock prices. Of course, for all stock prices below the exercise price of \$38, the value of the option will be zero. There is no value to having the right to buy something at \$38 that is selling in the public marketplace for less than that. Weighting each of these possible payoffs by the probability that it will occur, you can calculate the average payoff you would receive if you purchased an option like this many times. That average or expected payoff, when expressed in present value terms, is the value to the employee and the cost to the employer of this option grant. The cost per option would then be multiplied by the number of options granted to determine the total cost.

## UNDERSTANDING THE INPUTS TO THE BLACK-SCHOLES MODEL

The original Black-Scholes model did not take dividends into consideration. An extension of the original model proposed by Robert Merton in 1973<sup>10</sup> does incorporate the impact on option prices of dividend payments. It is this version that is most often used to price employee stock options. Fortunately, you do not need to master or even understand the Black-Scholes-Merton equations shown in [Exhibit 10-5](#) to effectively use this model. Most corporations purchase commercial software to do these calculations on a large scale, but a quick Internet search would reveal numerous, free online calculators for determining the Black-Scholes value of a stock option. If you are willing to do a little typing, you can easily create your own Black-Scholes spreadsheet by following the model shown in [Exhibit 10-6](#). The inputs describing the option are entered on Row 3. To calculate the Black-Scholes value based on these inputs, type in the following formulas:

in cell B6:  $=\text{LN}(\text{B3}/\text{C3})+(\text{D3}-\text{G3}+\text{F3}^2/2)*\text{E3})/$

$(\text{F3}*\text{SQRT}(\text{E3}))$

in cell C6:  $=\text{B6}-\text{F3}*\text{SQRT}(\text{E3})$

in cell D6:  $=\text{NORMSDIST}(\text{B6})$

in cell E6:  $=\text{NORMSDIST}(\text{C6})$

in cell D8:  $=\text{D6}*\text{B3}*\text{EXP}(-\text{G3}*\text{E3})-\text{E6}*\text{C3}*\text{EXP}(-\text{D3}*\text{E3})$



$$C = Se^{-qT}N(d_1) - (Xe^{-rT}N(d_2))$$

where:

$$d_1 = [\ln(S/X) + (r - q + \sigma^2/2)T] / \sigma\sqrt{T}$$

$$d_2 = d_1 - \sigma\sqrt{T}$$

C = price of the call option

S = price of the underlying stock

N(d) = probability that a random draw from a standard normal distribution will be less than d

q = dividend yield

X = exercise price

r = the continuously compounded risk-free rate

$\sigma$  = standard deviation of the natural log of stock prices

T = time to exercise in years

e = the mathematical constant (2.71828...) which is the base of the natural logarithm

ln = the natural logarithm of the indicated value

**Exhibit 10-5. Black-Scholes-Merton option pricing formula**

	A	B	C	D	E	F	G
1		Stock	Exercise	Risk-Free	Yrs to	Standard	Dividend
2		Price	Price	Rate	Maturity	Deviation	Yield
3	Inputs	\$ 45.00	\$ 45.00	4.5%	7	15.0%	2.5%
4							
5		d1	d2	N(d1)	N(d2)		
6	Outputs	0.55	0.15	0.71	0.56		
7							
8	Black Scholes value of call option is			\$ 8.36			

**Exhibit 10-6. Spreadsheet for calculating Black-Scholes value on an employee stock option**

The six inputs to this model are

- Current stock price
- Price at which the option can be exercised
- Risk-free interest rate
- Years to maturity or expected life of the option

- Standard deviation in the price of the underlying stock
- Dividend yield on the underlying stock.

By adjusting each of these inputs up and down in the previous spreadsheet, you can quickly see the impact they have on the estimate of the options value. If you understand what makes an option valuable, you should not be surprised which changes increase the option's value and which lower it.

- **Stock price and exercise price:** The value of the option increases when the amount by which the current stock price exceeds the exercise price increases. The right to buy shares at \$45 is more valuable when the current stock price is \$65 than when the current stock price is \$55. Employee stock options are typically granted with an exercise price equal to the current stock price. Their value depends upon how much the company's stock prices will rise in the future.

- **Risk-free interest rate:** The value of an option increases when the interest rate increases. One benefit of an option is that you get to hold onto your money until the option is exercised. If you buy 1,000 shares today at \$45, you must immediately pay out \$45,000. If you have the option to buy those same shares at the same price 7 years from now, you get to hold onto your \$45,000 for an extra 7 years. The benefit from holding onto your \$45,000 for 7 years depends on interest rates. The higher the interest rate, the more you can earn on your money during that 7-year period.

- **Years to maturity:** The value of an option increases when the years to maturity or the expected life of the option increases. Options have value for two reasons. They enable you to wait to see what happens to the stock price before making a decision about whether to purchase shares, and they enable you to hold onto your

money until the option is exercised. Both of those benefits increase as the length of the option increases. With longer options, there is more time for the share prices to grow, and you get to retain your cash for a longer period.

• **Volatility of the stock price:** The value of an option increases when the volatility in the price of the underlying stock increases. Volatility is measured as the standard deviation in annual stock price changes expressed as percentage. A large standard deviation means there are large swings in the price of that stock. A lower standard deviation would mean the price fluctuations remain within a narrower range. For stock owners, higher price volatility means a greater chance of big gains and a greater chance of big losses. For option holders higher volatility means a greater chance of big gains, but not a greater chance of big losses. The value of an option increases as the stock price rises further above the exercise price. However, the value of an option does not change as the stock price falls further below the exercise price. The option value is zero whether on the date of expiration the stock price is \$10 below the exercise price or \$100 below the exercise price. Option holders benefit from greater volatility because it means a chance for bigger gains without exposure to the possibility of greater losses. The Black-Scholes value of an option is often more sensitive to changes in the volatility estimate than it is to changes in the other inputs to the model. In Exhibit 10-6, if you change only the volatility estimate from 15% to 25%, the value of the option rises from \$8.36 to \$11.81.

• **Dividend yield:** The value of an option decreases when the dividend yield on the underlying stock increases. The dividend yield is measured as the annual dividend paid divided by the average stock price in that year. What happens to the profits earned by the

corporation during the period between the time the option is granted and the time it is exercised? Like all profits, they will either be distributed as dividends or retained in the corporation. If they are distributed as dividends, this value goes to current stockholders, not to the option holders. This will, other things equal, decrease the value of the shares the employee will in the future have the option to purchase. Simply put, option holders would prefer the company not distribute any dividends until they exercise their options and become shareholders.

- **Vesting periods and forfeiture rates:** The cost to the firm to grant employees stock options declines when the forfeiture rates increase. Employees who do not stay with the firm for the full vesting period often forfeit their right to these options. These factors are not inputs to the Black-Scholes model but can be used to adjust the results coming out of that model. For example, if the firm granting the options described in Exhibit 10-6 had a 2-year vesting period and a 5% employee exit rate, the value of the option would be \$7.55 ( $\$8.36 \times .95 \times .95$ ).

### **The Input Not Used by the Black-Scholes Model**

It may seem counterintuitive, but expectations about whether the price of this stock will rise or fall are not an input to the Black-Scholes model or any other option costing model. Because options can be used to bet on a stock going up or down, the assumption is that the risk associated with any option could be exactly offset by creating a second portfolio whose value moved in the opposite direction. This ability to hedge away all risk allows options to be priced on a risk-neutral basis, that is, without any assumption about the direction of future movements in the stock price. It also allows options to be valued by assuming that the expected return on the underlying stock will equal the risk-free rate interest rate.

## **FIRMS MUST DISCLOSE THE METHODS AND THE ASSUMPTIONS THEY USE TO COST STOCK OPTIONS**

The Financial Accounting Standards Board's Accounting Standards Codification 718 on Stock Compensation (ASC 718) requires that all equity compensation be expensed at "fair value." For awards such as restricted stock and performance shares, fair value is the current value of the stock. For stock options and stock appreciation rights, fair value is estimated using an option-pricing model such as Black-Scholes. For stock options that vest over time the compensation expense is recognized over that vesting period. ASC 718 also requires that in the footnotes to its financial statements a firm disclose information describing the nature and terms of its share-based payments, the method of estimating fair value, and the effect of these compensation costs on the income and cash flow statements. The list of specifics that must be disclosed is extensive. Exhibits 10-7 and 10-8 contain only excerpts from the stock option footnotes in the 2011 annual reports of Johnson & Johnson and Alcoa.

The fair value of each option award was estimated on the date of grant using the Black-Scholes option valuation model that uses the assumptions noted in the following table. Expected volatility represents a blended rate of 4-year daily historical average volatility rate and a 5-week average implied volatility rate based on at-the-money traded Johnson & Johnson options with a life of 2 years. Historical data is used to determine the expected life of the option. The risk-free rate was based on the U.S. Treasury yield curve in effect at the time of grant.

The average fair value of options granted was \$7.47, \$8.03, and \$8.35, in 2011, 2010, and 2009, respectively. The fair value was estimated based on the weighted average assumptions of

	2011	2010	2009
Risk-Free Rate	2.41%	2.78%	2.71%
Expected Volatility	18.20%	17.40%	19.50%
Expected Life	6.0 yrs	6.0 yrs	6.0 yrs
Dividend Yield	3.60%	3.30%	3.30%

**Exhibit 10-7. Excerpt from the 2011 stock option footnotes of Johnson & Johnson**

Source: Johnson & Johnson 2011 Annual Report, page 54.

The fair value of new options is estimated on the date of grant using a lattice-pricing model with the following assumptions:

	2011	2010	2009
Average risk-free interest rate	0.19–3.44%	0.14–3.62%	0.3–2.65%
Dividend yield	0.9%	1.1%	1.2%
Volatility	36–43%	47–51%	38–76%
Annual forfeiture rate	5%	4%	3%
Exercise behavior	45%	35%	43%
Life (years)	5.8	5.6	4.2

The exercise behavior assumption represents a weighted average exercise ratio (exercise patterns for grants issued over the number of years in the contractual option term) of an option's intrinsic value resulting from historical employee exercise behavior. The life of an option is an output of the lattice-pricing model based upon the other assumptions used in the determination of the fair value.

**Exhibit 10-8. Excerpt from the 2011 stock option footnotes of Alcoa**

Source: Alcoa 2011 Annual Report, page 126.

### **J&J Used Black-Scholes to Price Employee Stock Options**

The interpretation of the information in the Johnson & Johnson footnote is relatively straightforward. J&J's Black-Scholes model uses a risk-free interest rate of 2.41% based on U.S. Treasury bonds. J&J says that its historical experiences have been that employees exercise their options on average after about 6 years. In 2011, J&J stock paid dividends equal to 3.6% of the average stock price. The one assumption that may warrant some explanation is the expected volatility in the price of J&J stock. J&J reports that it was estimated using a combination of historical data and the implied volatility from exchange traded options on J&J stock. To find the volatility implied by the market price of J&J's exchange traded options, you can plug into the Black-Scholes formula the market price of those options and all the Black-Scholes variables other than volatility. Then solving algebraically for volatility, you can obtain an estimate of what the market on average was assuming about how much variability there will in the future prices of J&J stock. The disadvantage of using historical volatilities is that history may not repeat itself. The disadvantage of using implied volatilities is that they are only estimates of what may happen in the future. J&J chose to use a blend of the two.



### **Alcoa Used a Lattice Model to Price Employee Stock Options**

The footnote excerpted in Exhibit 10-8 shows that Alcoa used a lattice pricing model instead of Black-Scholes. Models such as the one illustrated in Exhibit 10-9 are often referred to as *lattice models* because of their lattice-like appearance. Before discussing why an increasing number of firms are shifting to lattice models, it is probably useful to review how these models work. Like the Black-Scholes models, lattice models estimate the present value of the expected payoff an employee will receive from an options grant. As in Black-Scholes, that expected payoff is calculated by multiplying each of the possible outcomes by the probability that outcome will occur and then summing those products. The difference is that in the Black-Scholes model the distribution of possible stock prices at the time of expiration is described by a continuous distribution, the lognormal curve discussed in the previous section. Under the lattice model, distribution of possible stock prices is represented by a range of discrete price points.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Current stock price	\$40							Intrinsic	Present						Present value
2	Exercise price of option	\$40	Year 0	Year 1	Year 2	Year 3	Year 4		Value	Value	Probability	x Probability				
3	Expected life of option	4														
4	Volatility of stock price is	25%						101.62	\$61.62	\$54.75	0.0625	\$3.42				
5	Risk-free interest rate	3%					\$ 80.49									
6	Expected dividend yield	2%					\$ 60.97	\$20.97	\$18.63	0.0625	\$1.16					
7					\$63.76											
8	Fair value of option	\$8.08					\$ 60.97	\$20.97	\$18.63	0.0625	\$1.16					
9							\$ 48.30									
10							\$ 36.58	\$0.00	\$0.00	0.0625	\$0.00					
11				\$50.50												
12							\$ 60.97	\$20.97	\$18.63	0.0625	\$1.16					
13							\$ 48.30									
14							\$ 36.58	\$0.00	\$0.00	0.0625	\$0.00					
15					\$38.25											
16							\$ 36.58	\$0.00	\$0.00	0.0625	\$0.00					
17							\$ 28.98									
18							\$ 21.95	\$0.00	\$0.00	0.0625	\$0.00					
19																
20			\$ 40.00													
21							\$ 60.97	\$20.97	\$18.63	0.0625	\$1.16					
22							\$ 48.30									
23							\$ 36.58	\$0.00	\$0.00	0.0625	\$0.00					
24					\$38.25											
25							\$ 36.58	\$0.00	\$0.00	0.0625	\$0.00					
26							\$ 28.98									
27							\$ 21.95	\$0.00	\$0.00	0.0625	\$0.00					
28				\$30.30												
29							\$ 36.58	\$0.00	\$0.00	0.0625	\$0.00					
30							\$ 28.98									
31							\$ 21.95	\$0.00	\$0.00	0.0625	\$0.00					
32					\$22.95											
33							\$ 21.95	\$0.00	\$0.00	0.0625	\$0.00					
34							\$ 17.39									
35							\$ 13.17	\$0.00	\$0.00	0.0625	\$0.00					
36																
37														total	\$8.08	
38																

**Exhibit 10-9. Example of a simplified binomial options pricing model**

Most lattice models assume that the price of the underlying stock will follow a binomial distribution, a type of probability distribution in which the underlying event has only one of two possible outcomes. These models break down the time to expiration into a series of discrete intervals, or steps. The assumption is that at each step the stock price will either increase by a specific amount or decrease by a specific amount. The simplified binomial model in Exhibit 10-9 assumes that the term of

the option is 4 years and that each step equals 1 year. Therefore, at the end of year 1, there are only two possible stock prices. The year 2 stock price is dependent upon where the price ended year 1. As you can see in the diagram, this process means there are 4 possible prices at the end of year 2, 8 possible prices at the end of year 3, and 16 possible prices at the end of year 4. Had this model been extended out to the 10-year term of a typical employee stock option, the number of price possibilities at the end of the last year would be more than 1,000. Using this estimate of the distribution of possible stock prices at the time of expiration, you can calculate the expected payoff to the option holder.

### **If You Want to Know How the Spreadsheet Was Calculated**

This simplified binomial model (see Exhibit 10-9) assumes the stock price in each period will grow at the risk-free interest rate minus the dividend rate. The price will then be that amount plus one standard deviation or that amount minus one standard deviation. The formula in cell E11 is  $=D20*(1+B5-B6)*(1+B4)$ . The formula in cell E28 is  $=D20*(1+\$B\$5-\$B\$6)*(1-\$B\$4)$ . Analogous formulas were entered into columns F, G, and H. The intrinsic value of the option, the amount of payoff that would be received at each price level, is shown in Column J. That amount is just the stock price minus the exercise price of \$40 per share. Because those gains would be received 4 years from now, they need to be converted into present values. That calculation is done in Column L by dividing the intrinsic value from Column J by  $(1+i)^t$ . The formula in cell L4 is  $=+J4/(1+B5)^4$ . Column N shows the probability that each of those values will occur because there are 16 equally likely outcomes that probability is  $1.0/16$ , which is  $.0625$ . The present values from Column L are multiplied by these probabilities, and the product is shown in Column P. The values in Column P are then summed in cell P37. The value in cell P37 is the weighted average of the possible outcomes that is the expected payoff from the option.

### **Why Do Some Firms Prefer Lattice Models over Black-Scholes?**

The Black-Scholes model is easy to calculate. You enter the assumptions into a single equation and obtain an estimate of the option's value. However, the Black-Scholes model assumes the value of the input variables (volatility, interest-rate, and dividend yield) are fixed over the term of the option. That's not always the case. More important, it also assumes there is no early exercise, that is, that all employees will hold their options until the expiration date. That assumption is seldom, if ever, true. In practice, firms attempt to incorporate early exercise behavior into the Black-Scholes model by using the average number of years before exercise, rather than the maximum term of the option as the input assumption. Because the Black-Scholes assumptions are seldom perfectly satisfied, the results obtained with that model are at least open to question.

The lattice model is more cumbersome to calculate because you must specify perhaps hundreds of steps in a binomial tree. However, an advantage of the lattice model is that at each step, you can use different volatility, interest-rate, and dividend yield assumptions. The biggest advantage of the lattice model is that you can explicitly model early exercise behavior, and if you want you can model the exercise behavior differently for different groups of employees. The basics of modeling the early exercise are illustrated in Exhibit 10-10. In this example, you do not assume that all employees will hold their options until they expire at the end of 4 years. Instead, assume that employees will exercise their options if and when the current stock price reaches a level equal to or greater than 150% of the exercise price. In other words, the assumption is that when the reward from exercising gets large enough, employees will grab the bird-in-hand rather than continue to hold their options and expose themselves to the possibility that the

stock price will fall. In Exhibit 10-10, one of the four possible stock prices at the end of year 2 satisfied this condition ( $\$63.76 > (1.50 \times \$40)$ ). There is a 25% chance that the \$63.76 price will be reached the end of year 2. If that happens the model assumes the option will be exercised at that point. The distribution of possible payoff values is adjusted and the expected payoff recalculated. In this example, explicitly modeling early exercise behavior reduced the option value to \$7.93 from the \$8.08 shown in Exhibit 10-9. The effect would have been larger if the example extended the binomial tree out to the 10-year term of a typical employee stock option. The effect would have also been larger if you assumed that less than a 50% increase in the stock price was required to trigger early exercise. The footnote shown in Exhibit 10-8 indicates that the Alcoa lattice model assumed early exercise would occur when the stock price grew by 45%.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	Current stock price	\$40								Intrinsic	Present					Present value
2	Exercise price of option	\$40	Year 0	Year 1	Year 2	Year 3	Year 4			Value	Value	Probability				x Probability
3	Expected life of option	?														
4	Volatility of stock price is	25%														
5	Risk-free interest rate	3%														
6	Expected dividend yield	2%														
7						\$63.76				\$ 23.76	\$22.39	0.2500				\$5.60
8	Fair value of option	\$7.93														
9																
10																
11					\$50.50											
12										\$60.97	\$20.97	\$18.63	0.0625			\$1.16
13							\$ 48.30									
14										\$36.58	\$0.00	\$0.00	0.0625			\$0.00
15						\$38.25										
16										\$36.58	\$0.00	\$0.00	0.0625			\$0.00
17							\$ 28.98									
18										\$21.95	\$0.00	\$0.00	0.0625			\$0.00
19																
20				\$ 40.00												
21										\$60.97	\$20.97	\$18.63	0.0625			\$1.16
22							\$ 48.30									
23										\$36.58	\$0.00	\$0.00	0.0625			\$0.00
24							\$38.25									
25										\$36.58	\$0.00	\$0.00	0.0625			\$0.00
26							\$ 28.98									
27										\$21.95	\$0.00	\$0.00	0.0625			\$0.00
28					\$30.30											
29										\$36.58	\$0.00	\$0.00	0.0625			\$0.00
30							\$ 28.98									
31										\$21.95	\$0.00	\$0.00	0.0625			\$0.00
32							\$22.95									
33										\$21.95	\$0.00	\$0.00	0.0625			\$0.00
34								\$ 17.39								
35										\$13.17	\$0.00	\$0.00	0.0625			\$0.00
36																
37															total	\$7.93

**Exhibit 10-10. Assumes early exercise will occur  
when stock price reaches 150% of the exercise  
price**

To summarize, lattice models enable the firm to build in assumptions about when early exercise will occur. If options are exercised prior to the expiration date, that changes the distribution of possible option payoffs. Changes in that distribution alter the average benefit employees receive from these options. That expected benefit is the value of the option used in the calculation of the firm's employee stock option expense. If the choice of the options pricing model affects the estimated value of the options, it also affects the expense shown on the

income statement and the bottom-line net income that the company reports.

The lattice models in Exhibits 10-9 and 10-10 are simplifications created to illustrate the basic logic behind these approaches. In practice, the lattice model most often used to value employee stock options is the Hull-White model.<sup>11</sup> An example of the type of lattice models that can be designed following the Hull-White approach is shown in Exhibit 10-11. The simplified examples in Exhibits 10-9 and 10-10 were four-step binomial models. The example in Exhibit 10-11 is a 200-step trinomial model. A binomial model assumes there are two possible price outcomes at each step, an increase or a decrease. A trinomial model assumes there are three possible outcomes. The price will increase, stay the same, or decrease. A 200-step model is one that divides the time between the grant date and the expiration date into 200 periods.



Inputs		<div>ESO Grant Schedule</div>									
Grant date:	01-Jan-03										
Exercise price:	95.70										
Current stock price:	87.00										
Maximum option life in years:	10										
Volatility:	30%										
Risk free rate:	4.50%										
Dividend yield:	2.50%										
Trinomial steps	200										
Results		Vesting schedule									
Vesting period (years):		1.5	2.0	2.5	3.0						
Percent of grant vested:		40%	20%	20%	20%						
Employee category	Options granted	Employee exit rate	Exercise multiple	Details by vesting period				Total Expense			
Senior managers	56,000	3%	2.5	Option value	25.16	25.02	24.83	24.64	1,397,888		
				Total expense	563,658	280,182	278,084	275,965			
				Expected option life	8.2	8.3	8.4	8.5			
Middle managers	41,000	5%	2.3	Option value	23.36	23.09	22.80	22.51	943,833		
				Total expense	383,026	189,329	186,935	184,543			
				Expected option life	7.6	7.7	7.9	8.1			
Professional staff	45,500	8%	1.9	Option value	20.39	20.03	19.68	19.26	907,772		
				Total expense	371,070	182,270	179,129	175,303			
				Expected option life	6.5	6.7	7.0	7.2			
Support staff	15,000	15%	1.5	Option value	14.84	14.43	13.94	13.40	214,360		
				Total expense	89,050	43,281	41,629	40,205			
				Expected option life	4.8	5.2	5.6	6.0			
Total options granted:		157,500	Total option expense for 1-Jan-03 grant:				3,463,860				

**Exhibit 10-11. Worksheet from commercially available employee stock option software**

Source: Hoadley Trading & Investment Tools website,  
<http://www.hoadley.net/options/develtoolseso.htm>, downloaded  
8/24/2012.

The Black-Scholes model assumes a continuous distribution of possible stock prices. This distribution is illustrated by the curve in Exhibit 10-4. Lattice models assume a process that produces a distribution of discrete stock prices. This distribution is illustrated by the prices in Column H of the spreadsheet in Exhibit 10-9. However, as the number of steps in a lattice model increases, this distribution of discrete prices becomes a closer and closer approximation to the continuous distribution assumed by Black-Scholes. Using the same assumptions about the option terms and the underlying stock, Black-Scholes and 200-step lattice models such as the one shown in Exhibit 10-11 would yield almost

exactly the same estimate of the option's value. Of course, the purpose of going to a lattice model is that it offers the flexibility to use different input assumptions. For each year, you could use a different estimate of the stock price volatility, the risk-free interest rate, and the dividend yield. The biggest difference is that with the lattice models, you can specifically model early exercise behavior and forfeitures due to employee exits. As illustrated in Exhibit 10-11, different assumptions can be specified for different employee groups. A firm's historical experience might indicate that, for example, less highly paid employees tend to exercise their options when the stock price exceeds 150% of the exercise price, but senior executives tend to not exercise early unless the stock price reaches 250% of the exercise price. Unlike the Black-Scholes model where expected time to exercise was one of the input variables, a lattice models such as the one in Exhibit 10-11 calculates the average life of the options based on the assumptions about the exercise multiples and the anticipated movements in the stock price. The Alcoa note in Exhibit 10-8 points out that this is the case.

## **USING MONTE CARLO SIMULATION TO DETERMINE THE VALUE OF EMPLOYEE STOCK OPTIONS**

Most firms still use a Black-Scholes model to estimate the cost of employee stock options. A growing number of firms use either a binomial or trinomial lattice model. A smaller percentage uses a Monte Carlo simulation. Each of these approaches uses a different method to estimate the distribution of possible stock prices at the time of expiration. The Black-Scholes model relies on a single equation that assumes that these prices can be described by a continuous lognormal distribution. Lattice models assume this distribution can be approximated by a series of discrete price points generated through a multistep binomial or trinomial tree. Monte Carlo simulations are the least rigid in their assumptions. These models perform a large number of random trials and observe the price distribution that results. A different application of Monte Carlo simulations was illustrated and discussed in Chapter 9, “Financial Analysis of a Corporation’s Strategic Initiatives.” When used to evaluate options, Monte Carlo models begin with an equation for predicting the future price of the underlying stock. That equation, which is the same one underlying in the Black-Scholes model, assumes that stock prices follow a random walk. Each period the stock price moves randomly either up or down. The magnitude of that movement is determined by the standard deviation of the changes in stock price. Monte Carlo simulations use random draws from a standard normal distribution to generate a sequence of random stock price movements and then calculate the stock price that would result. Each time that process is repeated, it generates one possible value of the stock price at expiration. That process is then repeated many thousands of times. The average of all these price possibilities is then used to calculate the expected payoff from the option. That expected payoff is then expressed in present value terms.

## **DILUTION, OVERHANG, AND RUN RATES**

Your CFO may have legitimate concerns about managing overhang. *Overhang* is the aggregate of the equity awards currently outstanding plus those authorized but not yet granted, divided by the fully diluted number of shares outstanding. In other words, a measure of how many shares have been or may in the future be issued through the firm's equity compensation programs. When the overhang is large, shareholders may become concerned the company's compensation practices will result in an excessive dilution of their ownership interests. Motivated by that same concern, companies carefully monitor their run rate, a measure of the rate at which they are issuing the shares under their shareholder-approved equity compensation plan. The higher the run rate, the sooner management needs to go back to the shareholders seeking an authorization for an increase in the share pool. Overhang and dilution are important constraints on the design of equity compensation programs. They should not, however, drive the design of these programs. Stock prices are a function of earnings-per-share. The denominator in the EPS ratio is the number of shares outstanding. Other things equal, if equity compensation programs increase that denominator, EPS and the stock prices will decline. That is the dilution effect that may be a concern to shareholders. However, if equity compensation programs are effective, other things will not be equal. Net income in the numerator will rise by more than enough to offset the larger denominator and EPS and the stock price will rise. Some forms of equity based pay (for example, stock appreciation rights, restricted stock units, and performance share units) do not result in any dilution at all. A brief description of these instruments is provided in Exhibit 10-12.

**Stock options:** A stock option is a right to purchase employer stock at a fixed price during a specified period of time. An expense is charged based on the option's fair value on the grant date. Fair value is estimated using a Black-Scholes, lattice, or Monte Carlo model.

**Restricted stock:** Restricted stock is employer stock granted to employees at no cost. It is subject to vesting requirements and transferability restrictions. An expense is charged equal to the number of shares granted multiplied by the grant date market value of the stock.

**Restricted stock unit (RSU):** Restricted stock units are not stock, but cash payments equal in value to one share of stock. Units do not represent any actual ownership interest and have no voting or dividend rights. The amount expensed is equal to the number of RSUs granted multiplied by the grant date fair market value of a share of company stock.

**Stock appreciation rights (SAR):** Stock appreciation rights provide the employee a payoff equal to the appreciation in a specified number of shares of employer stock. The SAR's fair value on the grant date is estimated using a Black-Scholes, lattice, or Monte Carlo model.

SARs provide a payoff to the employee only if the stock price appreciates. RSUs provide a payoff to the employee even if the stock price is flat or declines.

**Performance shares:** Performance shares are employer stock provided to employees if company performance reaches target levels.

For Performance shares contingent upon financial performance (for example, EBIT, EPS, and ROE) at the end of the performance period, the expense is adjusted to equal the value of the shares that actually vest.

Performance shares contingent upon stock market performance (for example, stock price change or TSR) are usually valued using a lattice model or Monte Carlo simulation. Black-Scholes models cannot easily incorporate the performance contingencies.

**Performance share unit (PSU):**

Performance units are not stock, but cash payments equal in value to one share of stock that are made to employees if specified financial performance or stock performance targets are achieved. For PSUs contingent upon financial performance at the end of the performance period, the expense is adjusted to equal the value of the cash actually paid. PSUs contingent upon stock market performance are usually valued using either a lattice model or Monte Carlo simulation. Black-Scholes models cannot easily incorporate the performance contingencies.

**Exhibit 10-12. Alternative forms of equity compensation**

## **EQUITY COMPENSATION IS ONE TOOL FOR ALIGNING EXECUTIVE AND SHAREHOLDER INTERESTS**

HR managers need more than the ability to read and interpret the employee stock option footnotes in their firm's annual report. To effectively design and manage compensation programs, they must understand the financial characteristics of alternative forms of equity-based pay. In many companies employee stock options now represent a smaller percentage of total compensation. Options are still widely used but often combined with other forms of equity compensation. They are also often combined with cash bonuses tied to stock performance measures such as the total shareholder return. Stock-related measures are, however, only one tool for aligning executive and shareholder interests. The alternative is to replace or combine stock market-based measures with financial statement-based measures of the increase in shareholder value. A range of such measures is discussed in Chapter 12, "Creating Value and Rewarding Value Creation." Both approaches have their own strengths and weaknesses.

## **11. Financial Aspects of Pension and Retirement Programs**

\$6,080,800,000,000. That number is the value of the financial assets invested in U.S. private pension plans at the end of 2011.<sup>1</sup> Because it is sometimes difficult to grasp how large a number like \$6 trillion is, it may be useful to provide a few comparison points. In fy 2011 total expenditures by the U.S. government, including the military, social security, Medicare and everything else, were \$3.6 trillion. Total tax receipts were \$2.3 trillion, and the federal budget deficit was \$1.3 trillion.<sup>2</sup> It's hard to overstate the financial significance of pension plans in the U.S. economy. How this \$6 trillion is invested has a substantial impact on both U.S. and global capital markets. At the corporate level, pension trusts are separate entities and not included in the assets shown on a firm's balance sheet. Nevertheless, pension finance can be among the most critical issues a firm faces. In some large firms the individuals managing their pension trusts are responsible for a portfolio of assets larger than the value of the firm. For example, at the end of 2011, the assets in Alcoa's pension trust were valued at \$10.3 billion,<sup>3</sup> and the market value of Alcoa's outstanding stock was \$9.2 billion. Lockheed Martin's pension trust at the end of that year was valued at \$27.3 billion<sup>4</sup> while its market cap was \$26.2 billion. At the individual level, there is no question about the importance of pensions and retirement savings in every family's financial planning. In the United States, there are basically three types of pension plans.



## **DEFINED BENEFIT (DB) PLANS**

Under *defined benefit (DB) plans* there is a formula established by management or negotiated with a union that defines the pension benefit employees will receive in the years after they retire. These benefits are typically tied to the employee's salary level and/or years of service. Firms pre-fund these plans by making contributions to a common pension trust. There are no individual employee accounts. If the investments in the trust do not perform well, the firm needs to make additional contributions to provide the promised benefits. The investment risk associated with DB plans therefore falls upon employers. DB plans are sometimes referred to as *traditional pension plans*.

## **DEFINED CONTRIBUTION (DC) PLANS**

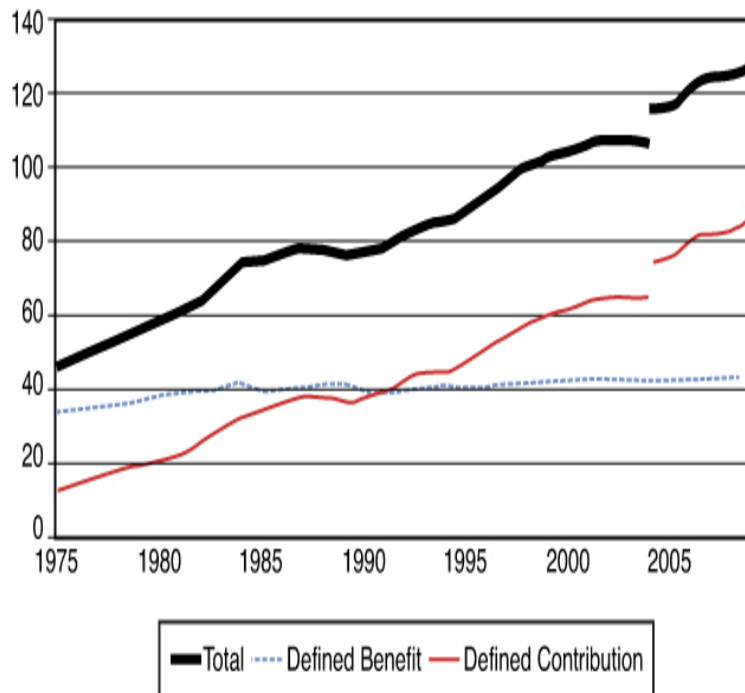
Under *defined contribution (DC) plans* employees are not guaranteed any specific level of retirement benefits. A formula determined by management or negotiated with the union defines the amount of the contributions a firm must make to each employee's account while they are employed. Separate investment accounts are established for each employee, and a contribution to this account is typically made each pay period. In some cases the employer contributions are supplemented by required or voluntary employee contributions. If the investments in an employee's DC account do not perform well, that individual will have less money to retire on. The investment risk associated with DC plans therefore falls upon employees. The most common form of DC plan in the United States is the 401(k). Section 401(k) of the U.S. Internal Revenue Code specifies the major tax advantages of these plans. Employers receive a tax deduction for their contribution to the employee's accounts, but those contributions and the earnings on those contributions are usually not taxable to the employee until they are distributed at retirement.

## HYBRID PLANS

Technically, *hybrid plans* are DB plans because there is a defined retirement benefit and all funds are invested in a common trust. However, hybrid plans attempt to combine the most attractive features of DB and DC plans. The most common form of a hybrid plan is a *cash balance plan (CBP)*. Under a CBP employees accrue benefits under a fixed formula as they would in a traditional DB plan. Each period the firm allocates pay credits (not actual dollars) to an account in the employee's name. These credits are usually equal to a percentage of the individual's salary. The balances in these accounts are then increased each year by a plan-specified growth rate. At retirement employees receive a lump sum payment equal to the balance in their account or an annuity based on that balance. The investment risk to employees is less than in DC plans because the employer is obligated to pay the promised retirement benefit. The investment risk to the employer may be less than in traditional DB plans because the annual growth rate can be adjusted over time if actual investment returns fluctuate.

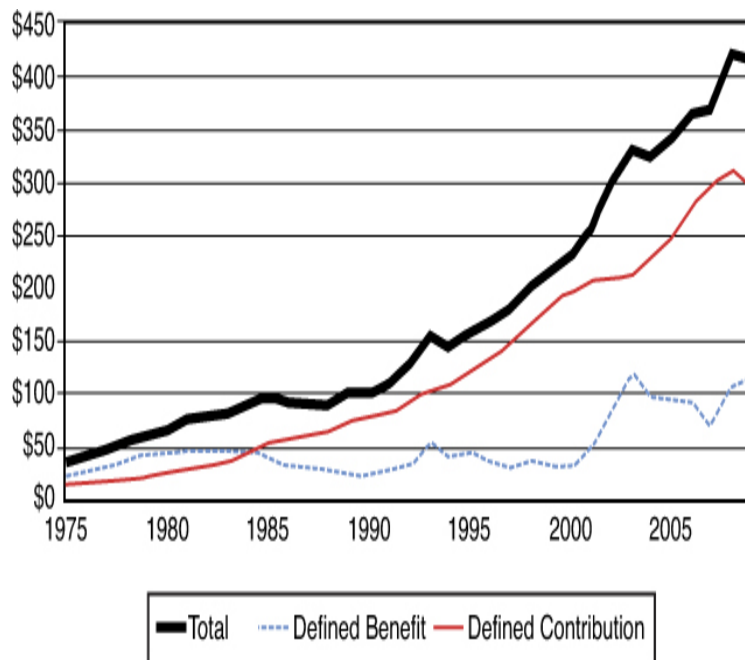
## THE SHIFT FROM DB PLANS TO DC PLANS

Exhibit 11-1 shows that in 1975 there were twice as many participants in DB plans as in DC plans. That situation has reversed, and there are now twice as many participants in DC plans as in DB plans. In 1975, as shown in Exhibit 11-2, the dollar value of contributions to DB plans was greater than the dollar value of contributions to DC plans. Today, contributions to DC plans are almost 3 times contributions to DB plans. Most of that reversal is the result of the growth in DC plans, not a decline in the number of DB plan participants. The number of participants in DB plans is roughly the same today as 30 years ago (refer to Exhibit 11-1). Few new DB plans are created, but for years to come they will continue to have a significant impact on the U.S. economy and to be of critical importance to those firms with large DB plans. A number of explanations have been offered for the shift from DB to DC plans. DB plans are often back-loaded; that is, the largest increases in value occur as workers approach retirement. That feature is increasingly less attractive as workers become more mobile, changing jobs multiple times during their careers. DC plans are more portable and in most cases impose no penalty on workers who change jobs. From the employer's perspective DC plans have more predictable cash flow requirements, are not subject to invest risk, and are far easier to administer. Depending on the plan's features, DC plans may also be much less expensive to fund.



**Exhibit 11-1. Millions of participants by pension plan type, 1975–2009**

Source: U.S. Department of Labor Employee Benefits Security Administration, *Private Pension Plan Bulletin: Historical Tables and Graphs*, March 2012, page 6. The series breaks in 2005 are due to changes in the USDOL definition of plan participant.



**Exhibit 11-2. Pension plan contributions in billions by type of plan, 1975–2009**

Source: U.S. Department of Labor Employee Benefits Security Administration, "Private Pension Plan Bulletin: Historical Tables and Graphs," March 2012, page 18.

## **PENSION ACCOUNTING**

Pension trusts and the firms that sponsor them are separate legal entities. The firm and the pension plan each have their own separate accounting records and financial statements. The following discussion is limited to the way pension costs and pension obligations are shown on the firm's financial statements. The accounting for DC plans is straightforward. The employer's annual pension expense is simply the amount that under the terms of its DC plan it is obligated to contribute to the pension trust. The employer reports a liability on its balance sheet only if it does not make that contribution in full. The employer records an asset only if it contributes more than the required amount. The accounting for DB plans is more complex. FASB Accounting Standards Codification Section 715 Compensation - Retirement Benefits: Defined Benefit Plans (formerly SFAS 87 and SFAS 106) spells out these requirements in considerable detail. Because this book is aimed at HR managers, not accountants, a discussion of these details is unnecessary. Instead, the key provisions of ASC 715 can be illustrated using excerpts from the pension footnotes in the 2008 annual report of Verizon Communications, Inc. Verizon is a global broadband and telecommunication company and a component of the Dow Jones industrial average.

### Calculating Defined-Benefit Pension Obligations

Before looking at the Verizon case study, it is probably useful to review a few definitions and concepts. Defined benefit pension plans typically provide retirement benefits that are a function of years of service and final salary. For example, a firm might promise retirees an annual pension benefit equal to years of service  $\times$  2%  $\times$  average salary in last 3 years of employment. Under that formula, an employee retiring with 30 years of service and an average final salary of \$90,000 would receive an annual pension of \$54,000 ( $30 \times 2\% \times \$90,000$ ).

Suppose this employee retires on his 65th birthday and the actuarial tables tell us his life expectancy is 85 years. How much does the firm need to have in its pension trust on the day he retires to have fully fund his retirement benefits? To have fully funded its pension obligation to this employee, the firm must have on hand the present value of \$54,000 per year for 20 years. If you assume the annual investment return on the assets in the pension trust is 6%, that amount is \$619,376. That amount was calculated in cell G11 of the spreadsheet in Exhibit 11-3 by entering the formula =NPV(0.06,C12:C31).

	A	B	C	D	E	F	G
1	<b>Age</b>	<b>Pension Payments</b>					
2	56		\$0		<b>PV at age 55</b>		<b>\$345,856</b>
3	57		\$0				
4	58		\$0				
5	59		\$0				
6	60		\$0				
7	61		\$0				
8	62		\$0				
9	63		\$0				
10	64		\$0				
11	65		\$0		<b>PV at age 65</b>		<b>\$619,376</b>
12	66		\$54,000				
13	67		\$54,000				
14	68		\$54,000				
15	69		\$54,000				
16	70		\$54,000				
17	71		\$54,000				
18	72		\$54,000				
19	73		\$54,000				
20	74		\$54,000				
21	75		\$54,000				
22	76		\$54,000				
23	77		\$54,000				
24	78		\$54,000				
25	79		\$54,000				
26	80		\$54,000				
27	81		\$54,000				
28	82		\$54,000				
29	83		\$54,000				
30	84		\$54,000				
31	85		\$54,000				

**Exhibit 11-3. Calculating the present value of anticipated pension payments**

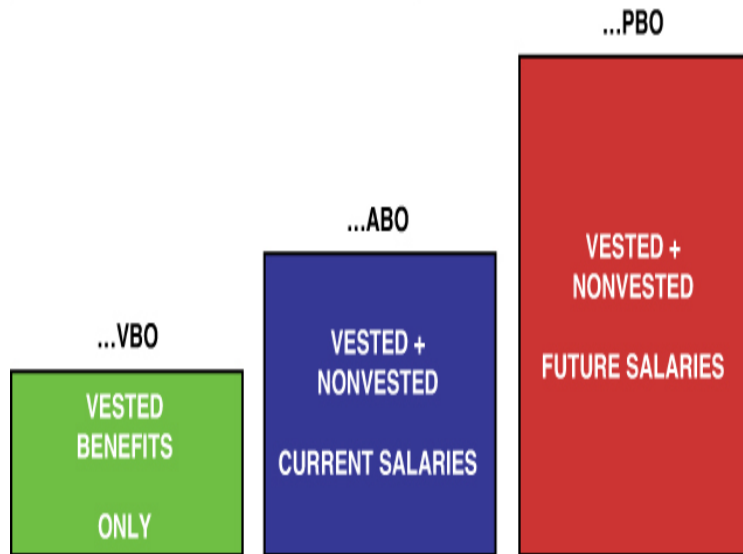
Now suppose today is this employee's 55th birthday and he is still 10 years away from retirement. How much must the firm have on hand today to fully fund his retirement benefits that will not start for another 10 years? The answer is \$345,856. That amount was calculated in cell G2 with the formula =NPV(6%,C2:C31).

The amount needed today is less because it will grow for 10 years at a compounded annual rate of 6% before the firm begins drawing on it to make pension distributions. In the jargon of the pension accountants, that \$345,856 number is the PBO, the projected benefit obligation to this employee. You can now calculate the PBO for the entire workforce by performing analogous calculations for each of the other plan participants and then summing those results.

You must understand the assumptions that were required to estimate the projected benefit obligation. Those assumptions include the fact the employee would not leave before he was vested in the pension plan, the age at which the employee would retire, years of service and final average salary on the retirement date, and the number of years the employee would live after retirement. An additional key assumption is the discount rate used to calculate the present value of the projected retirement benefits. Clearly it is possible, in fact probable, that a firm's actual experience will differ substantially from these assumptions. Nevertheless, the PBO is your best available estimate of the present value of what the firm has promised its employees under the terms of its defined-benefit plan. If you work with pensions, however, you see that firms utilize three different measures for their pension obligations. These are the projected benefit obligation (PBO), the accumulated benefit obligation (ABO), and the vested benefit obligation (VBO). Exhibit 11-4 shows the differences between these three measures.



Three Different Measures of What Has Been Promised to Employees  
(None of these measures includes future service.)



**Exhibit 11-4. Vested benefit obligation, accumulated benefit obligation, and projected benefit obligation**

Most DB plans require a specific number of years of service before an employee is vested in the plan. Employees who leave before becoming vested are not entitled to pension benefits. The vested benefit obligation, the VBO, is the present value of anticipated future payments to employees who are already vested. That is the most conservative, the smallest, of the three measures. It is the present value of the pension benefits that have already been earned. Stated another way, it is the present value of the benefits that must be paid if the firm went out of business today. The accumulated benefit obligation, the ABO, is the present value of anticipated future pension payments to both vested and nonvested employees based on their current salaries. The largest of the three measures is the PBO, the projected benefit obligation. It is based on projections of what employee salaries will be at the time they retire. In pension plans in which retirement benefits are not tied to salary level, the PBO equals the ABO.

Corporate financial reporting focuses primarily on the PBO, but the ABO must also be disclosed. The VBO is a measure used primarily by the Pension Benefit Guarantee Corporation (PBGC). The PBGC was created by the federal government through the Employee Retirement Income Security Act of 1974 (ERISA). The PBGC acts as an insurer that provides retirement benefits to participants in failed DB plans. The PBGC is not funded by tax revenues but by insurance premiums paid by the sponsors of defined benefit pension plans. The more underfunded a pension plan is, the larger the premiums it must pay. The PBGC measures the underfunding by comparing a plan's assets to its vested benefit obligation. When value of what's on hand (the plan assets) is less than the value of what has been promised (the VBO), the premium increases. The VBO is the smallest of the three benefit obligation measures, so this process results in smaller premium charges than if underfunding had been judged by comparisons to the ABO or the PBO.

### **How Do You Think Pension Expense Should Be Defined?**

HR managers who do not understand how pension costs are calculated will find it difficult to effectively manage those costs. How do you think pension expense should be defined? Consider the following information describing Verizon's 2008 defined-benefit pension plans.

During that year

Verizon's pension investments lost	\$10.7 billion
In benefits to retirees Verizon paid	\$ 2.6 billion
	Total \$13.3 billion

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Some might argue based on that experience, Verizon should have subtracted \$13.3 billion in pension expense on its 2008 income statement. Actually, Verizon subtracted no pension expense in 2008. Verizon added

in \$341 million of pension income! How did Verizon do that? They did it by complying with generally accepted accounting procedures. To understand how Verizon determined that it had pension income, not pension expense, you need to review the information contained in the footnotes to Verizon's financial statements.

### **Understanding the Pension Footnotes in a Firm's Annual Report**

The data in Exhibit 11-5 is excerpted from the financial statement footnotes in Verizon's 2008 annual report. At the end of 2008, the projected benefit obligation (PBO) under Verizon's DB pension plans was \$30.394 billion. The value of the assets in Verizon's pension trusts at the end of 2008 was \$27.791 billion. These plans were underfunded by \$2.6 billion (\$30.395 billion in obligations minus \$27.791 billion in assets). The difference between the PBO and the current fair value of plan assets is the funded status of the plan. That amount is shown on the bottom row of this table. Note that in 1 year, Verizon's pension plans went from being overfunded by approximately \$10.2 billion to being underfunded by more than \$2.6 billion—a swing of almost \$13 billion in one year!

Obligations and Funded Status		(Dollars in Millions)			
At December 31	Pension		Healthcare and Life		
	2008	2007	2008	2007	
<b>Change in Benefit Obligations</b>					
Beginning of Year	\$32,495	\$34,159	\$27,306	\$27,330	
Service Costs	382	442	306	354	
Interest Cost	1,966	1,975	1,663	1,592	
Plan Amendments	300	-	24	-	
Actuarial (Gain) Loss, Net	(154)	123	(483)	(409)	
Benefits Paid	(2,577)	(4,204)	(1,529)	(1,561)	
Terminations, Curtailments, Settlements	(1,835)	-	(22)	-	
Acquisitions and Divestitures, Net	(183)	-	(169)	-	
End of Year	\$30,394	\$32,495	\$27,096	\$27,306	
<b>Change in Plan Assets</b>					
Beginning of Year	\$42,659	\$41,509	\$4,142	\$4,303	
Actual Return on Plan Assets	(10,680)	4,591	(1,285)	352	
Company Contributions	487	737	1,227	1,048	
Benefits Paid	(2,577)	(4,204)	(1,529)	(1,561)	
Settlements	(1,867)	-	-	-	
Acquisitions and Divestitures, Net	(231)	26	-	-	
End of Year	\$27,791	\$42,659	\$2,555	\$4,142	
Funded Status	(\$2,603)	\$10,164	(\$24,541)	(\$23,164)	

**Exhibit 11-5. Excerpt from financial statement footnotes in Verizon 2008 Annual Report**

Source: Verizon Communications 2008 Annual Report, page 61.

One of the most important changes brought about by ASC 715 was that in addition to disclosing the funded status of their DB plans in a footnote to their financial statements, firms must include the amount of any underfunding as a liability on their balance sheet. This makes it easier for financial statement users to assess the impact of DB plans upon a firm's financial condition. Verizon included a \$10.2 billion pension related asset on its 2007 balance sheet. On its 2008 balance sheet, that became a pension related liability of \$2.6 billion.

Between 2007 and 2008, the value of Verizon's shareholders equity declined by almost \$13 billion for reasons related to its pension plan and not to its business operations. ASC 715 requires that the liability shown on the balance sheet be the underfunding in the PBO. The ABO must however also be disclosed. In a paragraph that followed the table excerpted in Exhibit 11-5, Verizon reported that the accumulated benefit obligation under its DB pension plans was \$29.405 billion and \$31.343 billion on December 31, 2008, and December 31, 2007, respectively.

### **Other Post-Retirement Benefits**

Verizon also provides medical and life insurance benefits to its retirees through its other post-retirement benefit plans. The obligations and assets associated with these nonpension plans are also shown in Exhibit 11-5. At the end of 2007 and 2008, these plans added approximately \$24 billion more to Verizon's unfunded obligations. There is one significant difference between the accounting for pension plans and the accounting for other post-retirement benefits. For pension plans, ASC 715 requires that the funded status be measured as the difference between the fair value of plan assets and the *projected* benefit obligation. For other post-retirement benefits, ASC 715 requires that the funded status be measured as the difference between the fair value of plan assets and the *accumulated* benefit obligation. At the end of 2008, the total benefits-related liability shown on Verizon's balance sheet was more than \$27 billion (\$2.603 billion in pension liabilities + \$24.541 billion in other post-retirement benefit programs). That's a number that will get the attention of any CFO.

## **Pension Expense Is One Component of the Operating Expenses Shown on the Income Statement**

The previous discussion considered the pension-related assets or liabilities that show up on a firm's balance sheet. ASC 715 also specifies the process for calculating the pension expense that is recognized on a firm's income statement. As mentioned, in 2008, Verizon's pension investments lost \$10.7 billion, and the company paid out \$2.6 billion for retirement benefits. Still there was no pension expense shown on Verizon's income statement. Instead Verizon reported \$341 million of pension income. How did it do that? It did it by following the requirements of ASC 715. The calculation Verizon used is shown in Exhibit 11-6. The general approach is to sum the components that increase a firm's PBO and then to subtract from that total the return on the assets in the pension trust. That makes sense. Your pension cost increases are offset to some degree by what you earn on funds that are already in the pension trust. The process is, however, a bit more complicated than that. At the beginning of each fiscal year, firms are required to project what they expect to earn on the assets in their pension trust. Financial statements are, of course, prepared after the fiscal year ends, and by that time, firms know both what they had expected to earn and what they actually did earn on the assets in the pension trust. Nevertheless, ASC 715 requires that when calculating pension expense, firms reduce their pension cost not by what the pension assets actually earned, but by what they had been expected to earn. That's done even in a year when the expectation is for large gains, and the actual performance turns out to be big losses. Why do that? Before exploring the logic behind this requirement, it is probably useful to clarify the definitions of the pension cost components, as shown in Exhibit 11-6.

Calculation of Net Periodic Cost (In Millions of Dollars)		
Year Ending December 31	2008	2007
Service Cost	\$382	\$442
Interest Cost	\$1,966	\$1,975
Amortization of Prior Service Cost	\$62	\$43
Actuarial Loss, Net	\$40	\$98
Expected Return on Plan Assets	<u>(\$3,187)</u>	<u>(\$3,175)</u>
Net Periodic Benefit (Income) Cost	(\$737)	(\$617)
Assumptions Used in Determining Net Periodic Cost		
Year Ending December 31	2008	2007
Discount Rate	6.50%	6.00%
Expected Return on Plan Assets	8.50%	8.50%
Rate of Compensation Increase	4.00%	4.00%

**Exhibit 11-6. Calculation of pension expense  
recognized on Verizon's 2008 Income Statement**

Source: Verizon Communications 2008 Annual Report, pages 62 and 63.

### **Service Cost**

The *service cost* is the increase in the PBO that results from the fact that employees at the end of the year will have 1 more year of service than they did at the start of the year. The plan's benefit formula is, of course, key to determining the size of that increase.

### **Interest Cost**

The *interest cost* is the increase in the PBO that results because at the end of the year employees will be 1 year closer to retirement than they were at the start of the year. For example, assuming as Verizon did a 6.5% discount rate, the present value of \$100,000 needed 2 years from now is \$88,166 ( $\$88,166 \times 1.065 \times 1.065 = \$100,000$ ). The present value of \$100,000 needed 1 year from now is \$93,897 ( $\$93,897 \times 1.065 = \$100,000$ ). The difference between those two numbers (\$5,731) is the interest cost of getting 1 year closer to retirement. The service cost reflects the increase in the amount of benefits the firm must pay. The interest cost results from the fact that there is now a shorter period before it must start paying them.

### **Amortization of Prior Service Cost**

Prior service costs are incurred when a plan amendment increases the pension benefits attributable to service prior to the current period. These costs are not charged fully during the year in which the plan change occurs. They are amortized, that is, spread out over a number of years.



### **Actuarial Loss, Net**

To estimate its future pension payments, a firm must make a large number of actuarial assumptions, for example, turnover rates, rate of future wage increases, retirement patterns, and life expectancies. These assumptions are continually reassessed, and when necessary pension cost estimates are adjusted to correct for actual experiences that are more or less costly than had been anticipated. In Exhibit 11-5 this adjustment was to recognize a net actuarial loss. The firm's pension expenses are \$40 million more than implied by the earlier actuarial assumptions. Such adjustments can, of course, result in a net actuarial gain. That would occur when the firm's pension expenses are less than implied by the earlier actuarial assumptions.

### **Expected Return on Plan Assets**

At the start of 2008, Verizon expected to earn an 8.5% return on the assets in its pension trust. This and the other assumptions that Verizon was required to make to estimate its pension expense are shown at the bottom of Exhibit 11-6. Multiplying the expected rate of return of 8.5% by the average value of the plan assets in 2008 yields the expected dollar return of \$3.187 billion. The calculation in Exhibit 11-6 reduced Verizon's annual pension expense by the amount of this \$3.187 billion expected return, rather than by the amount of the 2008 actual return (shown in Exhibit 11-5) which was a \$10.680 billion loss. Now say that again. The pension expense was calculated assuming a \$3.187 billion gain, whereas the reality was a \$10.680 billion loss. The rationale for and the implications of this approach are discussed in the next section.

## **WHY BASE COSTS ON THE EXPECTED RATHER THAN THE ACTUAL RETURN ON PLAN ASSETS?**

What would be the consequences if the net pension expense on a firm's income statement were calculated as current service and interest costs minus the actual earnings on the assets in the pension trust? Remember that many large firms have pension assets worth billions of dollars. In a year when the stock market rose by say 30%, the actual earnings on a firm's pension trust might be greater than the service and interest costs for its pension plan. In that year the firm would have net pension income rather than a net pension expense. That could produce a big jump in the net profit shown on the bottom line of the firm's income statement. Similarly, in a year when the stock market declined dramatically, the return on the pension assets could be a multibillion dollar loss, reducing the firm's pretax profit by an equal amount. Exhibit 11-5 shows Verizon's actual pension plan returns for 2007 and 2008. These assets grew in 2007 by almost \$4.6 billion, but in 2008 they declined by almost \$10.7 billion. That's a swing of almost \$15.3 billion. Had Verizon's pension expense been calculated using these actual returns, its pension expense would have increased by almost \$15.3 billion between 2007 and 2008. That would have produced a corresponding \$15.3 billion drop in Verizon's corporate profits for reasons unrelated to the success of its telecommunications businesses. Smaller firms would experience smaller impacts, but those impacts could be just as significant relative to the size of their net profits. Some financial analysts argue that if pension expense were calculated using the actual earnings on the pension trust, the resulting large swings in bottom-line net income would be misinterpreted by many individuals as fluctuations in the profitability of the firm's business operations. Others argue that calculating pension expense in this manner would lead to more accurate reporting. That's an ongoing debate.

At the moment, current accounting standards require firms to use the approach illustrated in Exhibit 11-6. Subtracting the expected return on plan assets rather than the actual return on plan assets is an attempt to smooth out the volatility in pension expense. The expected rate of return is the average rate of earnings expected over the long term given the mix of investments in the pension trust. If this assumption turns out to be correct, there will be just as many years when the actual return exceeds the expected return as there will be when the actual return falls short of the expected return. If over time the better-than-expected returns offset the less-than-expected returns, using this approach will produce no distortion in the firm's long-run pension expense. But what if this assumption is incorrect and the better-than-expected and the less-than-expected returns don't offset each other? To deal with this possibility, the accounting profession created a procedure known as the corridor method.

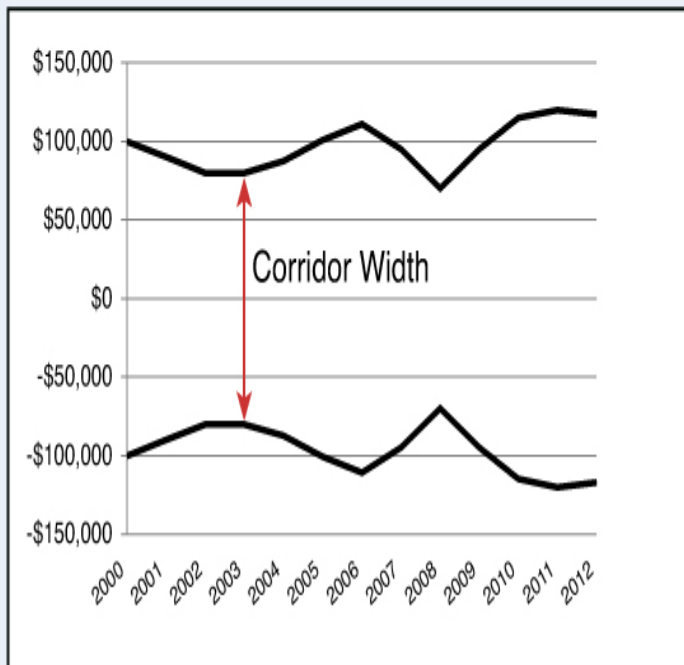
### **Corridor Method Used to Smooth Pension Expense**

Under the *corridor method* prescribed by ASC 715, firms maintain a record of the cumulative net amount by which the actual return on plan assets differs from the expected return. For example, if last year the assets of the pension trust earned \$10 million more than expected and this year earned \$12 million less than expected, the cumulative net balance would be  $-\$2$  million. This record is maintained in an account called Other Comprehensive Income (OCI). If the firm has made a good estimate of the long-run rate of return, then over time the better-than-expected returns and the weaker-than-expected returns will be approximately the same magnitude, and the net balance in this OCI account will hover around zero. It is possible, however, that little or no offsetting will occur and that the balance in this account will grow to either a large positive or a large negative number.

Only when it becomes “too large” does the balance in this account affect the firm’s income statement. ASC 715 defines too large as a positive or negative balance whose absolute value is greater than 10% of the size the pension plan. The size of the pension plan is measured as the PBO or the value of plan assets, whichever is the larger number. For example, suppose the PBO is the larger number and is \$50 million. Ten percent of \$50 million is \$5 million. As long as the balance in this account ranges between –\$5 million and +\$5 million, the difference between the actual and expected earnings has no impact on the income statement. If the balance in this account were to fall to say –\$7 million, an additional \$2 million pension expense would be recognized on the firm’s income statement. If the balance in this account rose to say +\$6 million, \$1 million in pension income would be recognized on the firm’s income statement. The amount by which these balances are beyond the upper or lower limit of the corridor is not recognized fully on the current income statement but is amortized, that is, spread out, over a number of years. A graphical illustration of how the corridor width can change over time is shown in Exhibit 11-7.

**Cumulative Difference Between Actual and Expected Returns  
Is Recognized on Income Statement Only if Outside of Corridor**

<u>Year</u>	<u>Plan Assets</u>	<u>10% of Plan Assets</u>	<u>Lower Limit of Corridor</u>	<u>Upper Limit of Corridor</u>
2000	\$1,000,000	\$100,000	-\$100,000	\$100,000
2001	\$900,000	\$90,000	-\$90,000	\$90,000
2002	\$800,000	\$80,000	-\$80,000	\$80,000
2003	\$800,000	\$80,000	-\$80,000	\$80,000
2004	\$875,000	\$87,500	-\$87,500	\$87,500
2005	\$1,006,250	\$100,625	-\$100,625	\$100,625
2006	\$1,106,875	\$110,688	-\$110,688	\$110,688
2007	\$950,000	\$95,000	-\$95,000	\$95,000
2008	\$700,000	\$70,000	-\$70,000	\$70,000
2009	\$950,000	\$95,000	-\$95,000	\$95,000
2010	\$1,150,000	\$115,000	-\$115,000	\$115,000
2011	\$1,200,000	\$120,000	-\$120,000	\$120,000
2012	\$1,170,000	\$117,000	-\$117,000	\$117,000



**Exhibit 11-7. Corridor method used to smooth  
pension expenses**

### **Defined-Benefit Pension Plans Hit by the Perfect Storm**

The perfect storm label is becoming a cliché, but it does seem appropriate when discussing the status of defined-benefit pension plans. These plans over the last decade have been hit with a perfect storm of economic forces.

The demography of the workforce is changing. More individuals are in or are approaching retirement. These individuals are living longer. In manufacturing and other industries in which the workforce is declining, the ratio of retirees to active employees is rising. Since 2000, the investment returns earned on DB plan assets have been extremely volatile and often far less than expected.

Interest rates are also at historic lows, which has caused the measures of DB plan obligations to surge. The combination of weaker investment returns and larger plan obligations have made under-funding a serious concern. As shown in Exhibit 11-8, pension plan underfunding in the largest U.S. corporations has grown to record levels. In aggregate these plans were fully funded in 2007 but now have a combined shortfall of almost \$355 billion. Of the companies in the S&P 500 index, only 18 have fully funded DB plans. At the end of 2011, seven (General Electric, AT&T, Boeing, Exxon Mobil, Ford Motor, IBM, and Lockheed Martin) had DB plans underfunded by more than \$10 billion. The company with the greatest underfunding was General Electric. GE's pension obligations exceeded its pension assets by \$21.6 billion.<sup>5</sup>

<b>Pension Plans of S&amp;P 500 Companies</b>			
<b>Year</b>	<b>Funded Status (Billions of US\$)</b>	<b>Discount Rate (%)</b>	<b>Expected Return (%)</b>
1999	\$280.0	7.44	9.13
2000	\$226.0	7.43	9.17
2001	\$2.9	7.13	9.15
2002	-\$218.5	6.64	8.63
2003	-\$164.8	6.09	8.38
2004	-\$164.3	5.80	8.27
2005	-\$140.4	5.11	8.13
2006	-\$40.3	5.75	8.03
2007	\$63.4	6.13	8.02
2008	-\$308.4	6.29	7.95
2009	-\$260.7	5.81	7.83
2010	-\$245.0	5.31	7.73
2011	-\$354.7	4.71	7.60

**Exhibit 11-8. Pension underfunding at record levels**

Source: *S&P 500 2011 Pension and Other Post Employment Benefits*, S&P Dow Jones, LLC., July 2012, Exhibit, page 5.

## **The Impact of Interest Rates on DB Plan Obligations**

The Federal Reserve has forced interest rates to artificially low levels hoping that will stimulate the economic recovery. It is clear how weak economic conditions can lower the return on pension plan assets, but how do low interest rates affect pension plan obligations? The projected benefit obligation, the PBO, is the present value of the benefits a firm projects that it must provide under the terms of its DB pension plan. One of the requirements of ASC 715 is that a firm discloses the discount rate it uses to calculate this present value. The discount rate Verizon used in 2008 was 6.5%. The discount rate it used in 2011 was 5.0%. What's the impact of a discount rate reduction of that magnitude? You can easily create a simple spreadsheet to see the impact. The hypothetical described in Exhibit 11-9 is an employee who will retire in 10 years and receive a pension of \$60,000 per year for the rest of her life. The formula in cell H7 is =NPV(6.5%,C2:C31) and the formula in cell H11 is =NPV(5%,C2:C31). The drop in the interest rate increases the present value of the pension obligations to this employee from \$352,191 to \$459,043. As discussed in Chapter 7, "Capital Budgeting and Discounted Cash Flow Analysis," the present value of any future amount rises as the interest rate declines. Suppose the firm's obligation to this employee had been fully funded when that obligation were calculated using a 6.5% discount rate. With no change in the amount of pension benefits the employee will receive and no change in the value of assets in the pension trust, a drop in the discount rate to 5% would mean the firm's pension obligation to this employee was suddenly underfunded by more than almost \$100,000 (\$413,139 – \$316,972).



	A	B	C	D	E	F	G	H
1	<b>Age</b>	<b>Pension Payment</b>						
2	56		\$0					
3	57		\$0					
4	58		\$0					
5	59		\$0	<b>Present Value of Pension Obligation</b>				
6	60		\$0					
7	61		\$0			at 6.5 % is	\$352,191	
8	62		\$0					
9	63		\$0					
10	64		\$0					
11	65		\$0			at 5.00 % is	\$459,043	
12	66		\$60,000					
13	67		\$60,000					
14	68		\$60,000					
15	69		\$60,000					
16	70		\$60,000					
17	71		\$60,000					
18	72		\$60,000					
19	73		\$60,000					
20	74		\$60,000					
21	75		\$60,000					
22	76		\$60,000					
23	77		\$60,000					
24	78		\$60,000					
25	79		\$60,000					
26	80		\$60,000					
27	81		\$60,000					
28	82		\$60,000					
29	83		\$60,000					
30	84		\$60,000					
31	85		\$60,000					

**Exhibit 11-9. Impact of interest rate on present value of pension benefits**

## **HOW DO FIRMS SELECT THE APPROPRIATE DISCOUNT RATE?**

ASC 715 requires that the discount rates firms use to determine their pension obligations be tied to the yield on high-quality corporate bonds. Because of the actions the Federal Reserve has taken in its efforts to stimulate the economy, interest rates in 2012 are at historically low levels. These low rates increase PBOs and reduce funded status, putting pressure on firms to make larger cash contributions to their DB plans. To ease this pressure, at least temporarily, Congress passed and President Obama signed into law on July 6, 2012, a provision that enables companies to calculate discount rates based on a 25-year average, instead of the 2-year average that had been previously mandated.<sup>6</sup> The average interest rate over the last 25 years is, of course, much higher than the average rate during the last 2 years. Using a higher rate reduces their calculated PBO, and a number of major firms have already begun to take advantage of this provision. For example, General Electric CEO Jeff Immelt has stated that because of the recent law change, GE's cash pension contributions in 2012 and 2013 will be \$2.5 billion less than it had previously expected. Sears Holdings has also announced that because of this provision, it will cut its expected 2013 pension contribution by 40% to 50%.<sup>7</sup> Did this increase in the acceptable discount rates actually reduce pension costs? No, it reduced only the calculated PBO. This provision had no effect on the level of pension benefits firms must pay out in the future. It is certainly possible that the effect of reducing their short-term pension contributions will be that these firms must make larger contributions in the future.

## **Changes in Pension Assumptions Can Alter Corporate Profits**

In 2008, Verizon projected that the long-run rate of return on the assets of its pension trust would be 8.5%. Exhibit 11-8 shows that Verizon's assumption was slightly above the 7.95% average for companies in the S&P 500 index. How does the expected return assumption affect a firm's financial statements? The expected investment return does not affect the funded status of a DB plan or the amount of pension liability shown on the firm's balance sheet. The level of underfunding or overfunding is determined at the end of each year by comparing the PBO to the value the assets in the pension trust (refer to Exhibit 11-5). The year-end value of those assets is a function of how much they actually gained or lost during the year. In 2007 (refer to Exhibit 11-5) the actual return on the assets in Verizon's pension plans was a gain was \$4.6 billion, but in 2008, the actual return was a loss of \$10.7 billion. It is the actual, not the expected, return on plan assets that determines funded status and the amount of the pension liability or pension asset shown on a firm's balance sheet.

The expected return does, however, impact a firm's bottom line profits, EPS, and possibly its stock price. Under ASC 715, firms are required to estimate pension expense using the process shown in Exhibit 11-6. If everything else remained constant, making an aggressive (high) assumption about the expected return would reduce a firm's current pension expense. That in turn would increase the firm's bottom line profit. Of course, if the expected rate of return assumption is excessive, the firm will eventually accumulate a shortfall outside of the pension corridor and be forced to recognize an additional expense on its income statement. That recognition may, however, be many years into the future and may not serve as a deterrent to a management seeking a short-run earnings boost. Verizon lowered its expected

investment return from 8.5% in 2008 to 8.0% in 2011. A change in that direction would, other things equal, increase pension expenses and decrease bottom-line profits.

### **De-Risking Defined Benefit Pension Plans**

Many organizations are making changes designed to alter the risk associated with their DB pension plans. These changes are motivated at least in part by the recent increases in stock market volatility and the fact that a liability reflecting any pension underfunding pension must be included in a firm's balance sheet. Often referred to as *de-risking strategies*, these actions have as their goal either reducing pension risk or transferring that risk from the firm to another party. Risk reducing strategies are usually implemented through changes in the way the pension assets are invested. A number of firms have adopted a liability-driven investment strategy. These firms begin with estimates of the amount of cash that will be needed in each future year (the liabilities) and then select investments that provide cash in a pattern that corresponds with these needs. That typically means reducing the percentage of pension assets invested in stock and increasing the percentage invested in long-term bonds. The trade-off, of course, is that these more predictable investments provide lower returns. Some have argued that this may be a particularly inopportune time to shift to a strategy of this type because it would mean locking in interest rates that are at historically low levels. There are also variations on this strategy that use complex financial instruments designed to hedge interest rates and wage inflation. The expectation is that these instruments will rise in value if interest rates and wage inflation increase, thus offsetting, at least in part, the increases in pension costs that would be caused by higher interest rates and wage inflation.

### **Transferring DB Risk to Employees**

As an alternative to, or sometimes in combination with risk-reducing strategies, a number of high-profile firms have adopted risk transfer strategies. These typically involve transferring pension risk from the firm to employees and/or insurance companies. For example, Ford and General Motors recently announced lump sum payout offers designed to transfer pension risk to participating former employees.<sup>8</sup> At the end of 2011, GM's pension obligation was \$134 billion and Ford's was \$74 billion. The offers were extended to more than 140,000 Ford and GM retirees. Retirees accepting the offer would in exchange for relinquishing their entitlement to pension benefits for life be given a one-time lump sum payment. When an individual accepts the offer, the costs to GM and Ford are fixed (the amount of the lump sum), and all investment risk is transferred to the retiree. Investing those lump sum payments, some close to \$1 million in value, becomes the responsibility of the retiree. If the investments perform well, the former employees may enjoy retirement income greater than what they would have received under the terms of the pension plan. If the investments perform poorly, the reverse may be true. The attractiveness of the lump sum offer to individual employees depends upon their life expectancy and numerous other factors.

### **Transferring DB Risk to Insurance Companies**

The GM plan also provides an example of transferring pension risk to an insurance company. For those employees who do not opt for the lump sum payment, GM will purchase annuity contracts from Prudential Insurance. These contracts require Prudential to provide the retirees with exactly the same income stream they would have received from GM's pension plan. This device fixes the cost to GM (the amount it pays Prudential for the annuity) and transfers all the investment risk. If Prudential's own investments perform poorly, they may find in the future that they underpriced those annuities. Of course, it's equally possible that Prudential's investments will perform better than they projected.

## **Freezing DB Pension Plans**

Other firms (for example, IBM, HP, and Sears) have chosen to mitigate their pension risk by freezing their DB plans. Data gathered by Towers Watson, an HR consulting firm, shows that of the DB plan sponsors in the Fortune 1000, 56% have at least one plan that is either frozen or closed to new hires.<sup>9</sup> Some freezes enable current workers to continue in their existing DB plan but offer new workers only a DC plan. Other freezes end DB accruals entirely for all workers. Workers do not lose the defined benefits they have earned up to the date of the freeze, but these benefits no longer increase with future work or pay increases. In place of future DB accruals, employers typically offer a new DC plan. Typically, these replacement DC plans do not produce retirement benefit equal to what the workers would have received under the frozen DB plans. The net effect is that with these freezes employers generally have less risk and lower costs. Employees assume more investment risk, and unless they make additional contributions out of their personal funds will in most cases receive smaller retirement benefits.

## **DC plans Are Simpler for Employers, More Complex for Employees**

Why do so many employees save so little for retirement? Part of the answer is simply that they have competing and more immediate needs that must be paid for from their current income. These competing needs place great pressure on many households, particularly those at lower-income levels. Nevertheless, studies in an emerging field called *behavioral finance* indicate that many individuals fail to allocate their financial resources in a manner that would be in their own best interest. One of the reasons for this is the tendency to avoid or at least delay complex decisions. DC plans require employees to make difficult decisions about whether to participate, how much to save, and how to invest. The tendency to put off or completely avoid complex decisions is a major factor affecting 401(k) enrollments. An increasing number of firms address this issue through provisions that automatically enroll employees in a 401(k) program unless they explicitly opt to not be included. Deciding how much to invest is a complex decision, which involves allocating limited resources across multiple goals (for example, providing a comfortable home for one's family, helping a child pay for college, and providing for one's own retirement). Some firms provide access to financial planning services as an employee benefit. Yet even with access to such services, you shouldn't underestimate the complexity of the planning tasks that DC plans impose on employees. Deciding how to invest is the task many employees find most intimidating. Many employees, including highly educated employees, have limited familiarity with alternative investment vehicles and are unfamiliar with the basic concepts of portfolio theory. Still, they will be required to make portfolio allocation decisions that could have a major impact on the quality of life during their retirement years.



### Firms May Unintentionally Influence DC Plan Choices

The following is just one of many possible examples of how individual employees might manage their 401(k) assets differently than the way professionals manage DB plan assets. Assume that as shown in Scenario 1 in Exhibit 11-10 an employee's 401(k) plan offers a choice between only two investment vehicles: Investment B that is low risk and Investment C that is high risk. What investment mix should the employee choose? The answer, of course, depends on the individual's financial situation and his risk preferences. Suppose, however, that when faced with this choice, the employee reasons that he doesn't want to do anything extreme, so he puts 50% of his assets into Investment B and 50% into Investment C. To simplify this illustration, assume that the risk level associated with each of the investments in this example can be measured on a 1 to 4 scale. Investment B is a 2 and Investment C is a 3, so under scenario one, the average portfolio risk level would be 2.5.

Risk Measure	Investment A	Investment B	Investment C	Investment D	Average
	Very Low Risk 1	Low Risk 2	High Risk 3	Very High Risk 4	
Scenario 1		50%	50%		2.5
Scenario 2		0%	100%	0%	3.0
Scenario 3	0%	100%	0%		2.0

**Exhibit 11-10. Allocation of 401(k) assets for a hypothetical employee**

What would have happened if this employee had instead been faced with Scenario 2 (the option to choose among B, C, and D)? Under Scenario 2, would he have perceived Investment C to be the middle ground choice and given

his strategy of avoiding extreme allocations, put 100% of his 401(k) assets into C (or equivalently divided his assets equally between B, C, and D)? If so, the risk level of the portfolio would have increased from 2.5 to 3.0, not because the employee's risk preferences increased, but because the range of alternatives offered colored the employees perception of investment C. An analogous hypothesis could be made that offering the alternatives in Scenario 3 would have led to a portfolio with an average risk level of 2.0. Of course, a professional investment manager believing that 2.5 was the optimal risk level could have easily achieved a portfolio matching that requirement under any of the three scenarios. One implication of this example is that firms may be unknowingly and unintentionally influencing the investment choices made by their employees. It is difficult to avoid unintentionally influencing employee investment decisions through the mix of choices offered and the way each of those choices are described. Academic studies using experiments and actual data from retirement plans have documented how the menu of funds has a strong effect on portfolio choices.<sup>10</sup>

## **Intentionally Influencing DC Plan Choices**

One alternative to unintentionally influencing employee investment choices is to intentionally shape those choices. Critics might argue that such strategies are inappropriately paternalistic, but a number of firms are adopting plan design features intended to help employees invest more wisely. The Pension Protection Act of 2006 expanded the ability of employers to implement such features without fear of legal liability for market fluctuations or other adverse investment outcomes. This legislation sanctioned a new class of default investments for DC plans, qualified default investment alternatives (QDIAs). Life-cycle or target maturity funds, which qualify as QDIAs, require employees to select a portfolio based only on an expected year of retirement. The fund managers then make the initial portfolio allocations and continue to rebalance the portfolio until the target or maturity date. Although devices such as life-cycle funds may improve investment outcomes for many individuals, there are downsides to any one-size-fits-all approach. Such funds cannot take into consideration an employee's nonpension assets and financial obligations and may therefore result in allocations different from those that would come out of a more holistic financial planning process.

### **Improving Employee Ability to Make Their Own Choice**

An alternative to providing employees with better default choices is, of course, to increase the ability of employees to make good choices. A January 2012 survey by the Society for Human Resource Management found that 52% of U.S. employers offer financial education to their employees.<sup>11</sup> A study of financial education in the workplace conducted by economists at the Federal Reserve Bank of Kansas found strong evidence that such programs can improve personal financial outcomes and some evidence that such programs also provide benefits to the employer.<sup>12</sup> Hopefully, there will be increases in the frequency and effectiveness of such workplace programs combined with better financial education in high schools and colleges. In the meantime, the low level of financial literacy among most employee groups, including those with advanced degrees, is a serious concern for a retirement system that relies heavily on DC retirement plans.

## HR Implications Pension Plan Design

The goal of pension design is not to minimize risk or reduce costs. It is to design a cost-effective component of an overall compensation package that helps the firm attract, motivate, and retain the workforce it needs to successfully implement its business strategy. Doing this requires an understanding of the financial incentives created by different pension plans. Compared to DC plans, DB plans typically provide much stronger financial incentives for individuals to remain with their current employer. To see how these incentives are created, consider the example in Exhibit 11-11. Company A and Company B offer identical defined-benefit pension plans. In both cases individuals beginning at age 65 receive an annual pension benefit equal to their years of service times 2% times their final salary at that firm. If the pension plans are identical, why would an employee moving from Company A to Company B retire with less income? If the employee described in this example worked 40 years for Company A, her annual pension benefit starting at age 65 would be \$96,021 ( $40 \times 2\% \times \$120,026$ ). If she worked 20 years for Company A and then 20 years for Company B, her combined annual pension payment from the two firms would be \$69,921. Her pension benefits would be \$26,100 less per year for the rest of her life because of the midcareer job change. The detailed calculations are shown in Exhibit 11-11. Had the employee remained at Company A for her full career, her benefit would have been 80% of her salary at age 65. Changing jobs would mean that her combined retirement benefit would be 40% of her salary at age 65 at plus 40% of her salary at age 45. Because one-half of her benefit would be based on a lower salary, her retirement income would be substantially reduced.

### **Assumptions:**

Company A and Company B have same defined-benefit formula:

Annual retirement benefit at age 65 = Years of service  $\times$  2%  $\times$  Final salary

Employee begins career at age 25 at an annual salary of \$25,000.

Employee will retire at age 65 and has a life expectancy of 85.

Salary increases at rate of 4% per year, so salary at age 45 is  $(\$25,000 \times 1.04^{20}) = \$54,778$  and salary at age 65 is  $(\$25,000 \times 1.04^{40}) = \$120,026$ .

\*\*\*\*\*  
\*\*\*\*\*

If employee works for 40 years at Company A, her retirement benefit will be  $(40 \text{ yrs} \times 2\% \times \$120,026)$  which = \$96,021.

If at age 45 employee moves from Company A to Company B, her benefit from A will be  $(20 \text{ yrs} \times 2\% \times \$54,778)$ , which = \$21,911.

Her benefit from B will be  $(20 \text{ yrs} \times 2\% \times \$120,026)$  which = \$48,010.

Her combined benefit from A & B will be \$69,921.

**The penalty for changing jobs is \$26,100 per year for 20 years!**

**Exhibit 11-11. DB pension plans discourage changing jobs.**

DC plans such as 401(k)s are more portable and seldom penalize an employee for changing jobs. When firms shift from DB to DC plans, they often lose a powerful retention device. The pension savings that result from the shift to a DC plan may be offset, at least in part, by the cost of putting in place new programs to reduce employee turnover. This may, however, be a good opportunity to target the new retention incentives, for example, bonuses, promotions, or salary increases, for those employees who are most valuable to the firm. For retention, DB plans are blunt instruments creating incentives for both high performers and low performers to remain with their current employer.

## DB PLANS ENCOURAGE RETIREMENT

For employees in their preretirement years, DB plans create incentives to stay put. However, after individuals reach retirement age, the situation reverses. DB plans are more likely than DC plans to encourage retirement.

Consider again the employee described in Exhibit 11-11.

If she worked an additional year beyond 65, the amount of her annual retirement benefit would increase to \$102,358 ( $41 \times 2\% \times \$124,827$ ). That's an increase of \$6,337 per year, and using an 8% discount, the present value of \$6,337 for 19 years is \$60,862. Remember, however, that she gave up \$96,021 in retirement benefits by retiring 1 year later. Postponing her retirement would actually cost her money. Under most DB plans the present value of the retirement benefits received decreases with additional years of service beyond the plan's normal retirement age. This creates a strong incentive for employees in DB plans to leave as soon as they reach this age. For individuals in DC plans, the situation is different. Delaying retirement increases their pension wealth by the amount of the additional contributions received and any increases in the market value of their DC plan assets. Unlike DB plan participants, they give up nothing by delaying the date on which they begin drawing retirement benefits. The funds they do not draw out at age 65 will still be in their account at age 66.



## **THE FUTURE?**

It is likely that the shift from DB plans to DC plans will continue. However, for at least a decade or two, DB plans will remain a significant factor in the U.S. economy and a major issue for the CFOs and CHROs in many companies. The International Accounting Standards Board (IASB) has amended IAS 19 to eliminate many of the smoothing mechanisms in pension accounting. Beginning in 2013, non-U.S. companies that operate under the IASB guidelines will utilize the actual and not the expected earnings on pension assets to offset their annual pension expense. This may significantly increase the volatility of reported earnings of these companies. Given the ongoing attempts to achieve convergence between U.S. GAAP and International Financial Reporting Standards, many observers expect that FASB will also move in this direction.

A limited number of U.S. companies, for example, AT&T, Honeywell, and UPS, have already voluntarily changed their pension accounting procedures. These firms have not adopted a full mark-to-market approach, which would mean using actual rather than expected earnings to calculate annual pension expense. They have however given up some of the smoothing mechanisms available under ASC 715. Honeywell has, for example, adopted a modified mark-to-market approach under which it will still calculate annual pension using expected earnings, still maintain the nonrecognition corridor, and still defer losses inside the corridor. Honeywell will, however, in each year calculate the market value of its pension assets and then charge any losses outside of the corridor in the current year. Under current U.S. GAAP, the amount outside of the corridor can be amortized over a number of years. The maximum number of years is the average remaining service of active plan participants. Firms currently have the option to recognize gains and losses faster than required by ASC 715, and that is what

Honeywell has decided to do. It's not clear yet how many other firms will choose to make similar voluntary changes in their pension accounting. It is certainly possible that most will wait to see whether FASB shifts U.S. GAAP to something closer to IAS 19.

The provisions of ASC 17 are often described as designed to smooth pension expense. It would be more accurate to say they are designed to smooth the reported pension expense. As the accounting moves away from smoothing the reporting of pension expense, there will certainly be more pressure to smooth actual pension expense. Smoothing actual pension expenses will require adopting DB funding strategies such as the liability-driven approach previously described and replacing traditional DB plans with DC or hybrid plans. These changes will create challenges and opportunities for HR managers. HR managers will need to understand the financing of and financial incentives created by alternative retirement benefit plans to select those that cost-effectively contribute to a firm's efforts to attract, motivate, and retain the talent it needs. Creative HR executives may propose plan features that would not have occurred to actuaries or pension plan managers. For example, J. Randall MacDonald, the senior vice-president for human resources at IBM, has speculated about melding retirement and health benefits into a performance-based 401(k) that rewards better performers with better benefits. He asks, "If everybody gets paid on performance, shouldn't there be benefits based on performance? That's what it means to be a performance-based culture."<sup>13</sup>

## **12. Creating Value and Rewarding Value Creation**

At the time of the last economic census, there were 5,767,306 firms in the United States. Their business strategies differed, but they all had exactly the same goal, value creation. People invest in a business because they believe the value of their investment will increase enough to compensate them for the risk they took as well as for the time value of their money. Companies create value by investing capital at rates of return exceeding the cost of that capital. A company's capability to identify and implement such investments is determined by the quality of its management and workforce. These are the individuals who must develop and effectively execute the firm's business strategy. Selecting, motivating, and retaining these individuals is the responsibility of the firm's human resource management function. For this system to work properly HR managers must understand how value is created in their firm and then use that understanding to design a compensation system that encourages value creation. Enhancing the firm's capability to create shareholder value should also be the primary objective of all recruitment and selection and employee development activities.

### **ALIGNING PAY WITH PERFORMANCE**

Compensation arrangements should provide incentives for employees to execute the firm's business strategy in the best interests of the shareholders and other stakeholders. The Center on Executive Compensation has articulated this mandate more fully stating that

To pay for results, companies and their Compensation Committees must have a solid grasp of which measures will create value for the company and its shareholders.

Typically, these measures are directly related to the company's business strategy and thus should be customized for each company. Value may be driven by profits, revenue, market share, new product development, or cash flow, just to name a few, or a combination of measures. The particular measures used may change over time as the company's business strategy and the global economic environment changes.<sup>1</sup>

Appendix A at the end of this chapter contains a list of several dozen financial performance measures currently in use. Selecting the financial performance measures that are most appropriate for a specific company at a specific point in time requires an understanding of the firm's business strategy, a few key financial concepts, and what can seem like an off-putting array of financial jargon. The goal of this chapter is to explain those concepts and decode at least some of that jargon. Hopefully, the following illustrations clarify the economic conditions under which value is created and the challenges involved in measuring value creation.

### **Isn't It All About Profit Maximization?**

Why make this complicated? Why not just tie incentive pay to profitability? Doing that would, of course, require you to decide which definition of profit you are going to use.

## **Gross Profit**

*Gross profit* (the difference between sales revenues and the cost of the merchandise sold) might be useful as one of multiple performance measures but is clearly not sufficient as a stand-alone measure. A firm can have positive gross profits, but if those gross profits are not large enough to cover operating expenses, interest, and taxes, the firm will have a bottom line net loss. Gross profit might be appropriate as one driver of short-term incentive pay when a firm's operating plans call for improvements in gross margins through increasing sales prices and/or reducing merchandise costs.

## **EBIT Versus Net Income**

Earnings before interest and taxes are deducted are the profit generated by a firm's business operations. Bottom line net income is always the result of two things: the profitability of the firm's business operations and how that business was financed, that is, how much was borrowed at what interest rate. If the goal is to provide incentives for individuals such as divisional executives who can influence operating results but are not involved in how the business is financed, EBIT would be the more appropriate bonus driver. In most firms financing decisions (for example, whether to raise funds through the sale of stock or the sale of bonds) are made at the corporate level without the involvement of divisional managers.

## **EBIT Versus EBIT per Employee**

EBIT per employee is a metric recommended by one of the world's largest consulting firms<sup>2</sup> and used by major corporations.<sup>3</sup> This measure may seem particularly appealing to HR managers because it highlights workforce productivity. It can, however, be misleading. Suppose an IT services firm could get the same output from two programmers paid \$100,000 each or three programmers paid \$60,000. Which is the better buy? The answer is obvious. There is no reason to pay \$200,000 if you can get the same output for \$180,000. Exhibit 12-1 shows what would happen if these two staffing strategies were compared on the basis of EBIT per employee. Scenario A would result in lower EBIT and lower net income, but higher EBIT per employee (\$220 million divided by 2,000 employees = \$110,000). The EBIT per employee under scenario B is less (\$240 million divided by 3,000 employees = \$80,000) even though this is obviously the better strategy. Consider a different hypothetical. Suppose an auto manufacturer has six welders earning \$60,000 per year each. The firm has the option to replace three of those employees with a robotic welding machine leased for \$200,000 per year. Automating the welding process would reduce profits but increase EBIT per employee. EBIT per employee is not just an imperfect measure of value creation; it can lead to rewarding strategies that destroy shareholder value. In the examples cited, EBIT would be a much better measure than EBIT per employee.

Suppose an IT services firm could get the same output from scenario A and scenario B.

Scenario A: 2,000 programmers with average salary of \$100,000 per year

Scenario B: 3,000 programmers with average salary of \$60,000 per year

Which staffing strategy should they adopt?

	Scenario A (2,000 @ \$100K)	Scenario B (3,000 @ \$60K)
(Millions of \$)		
Revenues	\$500	\$500
- COGS	30	30
- Programmer Salaries	200	180
- Other Operating Expenses	50	50
<b>EBIT</b>	<b>220</b>	<b>240</b>
- Interest	10	10
<b>Pretax Profit</b>	<b>210</b>	<b>230</b>
- Tax @30%	63	69
<b>NI</b>	<b>\$147</b>	<b>\$161</b>
<b>EBIT per Employee</b>	<b>\$110,000</b>	<b>\$80,000</b>

**Exhibit 12-1. EBIT per employee can be a misleading measure.**

## **EBIT Versus EBITDA**

As discussed in Chapter 2 (“The Income Statement: Do We Care About More Than the Bottom Line?”), EBIT is a measure of operating profit. EBITDA (earnings before interest taxes depreciation and amortization have been subtracted out) is a measure of cash flow from operations. Depreciation and amortization are accounting reallocations of expenses incurred in other periods but do not represent a cash outflow during the current period. EBITDA is a widely used performance metric, particularly in the telecommunications industry. If for the most recent quarter, EBITDA in a telecom company were positive, that indicates that during that quarter the subscriber fees charged to its customers were greater than the cost to provide telecom services to these customers. The cost to provide those services did not, however, include depreciation. Depreciation is the charge that reflects the fiber and electronics costs of building the firm’s network. After these networks are in place, the cost to provide monthly telecom services is relatively low. So if a telecom firm boasts that its EBITDA is positive, it may be saying nothing more than its current revenues are large enough to cover its expenses if you don’t include its biggest expenses (fiber, electronics, and network construction). It is certainly possible for EBITDA to be positive while EBIT is negative; that is, the firm is losing money. If EBITDA were the sole basis for incentive pay, bonuses might well be distributed in years when the firm had large losses. EBITDA does however convey useful information. If EBITDA were negative, cash infusions would be required just to sustain the units operations. Because cash flow management is critical to all firms, EBITDA may be useful as one of several drivers of short-term incentive pay.



### **Profit per Dollar of Assets: ROA and ROIC**

As a stand-alone, measure of performance EBIT, or operating profit, is almost meaningless. Is an operating profit of \$300 million a good outcome, one warranting a large bonus payment? If you earn \$300 in interest on your bank account, is that a good return? The answer to both questions obviously depends on how much was invested to earn that return. The simplest way to assess the level of performance indicated by a specific profit amount is to express that profit as a percentage of the assets invested to generate that profit. Return on assets (ROA) is usually defined as

$$\text{ROA} = \text{net income} / \text{assets}$$

However, as discussed net income is the result of both the success of a firm's business operations and the way it was financed. Net income, the bottom line of the income statement, is after interest expense has been subtracted out. If you want to compare the business operations of two firms before taking into consideration any differences in the way they were financed, a better measure would be the return on invested capital (ROIC). The return on invested capital (ROIC) is usually defined as

$$\text{ROIC} = \text{after-tax operating profit} / \text{assets}$$

$$= [\text{EBIT} \times (1 - \text{the tax rate})] / \text{assets}$$

The difference between ROA and ROIC is that the numerator of ROA is net income, whereas the numerator of ROIC is after-tax operating profit. Operating profit is, of course, before interest is subtracted out. If you want to know whether the business operations of United Airlines were more successful than those of Delta Air Lines, before taking into consideration any differences in the way the two airlines were financed, comparing them on ROIC would be more informative than comparing them

on ROA. If you want to establish bonus drivers for divisional managers, ROIC would probably be a more appropriate measure than ROA because divisional managers generally are not involved in the financing decisions that impact ROA.

### **ROIC Compared to the Firm's Weighted Average Cost of Capital (WACC)**

What would your gain be if you borrowed money from your brother-in-law at 8% and put it into an investment earning 6%? You wouldn't have any gain. You can use exactly the same logic to determine what an acceptable ROIC level is for a firm. A firm's weighted average cost of capital (WACC) is what it costs the firm to raise the money it has invested in the business. If in a particular year, a firm's weighted average cost of capital were 8% and its ROIC were 6%, it would have created no economic value during that year. Actually, it would be losing economic value in every period during which that situation persisted. If you borrow money from your brother-in-law at 8%, you come ahead only when you can invest it at more than 8%. A firm generates economic value only when its ROIC is greater than its WACC. ROIC is a widely used performance metric. [Chapter 2](#) and [Chapter 3](#) ("[The Balance Sheet: If Your People Are Your Most Important Asset, Where Do They Show Up on the Balance Sheet?](#)") reviewed the financial statements for Home Depot, Incorporated. Home Depot uses ROIC to assess its own financial performance. In a recent announcement the company indicated that it had been targeting achievement of the 15% ROIC by 2015 but now expects to reach 24% by that date.<sup>4</sup> Home Depot's WACC is probably not more than 10%, so an ROIC of that level would represent substantial value creation. How can you estimate the dollar amount of the value created?

## **Economic Value Added**

Economic value added (EVA) is just a firm's after-tax operating profit minus the cost of financing the assets used to make that profit. The cost of financing those assets is the dollar value of the capital employed times the firm's weighted average cost of capital. Suppose, for example, a large corporation has \$200 million in assets invested in Division A. If that corporation's weighted average cost of capital is 10%, it costs them \$20 million per year to provide those assets to Division A. That division will not generate any economic value for the corporation and its shareholders unless it produces an after-tax operating profit greater than \$20 million per year. If its after-tax operating profit were \$28 million, the economic value added by that division would be \$8 million. If its after-tax operating profit had been \$16 million, the divisional managers might have felt they were entitled to bonuses based on that profit, but that division would have reduced shareholder value by \$4 million. When corporations tie bonuses to EVA, the message they are sending is that just making a profit is not good enough. To generate value (and justify management bonuses) a firm's business operations must produce a profit greater than the cost of financing the assets used to make that profit.

Exhibit 12-2 shows EVA can be calculated in either of two ways. You can subtract from after-tax operating profit, the cost of financing the assets used to make that profit, or you can multiply the amount by which ROIC exceeds WACC by the dollar value of the assets employed. Both methods produce the same result. Evaluating corporate performance in this manner is not a new idea. GM used a similar approach in the 1920s. However, much of the current interest in economic value added stems from the work during the 1980s by the Stern Stewart consulting firm. This firm refined the concept and trademarked the term EVA, which as

trademarked by Stern Stewart differs from similar measures in that it is calculated using that company's proprietary procedures for making adjustments to the accounting data used to derive the estimates of after-tax operating profits and capital employed.<sup>5</sup> Closely related measures (under slightly different names) are used by many firms. Some use the more generic term economic profit (EP), and some have created their own labels. For example, Roche Pharmaceuticals determines performance bonuses based in part on a closely related measure it calls operating profit after capital charge (OPAC). The commonality in these approaches is that they are all based on after-tax operating profit minus the cost to finance the assets used to make that profit.

<b>Financial Data on Division A</b>		
Assets Invested in Division A =	\$200 million	
WACC =	10%	
After-Tax Operating Profit		
[EBIT x (1-tax rate)] =	\$28 million	
Return on Invested Capital (ROIC)		
[after-tax operating profit] / assets =	14%	
<b>Two Equivalent Calculations of Economic Value Added</b>		
(1.)	EVA = [after-tax operating profit]	- [cost of providing assets used to make that profit]
	EVA = [EBIT x (1-tax rate)]	- [WACC x assets]
	EVA = \$28,000,000	- \$20,000,000
	EVA = \$8,000,000	
*****		
(2.)	EVA = (ROIC - WACC) x assets	
	EVA = (14% - 10%) x \$200 million	
	EVA = \$8,000,000	

**Exhibit 12-2. Calculating economic value added**

Why does EVA differ from accounting profits?

Accounting profit, the net income figure on the bottom line of the income statement, is after subtracting out interest expense. Interest expense is the cost of debt, but an income statement does not include the cost of the equity capital used. EVA is after subtracting a capital charge based on WACC, which is the weighted average of the cost of debt and the cost of equity. It is therefore quite possible for accounting profits to grow while no value is created. Actually, as the hypothetical illustrated in [Exhibit 12-3](#) demonstrates, it is possible for revenues, profits, and even ROE to grow while value is being destroyed. That statement has important implications for the use of revenue, profits, and ROE as bonus drivers.

(All \$ Values in Millions)									
Year	2013	2014	2015	2016	2017	2018	2019	2020	
Equity	2000	2200	2420	2662	2928	3221	3543	3897	
Debt	2000	2200	2420	2662	2928	3221	3543	3897	
Assets	4000	4400	4840	5324	5856	6442	7086	7795	
WACC	10%	10%	10%	10%	10%	10%	10%	10%	
Revenue	1500	1650	1815	2100	2310	2400	2775	3174	
Cost of Goods Sold	600	660	726	868	954	956	1141	1337	
Operating Expenses	400	440	484	532	586	644	709	779	
EBIT	500	550	605	700	770	800	925	1058	
Interest	100	110	121	133	146	161	177	195	
Pretax Income	400	440	484	567	624	639	748	863	
Tax	120	132	145	170	187	192	224	259	
Net Income	280	308	339	397	437	447	523	604	
EBIT x (1 - Tax Rate)	350	385	424	490	539	560	648	741	
- Capital Charge	400	440	484	532	586	644	709	779	
= EVA	-50	-55	-61	-42	-47	-84	-61	-39	
ROE	14%	14%	14%	15%	15%	14%	15%	16%	
ROIC	8.8%	8.8%	8.8%	9.2%	9.2%	8.7%	9.1%	9.5%	

**Exhibit 12-3. Revenues, profits, and ROE increased while value was destroyed.**

The firm's revenues and net income grew each year and actually more than doubled between 2013 and 2020 (refer to [Exhibit 12-3](#)). The firm's ROE was also increasing and at seemingly respectable levels throughout this period. Millions of dollars in shareholder value were, however, destroyed in each year. Over the period, the total decline in shareholder value was more than 0.4 billion dollars. That occurred because in each year the firm's ROIC was less than its weighted average cost of capital. In other words, in each year the firm made a profit, but in no year was that profit large enough to cover the cost of raising the funds needed to support the firm's business operations. Many, if not most firms, link incentive compensation to accounting measures such as revenue growth, profits (either EBIT or NI), and return on equity. These firms should understand that all those measures can increase even when no value is created.

Hoping to avoid situations such as the one just described, some firms have chosen to link incentive compensation to the dollar value of EVA, whereas others have chosen to link it to the amount by which ROIC exceeds WACC. For example, Kaiser Aluminum Corp. reports that its 2011 short-term incentive plan is designed to reward participants for economic value added above a specified dollar threshold.<sup>6</sup> On the other hand, Degussa Chemicals, now part of Evonik Industries, has explicitly targeted an ROIC at least 2 percentage points above its 9% cost of capital.<sup>7</sup> EVA and the amount by which ROIC exceeds WACC are closely related but not identical measures. EVA captures the value created by growth in addition to the value created by the ROIC-WACC difference. If growth means more assets (and ROIC and WACC remain unchanged), more shareholder value will be created. A firm that uses the ROIC-WACC difference as a performance metric will probably want to

combine it with one or more measures of business growth.

### **Limitations in the EVA Measure**

The concept behind EVA is relatively simple, but the calculation of EVA can become complex. Analysts have attempted to improve the precision of the EVA measure by making accounting adjustments to both the operating profit component and the capital employed component of EVA. For example, from an accounting standpoint R&D is an expense subtracted on the income statement. Some analysts would argue for purposes of calculating EVA, R&D should be treated as an investment. The accounting adjustments required to make that change would include adding back the R&D expense on the income statement, and then capitalizing R&D expenses and depreciating them over time as you would with investments in plant and equipment. Dozens of such accounting changes have been suggested. There are now EVA definitions that range from the basic one that uses unadjusted income statement and balance sheet data, to complex ones that make 150 or more adjustments to the data disclosed in a firm's financial statements.<sup>8</sup> With enough effort most of the concerns about the accounting data used to calculate EVA can be addressed. The trade-off is that these numerous adjustments make it harder for managers to understand what EVA is measuring and what actions they need to take to boost EVA. Another concern unrelated to the accounting data is that EVA does not correlate highly with stock prices. This may be because stock prices are driven by expectations about future performance, and EVA is a measure of past performance. Even if EVA is of limited usefulness as a stock-picking tool, that does not necessarily reduce its value as a planning tool and as a basis for allocating incentive compensation.

EVA is a much better measure of value creation than frequently used metrics such as revenue growth, operating profit, EPS, and return on equity (refer to Exhibit 12-3). Nevertheless EVA does share some limitations with these metrics. They can all create inappropriate incentives to maximize short-run performance at the expense of the long term. Some managers may overemphasize the short term believing that doing so will boost their incentive pay and/or the value of their stock and stock options. These individuals may reason that there is no guarantee that in the longer term they will even be employed at the same firm. Executives overly focused on short-term rewards might be tempted to take actions such as compromising product quality, reducing advertising expenditures, cutting back on new product development, limiting budgets for employee training and development, or offering less competitive pay packages. Even if they are not in the best long-run interest of the firm, any of these actions could increase current profit and EVA measures.



## Cash Flow Return on Investment

Cash flow return on investment (CFROI), like EVA, is a metric designed to focus on value creation. Both EVA and CFROI emphasize that value is created only when rates of return exceed the firm's weighted average cost of capital. Operating profits are the key input to EVA calculations. Operating cash flows are the key input to CFROI models. CFROI is the internal rate of return on the inflation-adjusted cash flows produced with a firm's assets.<sup>9</sup> The calculation and interpretation of an internal rate of return (IRR) measure is discussed in Chapter 7, "Capital Budgeting and Discounted Cash Flow Analysis." A CFROI greater than the firm's cost of capital indicates that value is being created. Exhibit 12-4 shows the components used when calculating CFROI. Different firms use different computational approaches, but they all begin with an estimate of the amount a firm has invested in its existing assets. The book value of a firm's assets is, of course, the original purchase price of those assets minus accumulated depreciation. This process begins by adding back the accumulated depreciation to calculate the amount the firm originally paid. That amount is then converted to current dollars using estimates of the rate of inflation since those assets were purchased. In other words, estimate what it would cost to purchase all those assets today.

	A	B	C	D	E	F	G	H	I	J	K	L	
1	<b>Four Inputs Needed to Calculate CFROI</b>												
2	1. Gross Investment (GI) = Net Assets + Cumulated Depreciation + Current Dollar Adjustment										-\$3,517 million		
3	2. Gross Cash Flow (GCF) = Adjusted EBIT (1-tax rate) + Current Year's Depreciation and Amortizati										\$582 million		
4	3. Expected Life of the Assets at the Time of the Original Investment										10 years		
5	4. Salvage Value (SV) of Assets at End of Their Expected Life (in Today's Dollars)										\$986 million		
6													
7	<u>Year</u>	<u>GI</u>	<u>GCF</u>	<u>SV</u>	<u>FCF</u>								
8	0	-\$3,517			-\$3,517								
9	1		\$582		\$582								
10	2		\$582		\$582								
11	3		\$582		\$582								
12	4		\$582		\$582								
13	5		\$582		\$582								
14	6		\$582		\$582								
15	7		\$582		\$582								
16	8		\$582		\$582								
17	9		\$582		\$582								
18	10		\$582	\$986	\$1,568								
19													
20					CFROI = 12.6%								

**Exhibit 12-4. Calculating cash flow return on investment**

The second input to this model is the annual cash flows those assets are currently producing. It is calculated by adding depreciation and amortization back to the usual measure of after-tax operating profit ( $\text{EBIT} \times [1 - \text{tax rate}]$ ). As you know, depreciation and amortization do not represent cash outlays in the current period. The CFROI approach assumes the real (inflation-adjusted) cash flows on assets do not change over time. This may be a reasonable assumption for investments in mature firms. When this assumption is not correct, it is probably a conservative one. If investment returns do grow in real terms, this assumption causes the CFROI measure to underestimate the true value created.

The third input required for this calculation is an estimate of the average useful life the firm's assets. The estimate used is not the remaining life of these assets, but the total useful life of these assets from the date of the original investment. The final input required is an estimate of the salvage value, (that is, residual value) of these assets at the end of their expected useful life. This estimate is often the portion of the initial investment that was not depreciable. This amount is also adjusted to express it in today's dollars.

The spreadsheet (refer to Exhibit 12-4) shows the cash flow series based on these four inputs and calculates the IRR of that series in cell E20. The Excel formula in E20 is =IRR(E8:E18). The estimated CFROI is 12.6%. That number should be compared to the firm's real, that is, inflation adjusted cost of capital. Value will be created only when the CFROI is greater than the real cost of capital. This is analogous to the standard capital budgeting use of IRR.<sup>10</sup>

As a basis for allocating incentive pay, CFROI has many of the same strengths and weaknesses as EVA. Their primary strength is that both measures focused directly on value creation. As discussed, measures like revenue, profit, and ROE can be positive and growing even when value is destroyed. On the downside EVA, and maybe more so CFROI, can be difficult to communicate to managers. If managers cannot see how changes in their behavior affect the measure, it will not produce the desired incentive effects. There is also always the danger these measures could be gamed by self-serving managers willing to boost near-term profits and cash flow in ways that would not be in the best long-run interest of the firm and its shareholders.

### **Economic Margin (EM)**

Economic margin<sup>11</sup> is a performance metric that combines elements of both CFROI and EVA. EVA is operating profit minus a charge for the capital used to generate that profit. Economic margin is based on operating cash flow minus a charge for the capital used to generate that cash flow. That amount is then expressed as a percentage of total invested capital. The invested capital measure in the denominator of the economic margin ratio is similar to the one in the denominator of the CFROI ratio. The equation for economic margin can be written as

$$\text{Economic Margin} = (\text{operating cash flow} - \text{capital charge}) / \text{total invested capital}$$

The capital charge is  $(\text{debt plus equity}) \times \text{WACC}$ . As in the calculation of EVA and CFROI, a number of adjustment's are usually made to accounting measures of operating cash flow and total invested capital.<sup>12</sup>

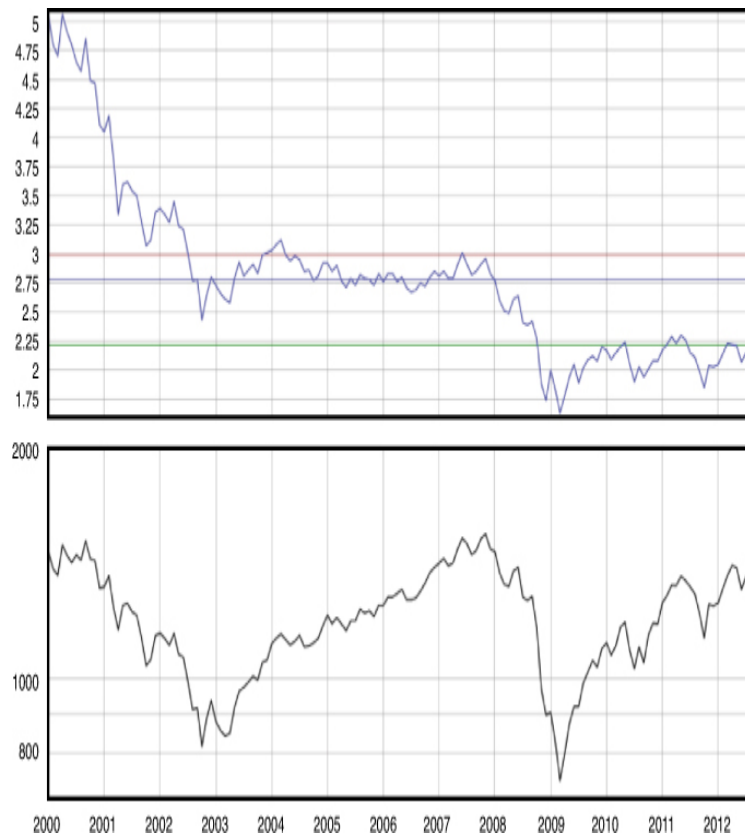
Proponents of the economic margin measure would argue that it is superior to EVA because it is based on cash flows and not on profits. Profits are influenced by accounting choices such as depreciation schedules. Cash flows are not.

## **Market Value Added (MVA)**

ROIC, ROE, EVA, CFROI, and economic margin are performance measures based on financial statement data, not on stock prices. Market value added (MVA) is a function of stock price and usually defined as the market value of the company minus the book value of the company's debt and equity capital. For example, if the market cap of a company is \$10 million and the book value of its assets is \$6 million, the market value added is \$4 million. Management's objective should be to maximize the market value added, not the market value of a firm, because the latter can be easily accomplished by investing ever-increasing amounts of capital. A company that generates positive EVA should have a market value in excess of its book value. In theory, the MVA should equal the present value of the expected EVA stream. The economic value of any asset is just the present value of the cash flows you could get out of owning. Looked at this way EVA management can be thought of as a tool to maximize a company's MVA. There is a sense in which MVA should be a particularly appealing measure to HR managers. MVA measures the value of a company beyond the value of its physical assets. Why might two companies with identical physical assets have different market values? There are a number of possibilities (for example, brand value or first mover advantage), but the most common reason is the differences in the value of their workforces.

If a company's stock is not publicly traded, it is generally not possible to calculate MVA. MVA is a function of management's performance, external perceptions of that performance, and external market conditions. Even if the amount contributed by management were negative, the momentum from a soaring stock market might push a firm's MVA into positive territory. In the year 2000, the average company in the S&P 500 had a market value five times its book. Over the last decade it is more likely that

market conditions would have depressed a firm's MVA. As revealed in Exhibit 12-5, for companies in the S&P 500, the ratio of market value to book value plummeted during the economic crisis of 2008. Since that time the S&P 500 index has regained most of its losses, but the ratio of market to value book value remains below where it was in 2008 and is less than one-half of what it was in 2000.



**Exhibit 12-5. The top panel shows ratio of market value to book value among S&P 500 companies; the bottom panel shows value of S&P 500 index.**

Source: Standard & Poor's, downloaded September 9, 2012 from <http://www.vectorgrader.com/indicators/price-book>

### **Total Shareholder Returns (TSR)**

Total shareholder return (TSR) is just the change in the stock price plus dividends. It is often expressed as a percentage by dividing the change in the stock price plus dividends by the initial stock price. For example, if during 2012 a company's stock price increased from \$40 per share to \$46 per share and the company paid a dividend of \$2 share, its 2011 TSR would be 20%  $(6 + 2 / 40)$ . Compensation specialists have argued that incentive pay should be linked not just to company financials but also to TSR.<sup>13</sup> The implication of that statement is that managers should be rewarded not just based on estimates of how well the company performs but also on measures tied to the benefit received by the company's shareholders. TSR is viewed by some as the ideal measure for aligning executive compensation and shareholder interests.

How does TSR compare to MVA? TSR is a change measure; that is, the change in the stock price over the last year. MVA is a level measure; that is, the difference between market value and book value at a point in time. Suppose a company's market value increases from \$40 million to \$60 million, while its book value increases from \$30 million to \$50 million. If no dividends were paid, the TSR over that period would be 50%  $(60 - 40 / 40)$ . The change in MVA over that period would be zero  $(40 - 30 = 60 - 50)$ . If MVA had been measured as a ratio rather than as a difference, it would have declined by 13 percentage points  $(40 / 30 = 1.33$  and  $60 / 50 = 1.20)$ . Even though they were each affected by stock price, TSR and the two measures of MVA would have resulted in different levels of incentive pay.

## Relative TSR

Relative TSR is just a company's TSR relative to the average TSR among a reference group of other companies. Tying incentive pay to relative TSR instead of absolute TSR minimizes the impact of overall stock market fluctuations and industrywide changes in performance. Performance share plans (those that grant stock to employees based on company performance levels) are increasingly popular, and TSR is the most frequently used performance metric in these plans. For example, in February 2012, performance share units granted to GE CEO Jeff Immelt in 2007 were canceled because between 2007 and 2011 GE's TSR did not exceed that of the S&P 500.<sup>14</sup> Many companies feel relative TSR is the best measure they have to align executive compensation with shareholder interests. Still, a number of valid cautions about the use of TSR or relative TSR have been raised. One is that the composition of the reference group can dramatically change the impact of this measure. One high-tech company that measured its TSR relative to the S&P 500 later realized that market swings in the tech industry were much wider than cycles in the general economy. This meant the relative TSR measure it was using was capturing relative volatility, not relative performance.<sup>15</sup> Is the way to avoid that problem to compare a company's TSR with the average TSR in a small group of similar companies? Identifying a small group of highly similar companies is not always possible. Even when it is, unintended outcomes can occur. The average TSR among a small group of 4 to 6 firms could be greatly impacted by an unusual event, for example, an acquisition or a patent lawsuit at one of the firm's in the group. Such events could influence your firm's incentive pay in ways unrelated to your firm's performance. An additional criticism has been that although TSR may do a good job to align executive pay and value creation, it does not do a good job signaling to executives how to create that value. Unlike TSR, internal financial and



operating measures can be focused on the specific value drivers that have been targeted by the firm's business strategy.

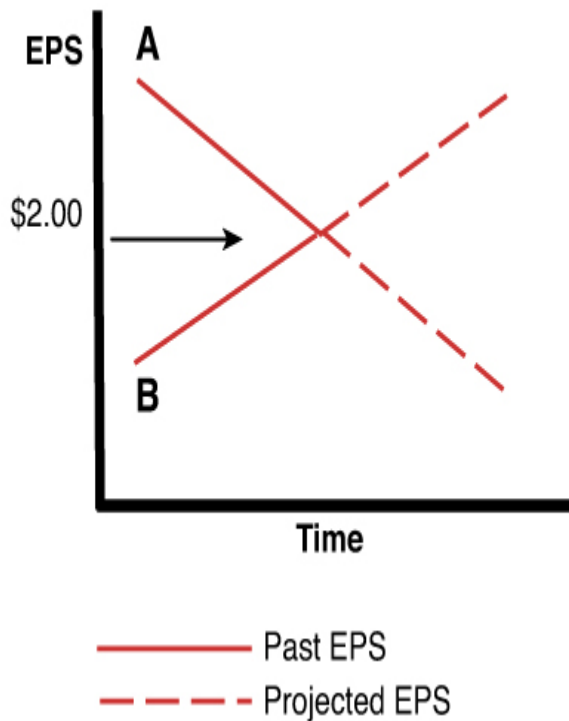
### **Earnings per Share (EPS) and the Price/Earnings (P/E) Ratio**

Earnings per share, which is just net income divided by the number of shares outstanding, gets a lot of attention. It is often the headline number first reported by the media when firms release their quarterly financial reports. The reason for this attention is that EPS is closely related to stock price. The price of any firm's stock can be expressed as its EPS times its P/E ratio. If a company's P/E is 15, that is, its stock price is 15 times its EPS, and its EPS increases from \$2 to \$3, its stock price will increase from \$30 to \$45. Some executives have complained, however, that even though their EPS was rising (which they believed was a result of their performance), their stock prices fell because of lower P/E ratios (which they believed were unrelated to their performance).

The P/E ratio, the price per share divided by earnings per share, is the amount share purchasers are willing to pay for every \$1 of earnings. Why do P/E ratios differ between companies? Why isn't \$1 of earnings from Company A worth exactly the same thing as \$1 of earnings from Company B? The answer is that P/E ratios are determined not by current earnings-per-share but by expected future earnings. Consider the example in Exhibit 12-6. Both companies are currently earning \$2.00 per share, but the expectation in the market is that Company A's EPS will decline in the future, whereas company B's EPS will rise. Obviously, investors will pay more for Company B's stock even though both companies have the same current earnings-per-share. Investor expectations about future earnings-per-share are shaped by company-specific factors as well as by

factors related to the overall market and the overall economy. During 2012, the median P/E for stocks in the S&P 500 was close to 16. High P/E stocks, (for example, those with a P/E above 25) tend to have higher growth rates or the expectation of a profit turnaround. Low P/E stocks (for example, those with a P/E below 10) tend to have slower growth or diminished prospects.

**Companies A and B each have a current EPS of \$2.00:**



**Exhibit 12-6. Stock price reflects expected not current EPS.**

## MANAGING EPS EXPECTATIONS

It's not unusual to see a company's stock price fall immediately after it announces an increase in earnings-per-share. The explanation is typically that the company's EPS did not rise as much as financial analysts had expected. A company whose earnings had been expected to rise by 10% typically sees its stock price fall if it announces an earnings increase of 5%. A company whose earnings had been expected to rise by 2% typically sees its stock price jump if it announces an earnings increase of 5%. Managers concerned about their company's stock price worry about both EPS and the P/E ratio. The success of their current operations determines their EPS, and the guidance they give investors is one of the factors affecting the P/E ratio. When giving guidance about future earnings, companies have an incentive to not let expectations get too high. The higher the stock market's expectations for a company's performance, the better the company has to perform just to keep its stock price stable. Home Depot stock, for instance, lost one-half its value between 1999 and 2009 despite growing revenues at 11% per year and maintaining a value creating ROIC. A McKinsey and Co. analysis<sup>16</sup> suggested that a major reason for that drop was that the market was expecting an even higher and probably unobtainable level of performance. Justifying Home Depot's 1999 stock price would have required revenue growth of 26% per year for 15 years. That example highlights the importance of managing expectations as well as earnings.

## **The Impact of Financial Restructuring on EPS**

Earnings-per-share is net income divided by the number of shares outstanding. The value of the ratio, of course, changes when there are changes in either the numerator or the denominator. If net income remains constant, the denominator decreases, and EPS rises when a company buys back shares. Managers sometimes mistakenly interpret increases in EPS due to financial restructuring as increases in business performance. When a company borrows to buy back shares, this increases EPS but does not change the cash flows from the firm's operations or add value to the firm. It changes only who has a claim to those cash flows, the shareholders or the debt holders. There would be no rationale for operating managers to receive EPS-based incentive pay in a situation such as this.

Acquisitions are a second area in which EPS changes are often misinterpreted. For example, when General Dynamics recently acquired the privately held munitions manufacturer Gayston, Corp., it did not disclose the terms of the deal but said it expected the transaction to be "accretive to earnings."<sup>17</sup> Many managers believe they should not undertake acquisitions unless those acquisitions are accretive, that is, they increase the acquirer's earnings-per-share. The example in Exhibit 12-7 demonstrates the fallacy in this reasoning. In this example, company A's weighted average cost of capital is 8%. Because the assets acquired in this transaction produce a return of only 7%, the economic value added, or in this case the economic value lost, is  $-\$65$  million ( $-1\% \times$  the  $\$650$  million acquisition price). Nevertheless, the deal is accretive in that the acquirer's EPS increases by 20%. The acquirer's EPS increases because the income from the new assets exceeds the after-tax interest expense on the new debt. It's important for managers to understand that that increase in EPS does not always mean an increase in economic value.

Company A's weighted average cost of capital is 8%.  
 Company A acquires company B for \$650 million.  
 Company B's assets produce an after-tax return of 7%.  
 Therefore, the acquisition reduces shareholder value by \$65 million ( $1\% \times \$650 \text{ million}$ ).

Company A paid for the acquisition by borrowing \$650 million at 6%.  
 Company A's after-tax interest cost is  $\$650 \text{ million} \times 6\% \times (1 - \text{tax rate of } 33\%)$ .

	Income in Millions	Shares Outstanding in Millions	EPS
Preacquisition Net Income of Company A	100.0	50	\$2.00
Net Income from company B's Assets ( $7\% \times \$650 \text{ million}$ )	45.5		
Additional After-Tax Interest Expense ( $6\% \times \$650 \text{ million} \times .67$ )	-25.4		
Post-Acquisition Net Income of Company A	120.2	50	\$2.40

EPS rises by 20% even though shareholder value was reduced by \$65 million!

**Exhibit 12-7. Accretive acquisitions do not necessarily add value.**

## **The Goldilocks Problem: Getting the Incentive Level Just Right**

The Center on Executive Compensation advises that “incentive plans should be customized to the company to support the realization of its business strategy while limiting overly aggressive or overly conservative decision making.”<sup>18</sup> Complying with that advice is not a simple task. In addition to selecting the most appropriate measures, a firm must ensure that the reward for increased performance is just right, not too little and not too much. During the 1980s, executive pay packages were often criticized because they were not tightly linked to corporate performance. One influential study concluded executive compensation did not reflect changes in corporate performance. Even though bonuses represented a large proportion of total compensation, CEO pay was “no more variable than compensation for hourly and salaried employees.”<sup>19</sup> Corporations responded by increasing incentive pay and granting more stock options. Then in 2008, the financial crisis caused the pendulum to swing in the opposite direction. Many argued that the global economic crisis was due in part to executive compensation packages that encouraged excessive risk-taking. The allegation was that paying bonus payments tied to short-term profits, and granting options with a limited downside but an unlimited upside encouraged managers to take big risks in the pursuit of big rewards. During 2007 and 2008 many of these high-risk investments failed, causing shareholder value to plummet. Responding to these concerns, in December 2009, the Securities and Exchange Commission approved new rules requiring publicly traded companies to disclose information about how they have incorporated risk management into their compensation practices.<sup>20</sup>

Of course, businesses cannot operate without taking risks. The challenge is to avoid risks that are not justified

by the potential rewards, and risks that, regardless of the size of the potential reward, might impose unacceptably severe costs on the firm or its stakeholders. Making decisions about which and how much risk a firm should accept is usually the responsibility of the CFO, perhaps with the CEO and others. It is HR's role to help design a compensation system that encourages individuals to adopt behaviors consistent with those decisions. To do that HR managers must understand the financial performance measures their firm uses and the behaviors that would be encouraged by linking incentive pay to these measures. They also need to understand that some forms of pay are inherently more risk-inducing than others. For example, suppose a firm's stock options vest after 3 years and are exercisable for 10 years. This creates a 7-year period during which executives could be exercising their options and then immediately selling those shares, benefiting from a short-term spike in the stock price. That could provide a substantial monetary incentive to undertake risky projects with short-term payoffs, even if they offer little prospect of long-term value creation. That inappropriate incentive could, of course, be negated or at least reduced if the firm required that shares be held for a period of time after the options were exercised.

Many firms are replacing options with performance share units (PSUs). PSUs represent the value of one share of the company's stock plus the dividends paid. The number of PSUs an employee receives typically depends upon some measure of the firm's financial performance. For example, an incentive formula might state that if the firm's EBITDA is below \$50 million, the executive receives no PSUs. If EBITDA reaches \$50 million the executive receives 1,000 PSUs plus an additional 20 PSUs for each \$1 million of EBITDA more than \$50 million. Formulas of that type can encourage either overly aggressive or overly conservative decision

making. If the minimum threshold is difficult to achieve, executives may feel they must adopt risky strategies to earn any incentive pay. If the minimum threshold is a reasonable one, but the number of PSUs offered for amounts more than the threshold is too small, executives may have an incentive to be overly cautious seeking to avoid anything that might cause them to miss that minimum threshold. If the number of PSUs offered for amounts more than the threshold is large and uncapped, executives may be tempted to pursue high-risk strategies that offer the possibility of tremendous payoffs.

### **Risk Must Be Considered When Evaluating Financial Performance**

You would not evaluate the financial performance of your personal investments without taking risk into consideration. You would not be happy with your stock mutual fund if it provided the same rate of return you could have earned on a government-guaranteed bank CD. The stock fund, to justify the extra risk you are taking, would need to provide a much higher return. That same principle should be applied when deciding how much incentive pay is warranted by a given level of corporate financial performance. Executives who achieve a strong level of financial performance without excessive risk-taking should be rewarded more highly than executives who achieve that same level of performance by exposing the company to great risk. Consider the following example from the home mortgage industry.

Employee A grants (with income checks) mortgages of \$1 million that do not exceed 50% of the value of the underlying property. Employee B grants (without income checks) mortgages of \$1 million that equal 90% of the value of the underlying property. A typical bonus program would be based only on the value of mortgages granted (\$1 million in each case). The lack of integration between bonus and risk level encourages employees to



maximize the dollar value mortgaged, limited only by the need to meet compliance and approval requirements. There is no incentive to grant less risky mortgages, and the consequence for granting risky mortgages is often not realized until a default many years after payment of the associated incentive amount.<sup>21</sup>

Some executive contracts contain *clawback provisions*. These provisions require the employee to repay bonus amounts that later turn out not to have been earned. However, these provisions are generally limited to situations in which a material misrepresentation results in a restatement of the company's earnings. They typically do not apply to situations where high-risk strategies turn out badly. A better way to have avoided the adverse incentives created by the compensation system in the preceding example would have been to reward loan officers for both the level of performance (the dollar value of mortgages granted) and the quality of that performance (the likelihood that the mortgages will be repaid in full). The probability that a mortgage would be repaid in full might be estimated based on factors such as borrower's credit score and the ratio of mortgage value to the home value. The average risk level of the mortgages approved by Employee A could then be calculated and used along with the dollar value of mortgages approved by Employee A to determine the size of her bonus.

Securities analysts when evaluating the performance of a portfolio of stocks, bonds, or other financial instruments use a variety of risk measures, for example, volatility, Sharpe ratio, Value at Risk (VAR), and risk adjusted return on capital (RAROC). In most industries these measures cannot be applied directly to assess the risk associated with firm performance or specific business proposals. In many cases, such as the previous mortgage example, firms can develop their own numerical risk

indicators. However, even in firms where the level of risk cannot be easily quantified, managers and corporate boards must consider risk when evaluating and rewarding financial performance.

## **PUTTING IT ALL TOGETHER**

Both short-term and long-term financial measures should be designed to encourage long-term value creation. It will almost always be necessary to combine these financial measures with nonfinancial measures such as customer satisfaction, market share, product innovation, product quality, process efficiency, and the ability to attract and retain talented employees. Short-term metrics should be used to drive implementation of the firm's business strategy. These measures often include specific annual targets for items such as cash flow (EBITDA), revenue growth, operating margins (EBIT/sales revenue), and return on invested capital (ROIC). Managers must not be allowed to game the system by maximizing one of these at the expense of the others. For example, revenue growth adds economic value only when ROIC is greater than the weighted average cost of capital (WACC). Rewarding revenue growth when ROIC is not greater than WACC would be a serious mistake. Firms should consider not rewarding improvements in any one measure unless each of the other measures is at or above a minimum threshold. Annual performance metrics should be specific to the firm's short-term operating strategy. That strategy might suggest that value creation can be maximized by setting an aggressive revenue growth targets while maintaining an acceptable ROIC level. On the other hand, a firm pursuing a strategy of targeting a narrow market niche that will pay a premium for a differentiated product might set an aggressive ROIC target while maintaining an acceptable pace of revenue growth.

Short-term performance metrics may also change over a product's life cycle. Exhibit 12-8 shows how this might occur. Following the introduction of a new product, firms invest to support growth. The expectation is that during this period sales will be growing rapidly and that the product will be profitable. At the same time cash flows may be low or even negative. The firm may be pouring large amounts of cash into the business to expand manufacturing, distribution, and sales facilities. This often results in a negative cash flow. However, because these large expenditures are not expensed on the current income statement but rather depreciated over many years, they do not prevent the firm from showing an accounting profit.

<b>Investment Strategy Changes Over the Product Lifecycle</b>	
<b><u>Strategy</u></b>	<b><u>Performance Expectation</u></b>
<b>Invest to Support Growth</b>	Rapid Sales Growth Moderate ROIC Low or Negative Cash Flow
<b>Reinvest to Maintain Market Share</b>	Sales Growth Equal to Market High ROIC Large Positive Cash Flow
<b>Invest Only to Optimize Cash Flow</b>	Fiat or Declining Sales Low or Negative ROIC Positive Cash Flow (Must Cover Variable Costs)

**Exhibit 12-8. Linking performance measure to strategy**

At some point the product reaches its peak where to maintain market share sales growth must equal that of the market. At this point the product should be generating large profits and large positive cash flows.

Getting to this point was the reason the firm introduced the product in the first place. Eventually, the product will approach the end of its life cycle with sales that are flat or declining. To maintain sales in the face of competition from newer products, prices may need to be reduced substantially. This price reduction may lead to operating losses and a negative ROIC. Would a firm continue to produce this product if it shows a loss each quarter? It would as long as the cash flow from the product is positive and large enough to cover the variable costs. For example, suppose revenues are \$100 million, variable costs are \$50 million, and fixed costs are \$30 million. The firm's profit is \$20 million ( $+100 - 50 - 30$ ). Variable costs are those that vary with the volume of output. Fixed costs do not vary on the number of units produced. Now supposed to compete with a competitor that has a newer model, this firm must reduce its price by 30%. If it continues to sell the same number of units, its accounting profit would be  $-\$10$  million ( $+70 - 50 - 30$ ). Why not shut the plant down if it is losing \$10 million a year? If the plant is closed, that eliminates the \$50 million in variable costs but not the \$30 million in fixed costs. If production continues for another year, the firm must put in another \$50 million to cover the variable costs, but that amount will be more than offset by the \$70 million in revenues generating by keeping the plant open. In other words, the cash inflows from keeping the plant open another year are greater than the cash outflows required to keep it open. As long as that is the case, there is a benefit to keep the plant open even if it shows an accounting loss.

Now step back and look at the implications of that last example. The performance metrics were the same in all three stages of this product's life cycle, but their interpretation shifted by 180 degrees. In the early stage no incentive bonus would be awarded unless sales were growing rapidly. In the latter stage the expectation is that

sales would be flat or declining. In the early stage no incentive bonuses would be awarded unless profits and ROIC were positive. In the latter stage an acceptable performance might include losses and a negative ROIC. In the early stage an acceptable performance could include low or even negative cash flows. In the latter stage cash flows would have to be positive and large enough to cover all variable costs. What's the take away message in this example? Financial performance metrics cannot be interpreted independent of each other and without considering the business context.

## **Long-Term Measures of Value Creation**

The short-term operating and financial measures a firm focuses on should be the drivers of long-term value creation. The metrics used to determine long-term incentive pay usually include a much heavier weighting on direct financial measures of value creation such as EVA, CFROI, and economic margin, and on stock market-based measures of value creation such as stock price, relative TSR, and market value added. These are usually combined with one or more forms of equity-based pay such as restricted stock, performance shares, stock appreciation rights, or stock options. In recent years there appears to be a trend toward using multiple forms of long-term incentives. Stock options now make up 50% or less expected of the value of long-term incentives. Among large firms, a measurement period of 3 years is often used to determine long-term incentive pay.<sup>22</sup> An argument could certainly be made that from the shareholder perspective 3 years should be considered an intermediate term, rather than a long-term performance. Almost all publicly traded large firms attempt to achieve an even longer term alignment between top executive and shareholder interests through the use of executive stock ownership guidelines. These guidelines often require that top executives hold company shares valued at 3 to 6 times their base salary. The assumption is that executives will be less likely to take excessive risk or overemphasize short-term results if a significant portion of their personal wealth is tied up in company stock. Most stock ownership policies require compliance for as long as the executive remains employed at the firm. Some however extend into retirement. Exxon Mobil, for example, grants restricted stock with 50% vesting after 5 years and 50% vesting 10 years after retirement.<sup>23</sup>

## **Using Imperfect Metrics Well**

All measures of business performance are imperfect. Each has its own weaknesses and limitations. The challenge is to combine them in ways so that in the aggregate they provide a useful basis to plan and evaluate business outcomes. Discounted cash flow measures such as net present value and internal rate of return are almost universally recognized as essential planning tools. They are just as applicable to investments within the HR function as they are to investments and other functional area. Even when formal DCF models are not prepared, all operating and strategic investments should be considered from this perspective. No expenditures should be made unless the anticipation is that the present value of future benefits will exceed the upfront costs. DCF techniques work well at the project level, even if the project is a huge one such as an acquisition. However, when assessing performance at the business unit or company level where many things are happening at once, additional measures are needed.

Accounting measures such as revenue growth, cash flow, and profit margins are easy to communicate and can be targeted at the specific changes required by a firm's business strategy. The weakness in these measures is more than just the assumptions the accountants must make to generate them. It is possible to grow revenues, cash flow, profits, and ROE while no shareholder value is created. Firms create value for their shareholders when, and only when, the return on invested capital is greater than the firms' weighted average cost of capital. That statement is simple and unquestionably true. The complexity and ambiguity arise when you try to measure the rate of return, the amount invested, and the weighted average cost of capital.

A number of direct measures of value creation have been proposed, for example, EVA, CFROI, and economic

margin. The basic concept underlying these measures is easily understood. A firm does not generate value for its shareholders unless its after-tax operating profit is greater than the cost of financing the assets used to make that profit. Communicating that message to everyone within an organization is essential. Unfortunately, calculating these measures can require extensive reconfigurations of the underlying accounting data. These reconfigurations can obscure what is actually measured. Non-accountants may fail to see the forest for the trees and therefore miss the message about what it takes to create value. An important challenge facing HR managers is ensuring that all employees, whether or not their pay is tied to these measures, understand the economic conditions under which value is created and how their own activities impact value creation. Most employees do not need to understand the accounting detail. They do need to understand the determinants and consequences of changes in operating profits, the assets invested in their unit, and the cost of raising the money to purchase those assets.

Encouraging value creation through the use of equity-based pay (for example, restricted stock, stock options, and stock appreciation rights) or through bonuses tied to measures such as market value added avoids the reliance on accounting data. The trade-off is that market values that are highly volatile may be influenced by events, perhaps on the other side of the world, unrelated to firm performance. The value created when ROIC is greater than the cost of capital will over the long term be correlated with market value. Proponents would argue that in the short run, EVA and related measures are more useful than stock market-based measures because they are less impacted by factors beyond the control of the executive team. Most large firms use a combination of these measures. Selecting the mix that is most likely to attract, motivate, and retain talented employees can be a



major determinant of a corporation's success. HR managers who do not understand the strengths and weaknesses of these alternative performance metrics cannot develop a compensation strategy that aligns executive incentives with the firm's business strategy.

## **HR's Role in Value Creation**

The talent of its management and workforce is often the primary determinant of a corporation's success. HR professionals are the ones charged with responsibility to build that competitive advantage. There is no role more important than that. Successful HR strategies are those that align with and support the firm's business strategy. Successful business strategies are those that create shareholder value. Understanding the financial requirements for value creation is therefore critical to the strategy development process. This book was not intended to be a volume on business strategy or on HR strategy. It was intended to help HR managers increase their understanding of the financial tools they need to link HR strategy to business strategy. Line managers often see a lack of business acumen as the major factor limiting the success of their HR colleagues. Sometimes this is an accurate assessment. At other times, HR managers have the necessary business insights but cannot effectively communicate with line managers because they don't speak the language (finance) used to plan and evaluate business initiatives. In either case, the good news is that it does not take a degree in finance to overcome those limitations. When you get past the jargon, it is not difficult to obtain an intuitive understanding of the key finance principles that guide corporate operating and strategic decision making. These principles are no more complex than things HR managers deal with all the time. HR managers willing to make a reasonable effort to get up to speed in these areas should not underestimate their ability to contribute to discussions involving financial measures and financial models. If they do not do this, they are limiting what they can contribute to their companies and what they can achieve in their careers.

## APPENDIX A: A SAMPLE OF FINANCIAL MEASURES CURRENTLY IN USE

Caution: These measures are not defined by GAAP, and definitions may vary from company to company.

Measure	Definition
After-tax profit	See net income.
Bottom line growth	See net income.
Cash ROIC	$[\text{EBIT} (1 - \text{tax rate}) + \text{Depreciation and Amortization}] / [\text{Gross Fixed Assets} + \text{Noncash Working Capital}]$
Cash flow return on investment (CFROI)	Internal rate of return on existing investments based on real, as opposed to nominal, cash flows.
Earnings per share	Net income divided by number of shares outstanding.
EBIT	Earnings before interest and taxes are subtracted out.
EBIT per employee	EBIT divided by number of employees.
EBITA	Earnings before interest taxes and amortization are subtracted out.
EBITA multiple	Enterprise value divided by EBITA.
EBITDA	Earnings before interest, taxes, depreciation, and amortization are subtracted out.
Economic margin	$(\text{Operating cash flow} - \text{Capital charge}) / \text{Invested capital}$
Economic profit	$[\text{EBIT} (1 - \text{tax rate})] - [\text{WACC} \times \text{capital employed}]$ which is same as $[(\text{ROIC} - \text{WACC})] \times \text{capital employed}$
Economic value added (EVA)	See economic profit.
Enterprise value	Market capitalization plus debt minus excess cash.
EPS	See earnings-per-share.
Free cash flow	EBITDA minus increase in working capital and increase in long-term assets

Gross margin	Gross profit / revenues.
Gross profit	Sales revenue minus costs of goods sold.
Market share	Company sales divided by industry sales.
Market value added (MVA)	Market capitalization minus book value of debt and equity.
Net earnings	Same as Net Income or Net Profit.
Net income	Bottom line of the income statement.
Net profit	See net income.
NOPAT	Net operating profit after tax = EBIT minus cash taxes.
Operating margin	EBIT divided by sales revenue.
Operating profit	See EBIT.
P/E ratio	Stock price per share divided by earnings per share.
Price to book (P/B) Ratio	Stock price/book value per share or market capitalization/total shareholders' equity.
Relative TSR	Total shareholder return for company divided by average total shareholder return in peer group.

Return on assets (ROA)	Net income divided by assets.
Return on equity (ROE)	Net income divided by equity.
Return on invested capital (ROIC)	$[\text{EBIT} \times (1 - \text{tax rate})] / \text{capital employed}$
Return on net assets (RONA)	See return on invested capital.
Revenue growth	Sales revenue in current period minus sales revenue in previous period.
Revenue per employee	Sales revenue divided by number of employees.
Risk Adjusted Return on Capital (RAROC)	Return minus expected loss divided / capital at risk.
Sales growth	See revenue growth.
Sales per employee	See revenue per employee.
Shareholder value	Enterprise value minus value of outstanding debt.
Stock price	Price per share.
Top line growth	See revenue growth.
Total shareholder return (TSR)	Change in stock price plus dividends divided by initial stock price.

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## Endnotes

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2. Mercer Human Resource Consulting (2007).
3. See for an example Schuler and Jackson (2007), Becker, Huselid, and Ulrich (2001), Becker, Huselid and Beatty (2009), and Mercer (2009).

### CHAPTER 2

1. Pfizer, Inc. (2011), page 16.

### CHAPTER 3

1. In addition if a company's operating cycle is longer than 1 year, an item is considered a current asset if it will be converted to cash or used up within one operating cycle. An operating cycle is the average time required to purchase or manufacture a product, sell it, and collect the cash from that sale, often between 60 and 180 days.
2. The concept and calculation of present value is discussed in detail in Chapter 7.
3. Baker and Alexander (1993).
4. Bloomberg.com (2011).
5. IBM (2011), page 72.

### CHAPTER 5

1. Becker, Huselid, and Beatty (2009), page 51.
2. Tiffany & Co. (2012), page K3.

## CHAPTER 6

1. Association for Financial Professionals (2011), page 5.

2. Ibid, page 6.

3. The Modigliani-Miller irrelevance proposition tells us that in theory the value the company should not depend on its capital structure. However, in practice not all of the assumptions of the Modigliani-Miller model are met, and empirical research suggests that increasing equity often decreases stock prices while increasing leverage often increases stock prices. See Harris and Raviv (1991).

## CHAPTER 7

1. It is also possible that the cash flow patterns generated by certain projects will produce multiple or no solutions to the IRR equation. See Estrada (2011), pages 268–275.

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1. Cascio and Boudreau (2011), page 229–230. Becker, Huselid, and Ulrich (2001), page 90.

2. This software can be accessed at [www.hrcosing.com](http://www.hrcosing.com).

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4. Rehm and Silvertsen (2010).

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1. Jensen and Murphy (1990).

- 2.** Frederic W. Cook & Co. (2004), page 4.
- 3.** Frederic W. Cook & Co. (2004), page 4. Frederic W. Cook & Co. (2008), page 5. Frederic W. Cook & Co. (2011), page 7.
- 4.** FASB ASC 718 (formerly, FASB Statement 123R). See Bragg (2011), pages 994–1014.
- 5.** Kieso, Weygandt, and Warfield (2012), p.919.
- 6.** Stires (2002), page 186.
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- 2.** U.S. Office of Management and Budget (2012).
- 3.** Alcoa 2011 Annual report, page 137.
- 4.** Lockheed Martin Corporation (2012).
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- 13.** Feldman, Amy (2009).

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- 1.** Center on Executive Compensation (2012a).
- 2.** Bryan (2005).
- 3.** Morgan Stanley (2011).
- 4.** Murphy (2012a).
- 5.** Stern, Stewart, and Chew (1999).
- 6.** Kaiser Aluminum Corp (2011).
- 7.** Degussa (2005), page 43.
- 8.** Asaf (2004), page 43.
- 9.** Damodaran, (2011), page 311.
- 10.** As discussed in Chapter 7, IRR measures make a reinvestment rate assumption that may not always be appropriate. A modification of the basic CFROI approach adopted by some firms involves adjusting the gross cash flow estimates downward by subtracting the amount that would have to be set aside to replace these assets at the end of their projected life. That variation assumes that instead of being continually reinvested at the CFROI rate, at least a portion of the cash flows will be reinvested at the lower WACC rate. Calculations based on lower

cash flows, of course, lead to lower estimates CFROI. See Damodaran (2012), page 885.

**11.** Asaf (2004), page 45.

**12.** Operating cash flow = net income + Depreciation and Amortization + after-tax interest expense + rental expense under operating leases + R&D expense + or – nonrecurring items. Invested capital = total assets + accumulated depreciation + asset inflation adjustment + Capitalized operating leases+ Capitalized R&D – nondebt current liabilities. Adding depreciation and amortization back to net income converts it from a profit measure to a cash flow measure. Removing nonrecurring, one-time expenditures is intended to produce a better estimate of ongoing cash flows generated by these investments. The rental and R&D costs that were subtracted out when net income was calculated are added back because they are viewed as investments rather than as current expenses. The capitalized R&D and lease expenses are then added to the denominator.

**13.** Ellig (2007), page 598.

**14.** General Electric (2012), page 18.

**15.** Ferracone (2011).

**16.** Koller, Dobbs, and Huyett (2011) page 5.

**17.** UPI.com (2012).

**18.** Center on Executive Compensation (2012b).

**19.** Jensen and Murphy (1990).

**20.** U.S. Securities and Exchange Commission (2009).

**21.** Medland (2011).

**22.** Frederic W. Cook & Co. (2011) page 14.

**23.** F. W. Cook & Co. (2010), page 3.

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# **Applying Advanced Analytics to HR Management Decisions**

**Methods for Selection, Developing  
Incentives, and Improving Collaboration**

**James C. Sesil**

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Neidlinger  
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*To Kathy and Al*



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## About the Author

**James C. Sesil** is currently developing state-of-the-art HR decision support software utilizing the newest machine learning and AI technologies. He has ten years' experience teaching at the London School of Economics, Rutgers University, and City University of Hong Kong.

Sesil's work has won three best paper awards from the Academy of Management and the Labor and Employment Research Association and has been covered in *The New York Times*, *BusinessWeek*, and *The Financial Times*. He spent eight years in HR roles at Control Data, Honeywell, and Cargill, Inc., and he holds a Ph.D. from the London School of Economics.

## Preface

Written for anyone in any organization making human capital management (HCM) decisions, including C-level executives and all managers, this book does several things:

- It provides a summary of implications associated with new research on how decisions are made and what motivates us.
- It develops an evidence-based approach using advanced analytics to assist organizations with developing a collaborative workplace and with selecting and motivating people.
- It applies the new thinking associated with advances in behavioral economics, psychology, and machine learning to the decision-making process and refers to this as “The New Human Science.”
- And it further recognizes the value of human experience and expertise and provides a mechanism for applying both advanced analytics and intuition or expert knowledge.

Here is how the book is structured.

Chapter 1, “Challenges and Opportunities with Optimal Decision Making and How Advanced Analytics Can Help,” provides the overall framework and discusses how it is to be applied to human capital management (HCM) decision making. This framework builds on the work of Nobel Prize winning social psychologist Daniel Kahneman, along with others, to provide strong evidence that we do not decide rationally. The chapter discusses the role biases play in decision making and how the use

of advanced analytics can help eliminate bias from decisions.

Chapter 2, “Collaboration, Cooperation, and Reciprocity,” focuses on the role of collaboration, information sharing, and decentralized decision making. In this chapter, some of the old thinking about what motivates us is dispelled, and new findings are applied. Economic science has long held that we are generally self-centered, selfish, inherently lazy, and largely interested in only income maximization. This assumption about our natures has had a substantial impact on the way in which the employment relationship has been structured and has generally led to mistrust and noncooperative behaviors. Recent evidence finds that we are actually unselfish, cooperative, altruistic, and potentially very self-motivated. This has substantial implications for how we ideally organize ourselves. The role and importance of collaboration and cooperation is also discussed.

Chapter 3, “Value Creation and Advanced Analytics,” covers evidence where value is found within organizations and how getting the right mix of human capital, HCM practices and policies, and technology will ultimately lead to better performance outcomes. The loss associated with high employee turnover is discussed, as is how human science can help reduce the loss of expertise associated with human capital leaving the organization.

Chapter 4, “Human Science and Selection Decisions,” covers how advanced analytics can reduce and eliminate discriminatory hiring and promotion decisions. The focus of the chapter is on the use of bio data to make better hiring predictions.

Chapter 5, “Human Science and Incentives,” focuses on how advanced analytics can assist with decisions

associated with developing incentive contracts. New evidence on what motivates people is discussed, as well as how a focus on tournament compensation is suboptimal. Application of human science including advanced analytics to practical incentive contract challenges is made.

## Introduction

### THE NEW HUMAN SCIENCE AND HCM DECISIONS

I am a runner. I have completed 23 marathons and more half-marathons, 10k, and 5k races than I can remember. So in 2010 when I went in for my annual physical and was told that I had the loudest heart murmur the examining physician had ever encountered, I thought she had a seriously faulty stethoscope. Nonetheless, I took her advice and went in for an EKG and discovered I did indeed have a seriously faulty heart. I had mitral value prolapse with flail (MVPWF)—essentially, one of my valves was not closing and I needed surgery to have it repaired or replaced. So, being a research-oriented type of person who really wanted to keep running, I learned everything I could about MVPWF and starting looking around for a great cardiovascular surgeon. I sent the video of my faulty heart value to surgeons around the country and discussed my options with a number of them. I examined and evaluated all the data I could find on my condition and what could be done about it. I also did a lot of due diligence when choosing a surgeon. The one I finally chose had all the right numbers, but what sealed the deal for me was his office walls were covered with pictures of all the hearts he had fixed. When I saw the way his face lit up when he started to talk about his wall of hearts, I knew I had the right guy, and I did.

My choice of a surgeon was a selection decision, plain and simple. Though I did not realize it at the time, it was also a case study in data and intuitive decision making. I am a fact guy; it is really important to me to make as optimal a decision as possible, but I also have learned to trust my instincts. The data analyzed and research I did

was critical for making an optimal decision, but just as important was my own intuition. There is still no software application, supercomputer, or A.I. tool that can touch our ability to assess certain intangibles.

The use of analytics has a long history associated with human capital management (HCM) decisions, but far too many organizations continue to use these tools for reporting simple descriptive statistics and correlations. Advanced analytics has been adopted by other business functions such as finance and marketing; however, it still has a long way to go to be fully utilized for HCM decisions. According to research conducted by IBM in which 700 chief human resource officers were interviewed, less than 25% are using sophisticated analytics to predict future outcomes and for decision making.<sup>1</sup>

The underutilization of advanced analytics associated with HCM decisions is a problem because the jury is in: There is a real and direct bottom-line impact associated with getting these decisions right. If an organization wants to deliver the highest quality goods and services, superior customer service, and the most innovative products, effective HCM is required. Getting HCM right boils down to making many decisions and making them correctly.

The challenge and opportunity is that the entire range of HCM decisions (from where and how to recruit and hire, how to reward and motivate, and which policy and practice to use in a specific situation) is getting very difficult to make optimally. There are a huge number of different practices and policies and combinations to choose from and an ever-increasing amount of pertinent information useful for making these decisions. Fortunately, there is new research, insights, analytical tools, and processes associated with advanced analytics



that can assist in making these decisions much more optimally. For example, companies like Xerox and Google are using predictive analytics to evaluate which characteristics are associated with good employees, and this information is used to help with employee selection.<sup>2</sup> The use of advanced analytics can help eliminate all forms of bias associated with selection and promotion decisions and also provide a mechanism for compensating and rewarding people in a more accurate and fair manner.

If biases are eliminated from the decision-making process, previously unconsidered possibilities will emerge. SAP, the German software giant, has announced that by the year 2020, 1% of its workforce will fall on the autistic spectrum. The company has found greater engagement and productivity in locations where they have adopted this hiring policy.<sup>3</sup> Some of the most productive and capable computer programmers fall on the autistic spectrum. By undermining any prejudice and bias associated with autism, SAP is potentially developing a previously unrecognized HCM competitive advantage. Advanced analytics can aid in the process of identifying these possibilities by eliminating all extraneous factors from decision making so that only merit and potential is taken into consideration.

A number of factors are converging that make this the right time to start using data and other information to make more robust decisions. Technology has become more accessible, user friendly, and powerful. There have been recent advances in machine learning, natural language, and deep Q&A expert systems (for example, IBM's Watson beating two former *Jeopardy!* champions). In addition, we know substantially more about what really contributes to organizational performance (for instance, balance scorecards and intangible capital), and we are also getting much better

at modeling what is important to people and how people think and how they actually behave (for example, behavioral psychology, behavioral economics, and neuroeconomics).

Many of these paradigm-shifting developments have *not* been incorporated into our decision-making processes. It has long been held that we humans are rational decision makers who are very self-centered and selfish. Recent research has shown that we are rarely inclined to make rational decisions and that we are actually very cooperative, collaborative, and unselfish and want to be treated fairly and to see others treated the same.<sup>4</sup> These findings have tremendous implications for how we manage the employment relationship. Equity matters because it matters to the primary input in all organizations' output equation: human capital.<sup>5</sup> Humans want to be treated and rewarded fairly. If they are not, they withhold value-creating information and effort, are more likely to be absent, quit, and sometime actively conspire to undermine the goals of the organization.

I refer to all these recent findings as "The New Human Science." I integrate the recent findings on what motivates us, what influences our decision making, and what our natures are like, with recent advances in technology in order to assist us with making more optimal value-creating decisions.

This is not to suggest that advanced analytics will replace human expertise. Instead, I believe that it will complement it. In 1997, the chess master Gary Kasparov lost to the IBM computer Deep Blue. However, as Kasparov later reported, the most unbeatable champion is not a supercomputer. The most powerful computer can be beat by a good amateur chess player working with a standard PC. The optimal decision maker is not computer or human alone, but rather the combination.<sup>6</sup>

That is the position taken in this book. When well-seasoned human expertise is combined with the right advanced analytics, the decisions made will be much more likely to create value for everyone.

There is data and there is data. I will be talking about techniques, but equally important is to get the questions right. The tools have gotten really cool and the types of analysis that are now possible were not even imagined ten years ago. None of that changes the fact that data is really about stories. In the case of this book, stories are about what is going on in your organization—what (and whom) is working and what is not. Everything that is discussed here is meant to help us become better and more accurate data story tellers.

Some might view big data, advanced analytics, and data science as being sterile and potentially dehumanizing. I argue the exact opposite. The use of these tools, when coupled with the right kind of human expertise, can help us become much more *humane* decision makers. By humane, I mean fairer, inclusive, and merit based—ultimately making our organizations more equitable, collaborative, and successful.

One final note. This book is meant to be used in conjunction with its associated website, [DecisionAnalyticsInc.com](http://DecisionAnalyticsInc.com). The focus of the book is on what can and should be done with advanced analytics and optimal HCM decision making. The website will provide tools and more detail on exactly *how* this this optimal decision making is accomplished.

# 1. Challenges and Opportunities with Optimal Decision Making and How Advanced Analytics Can Help

## 1.1. HOW WE MAKE DECISIONS AND WHAT GETS IN THE WAY

In their book *Nudge*, economist Richard Thaler and legal scholar Cass Sunstein describe homo economicus and homo sapiens. Homo economicus are humans as they are described in economics textbooks. They act and make decisions completely rationally, have the computing power of a hundred super computers, and they always know precisely what will make them happy. Homo sapiens, however, do things like jump out of perfectly good airplanes, forget significant others' birthdays, and occasionally drink or eat too much. Thaler and Sunstein refer to homo economicus as econs and refer to the rest of us as humans.<sup>1</sup>

Remarkably, until relatively recently, even in light of nearly unlimited anecdotal and empirical evidence, we *assumed* our decision making was almost always rational and optimal. It was not until the ground-breaking work of those like Thaler, Daniel Kahneman, Amos Tversky, Robyn Dawes, Daniel Ariely, and many others that this fundamental assumption of rationality was largely undone. Probably the fatal blow to the idea that we always decide rationally was delivered by Kahneman and Tversky.<sup>2</sup> “Econs” have long been assumed to “maximize their utility”; this requires that they have a very clear idea of preferences. Work by Tversky and Kahneman provide evidence of a “framing effect.”<sup>3</sup> This finding shows that our preferences and subsequent decisions will be impacted depending on how the information is presented.

Relative to human capital management (HCM) decisions, this may mean that someone is rejected for an interview based on the letter font used on his curriculum vitae (CV) or resumé. It might not be a conscious decision; the reviewer may just equate a particular style with professionalism. Though most would agree presentation matters, making a decision to not interview someone based on one data point, and that data point being a preference for Times New Roman over Cambria, could be considered less than ideal. This matters because the sum total of all the small and large HCM decisions *will* make or break an organization. Who we hire and promote, how we compensate and motivate people, the type of training they receive—these decisions have a direct and identifiable impact on the success of the organization.<sup>4</sup>

Though there is an ongoing debate about just how rational we really are,<sup>5</sup> there is agreement that we are often pushed toward acting irrationally,<sup>6</sup> even when rational action would lead to the best outcomes. I conduct empirical research, and the research questions that interest me evolve around this question: What works at work? For example, does giving employees more decision-making authority lead to better firm performance? Does the executive compensation plan provide an incentive to actually improve performance?

One topic on which I have done a fair amount of research is the granting of stock options to nonexecutive employees.<sup>7</sup> From the perspective of standard rational economic theory, this is really a foolish thing to do. Economic theory would say that granting stock options to anyone other than the top few employees is about as sensible as burning the options. The primary theoretical lens used to justify granting company shares to employees is called *agency theory*, and although it provides a very good rationale for the granting of stock

options to executives, it provides a very poor one for granting to nonexecutives.<sup>8</sup> Based on agency theory, there is no reason to expect giving stock options to nonexecutive employees will motivate them to work harder, smarter, or longer, because their individual efforts have very little impact on the share price. However, surprisingly, initially even to me, giving stock options to nonexecutive employees seems to do just that. We have repeatedly found evidence that giving stock options to a broad set of employees (in some cases, everyone in the firm) increases productivity and other performance outcomes.<sup>9</sup> So, this would argue that in this instance, employees are not acting as one would expect econs to act. Instead of making people work harder because they think their work can move the share price, they appear to be working harder because of some completely different reason.

A detailed exploration of what is driving those behaviors is beyond our scope here, but it may be that broad-based stock options create a culture of engagement. Stock options may go some way toward establishing a workplace where there is an attitude that we are all in this together, and maybe this is what causes employees to work harder, smarter, longer, or more collaboratively.<sup>10</sup> What this means is that when we are attempting to predict how people are *actually* going to respond, the rationale model is not of much use. (Like it or not, our default assumption is often that people will respond rationally.) It also means that our *predictive models* need to incorporate new findings from behavioral economics, psychology, and neuroeconomics.

In an interview conducted in the *Sloan Management Review*, Thomas Davenport, who, along with Jeanne Harris, has written extensively on analytics, said that he thought many great tools were being underutilized.<sup>11</sup> In the article, Davenport went on to say that not only was

he referring to structured and unstructured data but also to the insights on decision making that could be found in the “wisdom of crowds,” “behavioral economics,” and “neuroscience.” This section explores a number of the factors that impact the quality of our decision making.

### **1.1.1. Intuition Versus Analytical Thinking**

The fact that we do not decide rationally is not to suggest that there is anything wrong with the way our brains work; after all, it is our minds that came up with things like language, the written word, chocolate-covered peanuts (significant and important things). Daniel Kahneman’s, notion of thinking fast and slow and Thayer and Sunstein’s System 1 and System 2 cover the important characteristics of how we think. Thinking fast is essentially making decisions based on intuition, and thinking slow, as the name implies, refers to making decisions based primarily on analytical evaluation. Kahneman also uses the terms *System 1* and *System 2* thinking. System 1 thinking is our intuition—those thoughts, feelings, impressions, associations, and preparations for action that all happen automatically and fast (for example, chatting with friends or brushing our teeth). System 2 thinking, reflective thinking, is by contrast slow and deliberate, thoughtful and effortful. This is the type of thinking we engage in when rule-based logic is required or when, for example, we are completing our taxes or learning a new skill. Examples of situations where we think fast include the following:<sup>12</sup>

- Detect that one object is more distant than another
- Detect hostility in a voice
- Understand simple sentences

At other times, our thinking needs to slow considerably, as in the following examples:<sup>13</sup>

- Teaching someone a new skill
- Filling out a survey
- Checking the validity of a complex logical argument

Basing decisions solely on intuition can be problematic. Making hiring, promotion, and bonus decisions based on gut instinct carries with it the potential for including a lot of bias and incomplete information. The fact is that most workforce management decisions are rife with potential biases, and making these decisions with the assistance of analytics can help eliminate many of these biases. This is not to say that there is no place for “expert” intuitive knowledge. The use of stock options is an example. Based purely on a rational model of decision making, no firm would ever issue stock options to anyone other than the two or three top employees who may have the power to move the share price.

Silicon Valley, the undisputed epicenter of worldwide technological innovation, was one of the first to recognize how broadly distributed stock options could help motivate and retain employees.<sup>14</sup> In fact, some say that stock options provide the fuel that powers Silicon Valley.<sup>15</sup> Frankly, Silicon Valley might never have existed (and so some of the world’s greatest innovations might not have happened) if those making HCM decisions had thought like econs and assumed everyone else did too.

What you want to keep in mind here is that although there is a critical role for intuition (that is, paying attention to your gut), it is almost always advisable to temper decisions with analytics. Generally speaking, many of the decisions associated with HCM have considerable potential for bias. Consequently, the ideal approach is one that combines the best analytics with well-seasoned human expertise.



### **1.1.2. Poor Intuitive Statisticians**

Another critical realization is that we are really lousy statisticians. In the introduction to his book, Kahneman recounts the story of the first research project that he and Tversky undertook. They wanted to determine how good we are as intuitive statisticians. So, they developed and administered a survey at a meeting for the Society of Mathematical Psychology; participants included those who had authored statistical textbooks.<sup>16</sup> Even those with years of training and expertise were not good at predicting the probability of an event. Those with substantial training in statistics were prone to accept research that was based on small sample sizes and also gave a hypothetical graduate student inaccurate advice regarding the number of observations she would have to collect. This matters because we are constantly accessing the probability of an event occurring (for example, the probability that an employee will perform as expected, the likelihood that a specific compensation approach will promote desirable outcomes). Fortunately, there is a fix, or at least a fairly robust solution. Data coupled with a good idea of the factors influencing an outcome, along with some pretty straightforward statistics, will go a long way toward predicting a likely outcome.

### 1.1.3. Understanding Human Nature

In a book about advanced analytics, it might strike you as odd that I will also be emphasizing the critical role that human intuition plays in decision making. I emphasize this because a number of constraints apply to advanced analytics when attempting to *predict* how people are actually going to act. Take, for example, stock options. Any model that expects rational behavior would expect no incentive effect associated with their use. (For example, individuals should not work longer, harder, or smarter.) However, that is not what we observe. People do actually work much harder. The more we understand how people think and act and what is important and what motives them, the greater the likelihood that we can accurately *predict* behaviors. Much new evidence from the natural and social sciences helps us better understand human nature; the same holds true for the humanities. For instance, experimental philosophy is empirically testing many basic assumptions about how we experience and relate to the world.<sup>17</sup> We delve into the implications of these new findings in subsequent chapters.

### 1.1.4. Biases and Decisions

One of the most critical factors influencing our decision making is our own biases. These are not something that we are generally even consciously aware of. However, they adversely impact our decisions making. A number of biases are especially troublesome when making HCM decisions, including the following:<sup>18</sup>

- **Confirmation bias:** This bias causes us to ignore evidence that undermines a preconceived idea. For instance, we may be convinced that someone is the person for the job even after much evidence to the contrary.

- **Anchoring:** We have a tendency to focus on data points that we consider to be especially telling. For instance, when making hiring decisions, college grade point average may weigh heavily, even though it has not been shown to be a good predictor of job performance.

Anchoring refers to our tendency to weigh this one data point too greatly when making decisions.

- **Loss aversion:** This bias refers to our tendency to weigh potential losses greater than potential gains. We come by this bias honestly; there is an evolutionary advantage to focus on potential threats (hungry predators) rather than focusing on long term planning.

- **Status quo:** This bias is the tendency to go along with the status quo or the default option.<sup>19</sup>

- **Framing:** You can find an excellent example of framing in an article by Paul J. H. Schoemaker and J. Edward Russo.<sup>20</sup> Managers were asked what how they would respond to the following situation:

“Assume you are the vice president of manufacturing in a Fortune 500 company that employs over 130,000 people with annual sales exceeding \$10 billion. Due to the recession as well as structural changes in your industry, one of your factories (with 600 employees) is faced with either a complete or partial shutdown. You and your staff carefully narrowed the options to either:

**A.** Scale back and keep a few production lines open. Exactly 400 jobs will be lost (out of 600).

**B.** Invest in new equipment that may or may not improve your competitive position. There is a 1/3 chance that no jobs will be lost but a 2/3 chance all 600 jobs will be lost.

Financially, these options are equally attractive (in expected rate of return). The major difference is the effect of the decision on the plant workers, who have stood by the company for many hard years without unionizing. Which option would you choose if these were your only alternatives?”

*The exercise is repeated and this time the options are slightly reworded.*

**A.** “Scale back and keep a few production lines open. Exactly 200 jobs will be saved (out of 600 threatened by layoff).

**B.** Invest in new equipment that may or may not improve your competitive position. There is a 1/3 chance all jobs will be saved but a 2/3 chance that none of the 600 jobs will be saved.”<sup>21</sup>

*Tellingly, when “framed” in the first example, most managers choose option A. When framed by the second, most managers choose the opposite.*

These and other biases that are discussed in later chapters all serve to undermine the quality of many decisions generally and HCM decisions specifically.

#### **1.1.5. Big Data and Information Overload**

We are in the age of very, very big data. Just how big? Pretty big. Table 1.1 describes various quantities of bytes.<sup>22</sup>

Name	Value
Kilobyte (KB)	$10^3$
Megabyte (MB)	$10^6$
Gigabyte (GB)	$10^9$
Terabyte (TB)	$10^{12}$
Petabyte (PB)	$10^{15}$
Exabyte (EB)	$10^{18}$
Zettabyte (ZB)	$10^{21}$
Yottabyte (YB)	$10^{24}$

**Table 1.1 Byte Measurements**

The amount of data in “big data” is simply staggering. There are roughly one billion transistors per person and four billion cell phone users.<sup>23</sup> According to Gartner, the amount of information is growing at 59% annually,<sup>24</sup> and much of this information is unstructured data in the form of video, social media, blogs, and so on. There is simply too much information for our brains to process adequately. The brain itself can be thought of as a tremendous data producing mechanism, given that it contains 85 to 100 billion neurons and produces roughly 300,000 petabytes of data each year.<sup>25</sup> For some time now, we have had more information than we can process, and the ongoing exponential increase in information (information explosion) exacerbates this situation. One place where computers have us beat is in processing tremendous amounts of information very, very fast.

#### 1.1.6. The Problem with Certitude

During dinner once with a former colleague and her husband, *Raiders of the Lost Ark* came up as we were talking about movies. We started discussing the scene in which Marian (played by Karen Allen) won a drinking game in the bar she owned. My former colleague was absolutely certain that the person she drank under the table was Indiana Jones (Harrison Ford). *Raiders of the Lost Ark* was one of my favorite movies, so I knew differently. I told her that it was actually some otherwise unknown local, not Indy. So certain that she was right, she said that she would bet her house it was Jones. The words of some wise sage popped into my head: “If someone offers you a perfectly good house, take it.” So, I took the bet, and we headed down to the local video rental store. However, I was starting to have mixed feelings about actually taking their house, so I told them that I would be happy to let them off the hook and drop the bet. This elicited some pretty dodgy accusations about my stomach for betting. So, as long as they insisted.... Before watching the movie, I asked my former colleague (who is extremely bright and one of the top academics in her field) what she considered to be the probability of her being correct. She said 99.9999%. In other words, she was sure that she was right, really sure. Anyone who has seen the movie and remembers that scene will know that I won a house. In case you are interested, I let them stay in their home, but I was not above occasionally asking whether they were taking good care of my property. I am not sharing this story to spotlight my movie knowledge. Instead, I want to point out that just because we really, really think we are right does not mean that we necessarily are. And trust me, I have been guilty of this more than once.

#### **1.1.7. Advanced Analytics Does Not Care Who It Annoys**

Unfortunately, some in positions of authority have fragile egos or are primarily concerned with advancing their own agenda rather than dealing with actual facts. Hiring yes men and yes women is simply a losing proposition. Warren Buffett, for instance, goes out of his way to seek out people to tell him that he is wrong, and many (if not all) successful organizations never become self-satisfied. One of the big advantages of advanced analytics is that it is entirely immune to big egos, group think, and the loudest getting their way.

Evolution has favored those who are good at advancing an argument, whether or not the argument is based on fact, and so we come by our opinionated natures honestly. The challenge arises when the focus shifts from getting to the truth of the matter to winning the argument instead. Of course, we hope, those who are right win. Unfortunately, though, the evidence indicates that this is not always the case. The April 2011 issue of the *Journal of Behavioral and Brain Sciences* was devoted to the theory of argumentative reasoning.<sup>26</sup> The theory holds that we developed rationality not as a result of our desire to pursue philosophical and scientific insight and to develop a superior morality, but rather we developed it to win arguments. When it comes to winning arguments, what matters is certitude—knowing, or at least projecting, that you are certain you are right. Those skilled at winning arguments are advancing arguments rather than looking for the truth. All too often, therefore, “cherry picking” of the facts takes place. Here is where more sophisticated analytical models can play a critical role.

Philip Tetlock convincingly advises that we should consider expert advice with caution. Over a 20-year period, Tetlock followed the forecasts of 284 experts who were professional predictors of political and economic

trends. He asked them to rate the probability of three different possible outcomes: no change in the current situation or either an increase or decrease in a factor like economic growth. He discovered that the experts with many years of experience and Ph.D.s were roughly as accurate as dart-throwing monkeys.<sup>27</sup> This is in no way meant to disparage the advice of all experts; after all, forecasting the future is a difficult thing. However, it is sensible to view most prognostications cautiously.

In his book *Streetlights and Shadows*, the psychologist Gary Klein, states the following:

I am saddened to see ineffective decision-support systems that are designed in accordance with ideology rather than observation. If we try to balance the human as hazard model with the human as hero model, and to balance the automatic, intuitive system with the reflective, analytical system, we should have more of a chance to create decision-support systems that will get used.<sup>28</sup>

The tools and processes discussed in the rest of this book will attempt to just that: combine both the intuitive and analytical to provide us with the best possible decision.

#### **1.1.8. Types of Decision Making**

Hoch and Kunreuther propose three different levels from which decision making can be viewed:<sup>29</sup>

- **Normative:** The normative approach holds, for example, that we would be better served by making decisions based on rationality.
- **Descriptive:** The descriptive level describes what we actually observe about how decisions are made.
- **Prescriptive:** Prescriptive recommendations focus on improving decision making.



Much decision science research and work is tied to formal mathematical models. Recently, however, cognitive approaches to decision making have been a focus. This discussion adopts a *prescriptive* approach to our evaluation of the various factors that impact decision making and the technologies that can influence desirable outcomes.

## **1.2. RISE OF THE MACHINES: ADVANCED ANALYTICS AND DECISION MAKING**

According to Gartner, Inc., the term *advanced analytics* is defined as follows:<sup>30</sup>

As analysis of structured and content (such as text, images, video, voice) data using sophisticated quantitative methods (such as statistics, descriptive and predictive data mining, simulation, and optimization) to produce insights that traditional approaches to BI such as query and reporting are unlikely to discover. It is frequently applied to make decisions, solve business problems and identify opportunities by providing better forecasts, causal understanding, pattern identification, process and resource optimization, and assisting with scenario planning process.

The challenge is that although substantial gains wait, very few firms actually utilize advanced analytics. Only 13% of organizations utilize predictive analytics, and only 3% use prescriptive analytics, such as optimization and simulation.<sup>31</sup> To this list, I want to add *actionable recommendations*, such as provided by machine learning and expert systems.

Recently, the focus on HCM metrics has gone a long way toward establishing the relationships between variables of interest (for example, training initiatives) and performance outcomes (for example, employee turnover by division).<sup>32</sup> Advanced analytics provides a deepening

of the tools associated with business intelligence, with a focus on predicting and prescribing the optimal course of action. These techniques are increasingly being used in functions like operations, finance, and marketing and can have the same impact within human resources.

According to Gartner, this will matter.<sup>33</sup>

Pervasive, advanced analytics will become necessary for leading organizations that want to gain competitive advantage.

The explosion of data volume, and its variety and velocity, will enable new, high-value advanced analytic insights and use cases.

Lack of skills will be a critical inhibitor to adoption and deriving value from advanced analytics.

Embedding collaboration and social capabilities in advanced analytic applications will facilitate higher quality and more transparent decision making.

There is an ever-increasing need for data scientists—those who understand statistics, computer science, and data modeling and analysis. More effective HR decisions can be made when these skills are used to assist with the full spectrum of HR tools.

### **1.2.1. Advanced Analytics**

As mentioned previously, we can improve our decision making. Metrics and analytics have long been used to assist decision making, and as computing power increases (along with our understanding of behavior), our tools are becoming more powerful as we develop models that more accurately predict outcomes.

Figure 1.1 provides an overview of a hierarchy of analytics. Level I is an organization's use of basic metrics

to obtain information such as headcount, employee turnover, and even some simple statistics such as the use of means and averages. Next is Level II, which is characterized by correlations. This consists of determining whether and when variables move relative to one another. For example, as employee morale goes up, what happens to employee turnover? Of course, correlations do not mean causation; however, they do suggest a possible relationship. Level III shows a focus on establishing causation and on predictions of what will happen next (anything from who will make a good employee to whether a specific payment package will promote the intended organizational outcomes).

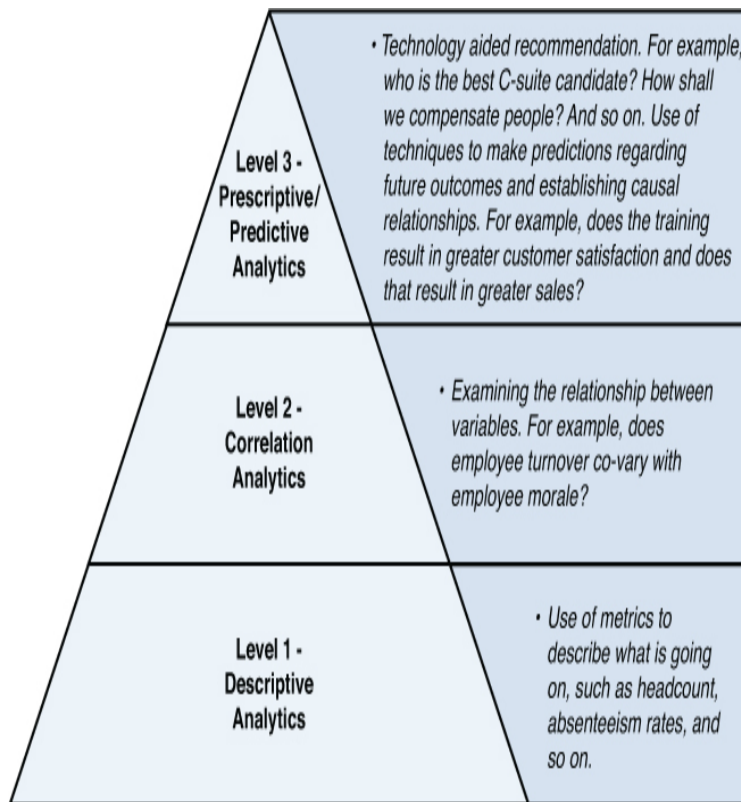


Figure 1.1 Hierarchy of analytics

Advanced analytics can aid in establishing causation, which is generally thought of as the holy grail of analytics. That is, does the intervention we put in place have a direct impact on the bottom line? For instance,

does the new compensation approach increase employee productivity, reduce employee turnover, and ultimately impact sales and profitability? This can then be used not only to justify expenditures but also to make determinations about what policy, practice, or intervention is advantageous to use in the future.

Advanced analytics can be thought of in two parts. Part one attempts to predict what will occur. As discussed in the previous section, this requires a broad understanding of how individuals and groups will react. Part two, and the primary focus of this book, is about optimization. The focus here is not about what a decision *will* be, but rather what it *should* be.

It is a good thing that these tools are becoming more available, because according to a 2010 survey by IBM, there is a real need for HCM decisions to move toward higher levels of prediction and causation.<sup>34</sup> That survey found that advanced analytics were rarely used for activities such as evaluating workforce performance, retaining valued talent, and developing future leaders. Nowhere, on any of these HR issues reviewed, did more than a quarter of the organizations actually engage in advanced analytics. One of the least used analytical processes is the use of collaboration across the organization. Only 5% of the firms interviewed used advanced analytics along with collaboration and knowledge sharing.

HR has nothing to feel bad about. It is estimated that only 3% of firms use any form of advanced analytics. However, it is projected that the use of analytics will grow substantially over the coming years.<sup>35</sup> This book covers each of these three perspectives of decision making:<sup>36</sup>

- **Descriptive:** What happened and what is happening?

- **Predictive:** What will happen? What might happen?
- **Prescriptive:** What should happen? What is the best course of action?

### 1.2.2. Predicting Outcomes

Recently, the Sundem-Tierney equation has been updated. You may be wondering what exactly the Sundem-Tierney equation is used for. Basically, it predicts how long the marriages of celebrities will last. As one of the authors proclaims, tongue in cheek, “One of great unsolved mysteries in social science.”<sup>37</sup>

#### The Sundem-Tierney Celebrity Marriage Longevity Equation

$$\sqrt{\frac{NYT}{ENQ} \frac{(Ah + Aw)}{(Sc + 5)}} Md \left[ \frac{Md}{(Md + 2)} \right] T^2$$

Where:

*NYT* = The number of times the wife’s name been mentioned in the *New York Times*

*ENQ* = The number of times the wife’s name has been mentioned in the *National Enquirer*

*Ah* = Age in years of the husband

*Aw* = Age in years of the wife

*Md* = Number of months the couple dated before marriage

*Sc* = Number of scantily clad photos from the top five photos found during a Google image search of her name

*T* = Time in years for which you want to calculate the percentage chance the couple will still be married

This equation represents a revision of the old equation, and it turns out that this one is a much more robust predictor of the duration of celebrity marriages. For example, the equation accurately predicts that Jennifer Lopez's marriage to Ojani Noa (her first husband, a relationship that most people don't even know about) would not last very long (it lasted 13 months), but it predicts a 71% chance that Prince William and Kate Middleton will make it 15 years or longer.

Many become nervous when they hear things like "model building" or "optimization," but this does not need to be so intimidating. There is nothing intimidating about listing the factors that go into making the best decision. Getting all the best and required data might not always be especially easy, but determining the *determinants* (the factors influencing an outcome) can actually be rather fun and interesting. Take, for example, the following equation; it is attempting to determine the likelihood of marital bliss. By Robyn Dawes, this model predicts the likelihood of the survival of a marriage.<sup>38</sup>

#### Frequency of Lovemaking – Frequency of Quarrels

See, nothing at all boring about predictive modeling. As you might imagine, having a negative number associated with this equation is not a good thing. Because of the availability of the necessary data, predictions such as these are becoming more and more common and found across many facets of life. Predicting compatibility is the task organizations such as Match.com and eHarmony attempt to do. Dawes formula is a simple one that essentially attempts to serve the same function as the ones developed by these dating services. They are both attempting to identify a list of factors that will predict the success of relationships. In the case of eHarmony and Match.com, this also consists of information on emotional, cognitive, and social attributes, physical

activity, personality characteristics, education, geography, and so on.

One more:

Runs Created = (Hits + Walks) × Total Bases / (At Bats + Walks)

Some of you might recognize this formula. William James, the founder of sabermetrics, developed it. If this is not familiar to you, maybe you remember the book *Moneyball*, by Michael Lewis, or the movie by the same name starring Brad Pitt. James's sabermetrics is the underlying approach used to predict success at getting on base, and this is exactly what the formula predicts: a hitter's ability to get on base. It did not worry about exactly how he got there. As a matter of fact, the formula takes into consideration those who walk as well as those who get hits.<sup>39</sup>

Making predictions is something that we do all the time. Will a stock price go up or down? Will your friends get married? Will this person make a good employee or a good executive? What kind of professional experiences will assist them in becoming better employees?

Within the broad area of decision support systems, a variety of different models are used to aid in decision making.<sup>40</sup> The relevant variables when "modeling" HCM decisions include all those factors that influence the outcome you are interested in. For example, what might be some of the causes of employee turnover? This decision will be influenced by, among other things, a number of the following factors:

- Employee morale and satisfaction
- Labor market conditions

- Relationship with direct reports

Another example is workforce planning, which seeks to accurately forecast future employment needs. Again, a number of factors may influence the best decision about the type and number of employees needed, including the following:

- Business strategy and objectives
- Current workforce quantity and competencies
- Required workforce quantity and competencies

In later chapters, we will evaluate factors influencing the ideal job candidate for your situation and the optimal compensation structure. Determining these factors is where expert knowledge and experience comes in, and when these are combined with the right analytics, you are on your way to making much better decisions.

### **1.2.3. Improper Linear Models: Combining Expert Intuition with Analytics**

The work of Robyn Dawes provides an excellent justification and argument for the use of expert expertise combined with the use of advanced analytics. Analytics can be used to develop a comprehensive list of factors that ultimately promote performance, or make a good employee, or any number of different decisions, and the experts can use their expertise to develop the weightings for the various factors.

In his article “The Robust Beauty of Improper Linear Models in Decision Making,” Dawes remarkably concluded that a simple algorithm is accurate enough to compete with regression analysis and, frankly, much better than the opinion of an expert. Consider, for example, the *Apgar test*. In 1953, Dr. Virginia Apgar, an anesthesiologist, was asked how she would assess the



health of a newborn. She wrote down five variables (respiration, reflex, muscle tone, color, and heart rate) and assigned a score of 0, 1, or 2 depending on the strength of the variable. A baby with a score of 4 or less needed immediate attention, and a baby with a score of 8 or more was pink, crying, and good to go. This simple algorithm has certainly saved the lives of thousands of babies over the years.<sup>41</sup>

Yes, this is a simple algorithm, but identifying which variables are important is not so simple. Picking the important variable that predicted newborn health was done by someone who had very deep practical experience and research. Dr. Virginia Apgar was born in 1909 in Westfield, New Jersey, and was educated at Mount Holyoke College and Columbia University College of Physicians and Surgeons (CUCPS), where she graduated in 1933 and finished her residency in 1937. She went on to become the first woman to become a full professor at CUCPS, in 1949. Dr. Apgar had 20 years of experience around newborns when she developed her test. She had considerable *expert* knowledge through observation, study, experience, research, and practical experience to establish those five variables. Could there be other (better) ones? Maybe. Could, perhaps, respiration be the most important and color the least at predicting the well-being of the newborn? These are exactly the types of questions that deep analytics can answer.

This approach is further supported by Stephen Hoch in the summary of his chapter, “Combining Models with Intuition to Improve Decisions”:<sup>42</sup>

Most decisions have three stages: (1) variable identification, (2) variable valuation, and (3) information integration into an overall evaluation. Experts are good at the first two stages but are plagued by inconsistency in stage three. By outsourcing stage three to a mechanical

model, the quality of decisions can be enhanced. By carefully combining human experts, statistical models, and new data-mining tools, we can improve the quality of forecasts and other decisions.<sup>43</sup>

We'll be using this exact approach when modeling our decisions: an expert determining the importance of factors coupled with analytics.

#### **1.2.4. Artificial Intelligence and Machine Learning**

What exactly is meant by the term *artificial intelligence* (AI) garners a significant amount of discussion. Machine learning and expert systems are both forms of AI. There is also natural language and the neural nets and other AI tools. As the name suggests, natural language refers to the capability of machines to understand and act on spoken language. Neural nets are computer systems that mimic the human brain. For our purposes, I will focus on machine learning and sophisticated expert systems (sometime referred to as Deep Q&A expert systems). Both have substantial scope for assisting with the decision making within HCM and elsewhere.

According to Yaser S. Abu-Mostafa, a Professor of electrical engineering and computer science at Cal Tech and the co-author of the book *Learning from Data*, at its most basic, machine learning can be defined as follows:

At its simplest, machine learning algorithms take an existing data set, comb through it for patterns, then use these patterns to generate predictions about the future.<sup>44</sup>

Machine learning has been utilized within a number of different functions, including finance, marketing, and operations (and in HR, but less so). It is generally associated with the ability, as the name implies, to learn (mostly through trial and error). An example is in gaming settings, where the system can learn by playing

the game over and over. This is one of the reasons that machine learning can be used effectively for chess or Jeopardy!; they are games that are repeated. Within HR, there is also repetition; we hire computer programmers again and again, we design and deliver compensation repeatedly, and we put our high-potential employees through executive development programs. All of these activities can be refined through utilizing machine learning.

The following list describes a few instances of when machine learning can be applied to HR decisions:

- Identify professional experience, educational attainment, personal characteristics, and other life experiences associated with superior job performance
- Use social media to obtain information on the success of a specific recruitment approach
- Identify factors associated with voluntary turnover of high-potential candidates
- Predict future workforce skills and quantity

The applications of machine learning are many, but there are also potential drawbacks. Machine learning relies primarily on the use of an algorithm as it trolls through a dataset looking for instance the “ideal” candidate or the ideal pay package. Again, according to Abu-Mostafa,<sup>45</sup> it is not always easy to actually name or identify the attributes that have been identified. In addition, many decisions associated with HCM may need to be explicitly defined or backed out of. An employee (or potentially the courts) may question how a specific decision was arrived at. This might not always be easy to determine when using machine learning. Machine learning tends to use algorithms to do the work. Algorithms are a predetermined set of factors that need to be evaluated to

arrive at some required output. An example is calculating payroll; this takes into consideration hours worked, overtime, tax, and other deductions.

Whereas machine learning focuses on the use of algorithms, expert systems utilize heuristic approaches. Heuristic approaches generally follow a set of rules to arrive at some conclusion or recommendation. Expert systems make it possible to see how a decision was made.

### **1.3. HUMAN AND MACHINE: THE IDEAL DECISION-MAKING TEAM**

We are in luck because machines happen to be very good at exactly what we are not so good at. Gartner, the information technology consulting and research firm, produces a series of research notes that cover a wide range of topics related to information technology and associated topics and disciplines. The company occasionally issues what they refer to as “maverick” research, which is research that pushes the technological and social envelope on a topic. One such research note, “Judgment Day, or Why We Should Let Machines Automate Decision Making,”<sup>46</sup> was written by Nigel Rayner. They believe that we are at a point at which more and more decisions will be automated and the decisions taken by machines will be better than ones made by humans.

In their recent book *Race Against the Machine*, Erik Brynjolfsson and Andrew McAfee of MIT provide some insight into the question of our relationship to technology. There has long been a question about whether technology will replace us or complement us. This is a question that has been around since the first machine was built. The position taken in *Race Against the Machine* is that our decisions can be far superior if we leverage those aspects of machines that *complement* our own facilities. Brynjolfsson and McAfee discuss the

1997 loss of Garry Kasparov to IBM's Deep Blue supercomputer. The media seized on to the win by Deep Blue; discussed much less was the fact that the best chess champions were actually teams of humans using computers. According to Kasparov, a strong human player using a standard laptop was able to beat Hydra, a supercomputer designed for chess.<sup>47</sup> CEOs find that data-driven decisions provide the greatest potential for long-term value creation.<sup>48</sup> This really is the crux of the matter: developing and utilizing technologies that compensate for our weaknesses and accentuate our strengths.

Are some HCM decisions best addressed through advanced analytics? The fact is that these new and developing tools could aid with nearly all decisions. Table 1.2 describes some of the important HCM decisions and how advanced analytics can assist.

<b>HCM Decision</b>	<b>Challenges to Optimal Decision Making</b>	<b>Advanced Analytical Tool</b>
Alignment with organizational objectives	Tremendous variation of situations and potential policies and practices	Machine learning/expert systems
Workforce planning	Broad scope of pertinent information	Simulation and predictive analytics Machine learning/expert systems
Selection	Biases	Predictive analytics Machine learning/expert systems
Performance management	Biases	Predictive analytics Machine learning/expert systems
Compensation	Biases Large data sources	Machine learning/expert systems
Collaborative decision making	Data overload	Predictive analytics/expert systems

**Table 1.2 HCM Decision Framework**

### **1.3.1. A Word About AI Tools**

A number of different AI software applications are available from various AI vendors. In addition, many different open source and commercially available tools can assist with decision making. I am going to be primarily using a sophisticated expert system called Expert Maker, which includes a broad range of AI tools. You can find these tools on this book's website: [DecisionAnalyticsInc.com](http://DecisionAnalyticsInc.com).

Depending on your level of interest, you might want to consider a number of open source and commercially available tools, including Python, R, Octave, WEKA, MATLAB, Apache Hadoop, and vendors (including the usual suspects SAS, IBM, Oracle, and SAP) that are developing ever-more sophisticated AI tools in their business intelligence and other offerings. In addition, some smaller companies and start-ups are doing very interesting things. I profile a few in later chapters. There is much more to say about this, so I encourage you to visit the website ([DecisionAnalyticsInc.com](http://DecisionAnalyticsInc.com)) to find more information. I also strongly recommend that if you do not know how to code, learn. There are great online resources available to help you with this (Codeacademy, Code/Racer, MIT OpenCourseWare, Coursera, among others).

## **2. Collaboration, Cooperation, and Reciprocity**

### **2.1. HUMAN NATURE AND HUMAN SCIENCE**

Some of you may remember the events of January 28, 1986, and the image of the space shuttle Challenger streaking skyward only to disappear in a cloud of white exhaust, errant boosters, and falling debris. In the coming months and years, much of the blame for the disaster was placed on the decision-making process at NASA and the subcontractor Morton Thiokol.<sup>1</sup> It was well known that the O-rings tended to become rigid and unseal at low temperatures, even temperatures found in Florida. The launch-time temperature was 30 degrees Fahrenheit, well below the safe launch threshold. The O-ring failure may have led directly to the disintegration of the shuttle, but the actual cause of the disaster was a decision-making process that ignored the facts, did not involve and listen to those with critical information, and had a “culture” that rewarded launch over safety.

Roger Boisjoly was an engineer with Morton Thiokol who knew there was a high probability of a catastrophic failure of the O-rings. Six months prior to the disaster, he sent a memo to his superiors warning them of potential problems. On the day before the disaster, Boisjoly and four others engineers attempted to warn their superiors about the dangerously low temperatures and the probability of an O-ring failure. They were disregarded by Morton Thiokol’s general manager, who told them to “Take off your engineering hats and put on your management hats.”<sup>2</sup>

Mr. Boisjoly reported his firm’s failings and paid a heavy price for his whistleblowing and subsequent lawsuits

against Thiokol and NASA. One colleague at Thiokol threatened to drop off his children at Boisjoly's doorstep if they lost their jobs.<sup>3</sup> NASA was also dismissive. The only NASA official to show Boisjoly any support at the time was astronaut Sally Ride, who served on the commission examining the tragedy. However, Boisjoly recovered and went on to speak at more than 300 universities about data and ethical decision making. NASA also made sweeping changes and became a model of analytics, collaboration, and participative decision making. Launch decisions were made based on the best available data and only after input from everyone involved, including the astronauts flying the mission.<sup>4</sup>

The story of the Challenger disaster makes a poignant and critical point: The best data and the most sophisticated algorithms and artificial intelligence (AI) technology on the planet are not going to make a bit of difference if the *facts* are ignored, *and*, just as critically, if the culture (that is, the incentives and decision-making structures) rewards and promotes non-value-maximizing behaviors. How do we structure our companies and decisions to reduce the possibility of the wrong decision and increase the probability of making the right ones? How do we develop organizations where people and teams with critical information are heard, listened to, encouraged, and rewarded for speaking up? What technologies can assist with making the organization more collaborative and with getting the right information to decision makers?

Not all decisions may be so impactful as to lead to the loss of life; however, the wrong decisions will almost certainly lead to the loss of optimal organizational performance.



### **2.1.1. Reciprocity and Fairness**

When I first moved from the Midwest to the East Coast, I had a “bias” that everyone in the region was going to be in a big rush and generally rude and aggressive. Soon after arriving, though, one of the first things I noticed was that people would hold doors open for me, sometimes for what I considered to be an inordinately long period of time. I decided that perhaps these East Coast types were not all that rude and rushed, and I happily joined the ranks of door holders. Recently, I was sharing my East Coast door-holding observations with a friend and learned that she had found the same thing. However, she also noticed that some were gaming the door-holding goodwill and waiting for people to get the door for them. She suggested that when I find myself at a glass door, I see whether the person on the other side has stopped and is waiting for me to get the door for them. I live in an apartment complex with glass doors, so this was easy to do. I started observing fellow residents’ and guests’ door-holding habits. Whereas most people went out of their way to get the door, a few would wait (a long time) for people to get the door for them. This was not expectant mothers, the elderly, or even people carrying a ton of stuff. Instead, they were generally completely able bodied and otherwise-unencumbered folks who were generally younger and less encumbered than I. So, when I approached the door and could see one of the door-holding gamers waiting for me to get the door for them, I would stop, smile, and wait to see who blinked. Because they realized someone was on to them, they would quickly get the door.

Before you start thinking I am being rather petty, turns out I am far from the only one who is concerned with fairness, reciprocity, and equality. As it happens, these characteristics are fundamental to who we are. As a matter of fact, it is hypothesized that reciprocity and cooperation may in part drive our very evolution.

Harvard biologist and mathematician Michael Nowak stated the following in a seminal article:

Thus, we might add “natural cooperation” as a third fundamental principle of evolution beside mutation and natural selection.<sup>5</sup>

The article evaluates five different reasons for the existence of cooperation: kin selection, direct reciprocity, indirect reciprocity, networked reciprocity, and group selection. It appears that even at an evolutionary level cooperation may promote greater “fitness” when compared to a competitive model.

#### **2.1.2. Selfish, Greedy, Lazy, and Dishonest**

A long-held assumption within economics is that humans are fundamentally a greedy, lazy, and selfish species prone to lying and cheating.<sup>6</sup> You might think that I am overstating the case for dramatic effect, but I assure you that I am not. Much of this evolved from Adam Smith’s “invisible hand” and the notion that each of us seeking our own self-interest will ultimately lead to better outcomes for everyone. Adam Smith might not have been promoting the kind of self-centered “greed is good” that his notion evolved into, but over the years it is difficult to argue that it has not led to a rather one-sided view of human nature, at least within economics.

This negative underlying assumption about our nature has had a big effect on the way in which incentive contracts and the employment relationship has been theorized and ultimately implemented within organizations. Managers sometimes go to extreme lengths to monitor workers because otherwise, of course, they goof off all day. The surveillance in place at some organizations can be downright Orwellian. Even if your every move is not being monitored, in many places, the “command and control” work environment is alive and

well. In addition, tournament-based incentive contracts are largely if not exclusively focused on individual accomplishments, often providing no incentive to share potentially useful information, and sometimes even providing an incentive to sabotage the work of others. So, what on earth are the 3Ms and the Googles of this world doing when they allow their employees one day per week to work on whatever they want? Clearly, from the perspective of economic self-interest, giving employees a day off each week to pursue their own interests is the same as giving them, well, the day off. Of course, if this policy did not exist at 3M and Google, we might not have scotch tape and Gmail.

### **2.1.3. Human Nature 2.0**

One of the most prolific and influential economists working today is Ernst Fehr at the University of Zurich. He and his collaborators have had the same impact undoing the fundamental belief that we are all primarily greedy and selfish that Kahneman and his co-authors had on unraveling the notion of rationality. Fehr and others have closely examined notions of altruism, reciprocity, cooperation, and fairness and have found that we are actually a very unselfish and helpful species.<sup>7</sup> Who knew, right? He and others have gone further and applied these findings to the way in which the employment contract is structured. Taken in light of their work, the 3M and Google model does not appear to be so absurd. As a matter of fact, if you hire the right people and have the right incentives and culture in place, you may be able to give employees two days off a week to work on their own projects. (Imagine what they might come up with.)

We are actually quite good at self-regulation. The political scientist Elinor Ostrom, another recipient of the Nobel Prize in Economics, has shot holes in the long-held notion of “the tragedy of the commons.” This

concept suggests that when left to our own devices, we will exploit a common resource until it is devastated. However, clearly it is hardly in a fisherman's self-interest to decimate the fish population or ranchers to use up all the water. Turns out the use of the commons is not so tragic; exhausting all common assets just does not always happen. An example is water rights in Arizona and fishing rights in Massachusetts. Both have been successfully self-regulated, with the resource remaining intact.

Again, all you have to do is look around. Humans clearly do not always make decisions rationally, and humans are also empathetic, altruistic, concerned about being treated fairly, and also want to see others treated fairly. Need further proof? Look no further than April 15, 2013, the day of the Boston Marathon bombings. One of the first things you will notice if you look at photographs or videos of the attack is that many, many people are running *toward* the site of the bomb detonations. This included many first responders; however, it also included many normal citizens. There is nothing rational or self-interested about running toward the site of bomb blasts. The rational response by a rational self-interested agent would be to turn and run like hell in the opposite direction. Two bombs had just detonated, dramatically increasing the probability of there being more. Nonetheless, a few moments after the explosions, so many people were assisting it was difficult to even see the victims.

#### 2.1.4. Fierce Cooperation

When people hear the word *cooperation*, they sometimes envision people sitting around in a circle sharing, actively listening, and generally affirming what others are saying. While all of these conditions may well be a part of the cooperative process, cooperation and cooperative behaviors are not always affirming. Take, for example, the notion of reciprocity: I will look out for you, but you also need to look out for me; if you don't, I may call you on it.

As with many of the topics that really engage me, I came to the notion of reciprocity and mutual monitoring largely through the back door. Maya Kroumova and I were interested in the impact firm size would have on the effectiveness of broadly distributed stock options.<sup>8</sup> Agency theory would strongly predict that the smaller the firm the more likely they would be to have an impact on firm performance. The idea being that in a small firm—say 30, 100, 500 employees—it is much more reasonable to expect that employees would think that their actions would ultimately impact the share price, consequently providing more motivation for them to work longer and harder. What we found was that firm size did not matter at all. Small, medium, even large firms all benefited from the use of broadly distributed stock options. We were surprised by this finding and tested and retested the data only to find the same thing. At the time, the finding did not make a tremendous amount of sense to us, so we suggested more research be conducted to evaluate what actual mechanisms were at work. We promptly sent the paper out to a number of journals, and it was promptly rejected by all of them (though you can find it at [SSRN.com](https://ssrn.com)).

We continued to work and rework the paper trying to figure out what was going on, and then one day noticed that a number of behavioral economics were referencing

the paper in their work and using it to support the notion of mutual monitoring.<sup>9</sup> It started to make sense; at the organizational level, one of the reasons that reciprocity works is because, mixed with the right incentives, employees have an incentive to keep an eye on one another. If your rewards depend on the contribution of others (as they do for everyone holding shares in the same company), you are more likely to call someone on it if he or she is not being productive. What we found was that both small and large firms did better. If this was the mechanism at work, size would not matter; as a matter of fact, the bigger the firm would be more likely to benefit from shared rewards like broad-based stock options, because having everyone keeping an eye on everyone else was much more efficient than other forms of monitoring.

The evidence is becoming more clear on this; mutual monitoring and reciprocity is more efficient than hiring many managers to monitor the workforce, or putting in place expensive surveillance equipment. This is not to suggest that developing a culture of collaboration is cost free, just that the alternative is often more costly.

### 2.1.5. Collaboration

Those of you who saw the movie *A Beautiful Mind*<sup>10</sup> may remember the scene where Russell Crowe (who played John Nash, the 1994 recipient of the Nobel Prize in Economics) imagines a scene meant to depict an aspect of game theory. In the scene, five young men in a bar spot five women, one of whom is exceptionally attractive; the other four are merely very attractive. The five make a beeline for the exceptionally attractive woman and all vie for her affections. The attractive woman is perturbed by this and annoyed that her friends are being ignored, so she ignores the men. Her friends are equally angry at being slighted, so when the young men turn their attention to the friends, they rebuke their advances. The five men decide their best strategy is to work together. Instead of going after the exceptionally attractive woman, they head directly to the friends. Everyone hits it off, and so by working together, they are each individually able to improve their utility.

The scene is meant to depict a core notion of game theory, which states that sometimes our individual utility is enhanced when we collude or work together. This is contrary to the standard neoclassical view that essentially states we should all pursue our own self-interest and from this the most efficient outcomes will result. Clearly, the notion of collusion here is used in a good sense: working together, sharing information that facilitates better decision making. An increasing body of work outside of economics also supports this notion of cooperation over individual utility maximization. There are examples of this in the natural sciences, as well. The biologist E. O. Wilson found that when it comes to cooperative behaviors, groups that learned to cooperate among themselves were much more likely to survive and prosper.<sup>11</sup> There is substantial and growing evidence again, across many different disciplines and functions, that the more we can work together, the better the

performance outcomes. Academia is one place that has benefited greatly from the free collaboration and the free flow of ideas and information. The open source software movement, Wikipedia, and all the other wikis are all excellent examples of collective collaboration. Many of us benefit from this kind of collaboration, and many of us also contribute to these efforts.

In addition, substantial and interesting work is being done on the wisdom of crowds and collective intelligence; we are simply smarter together than alone. Thomas Malone, the founding director of MIT Center for Collective Intelligence, believes that organizations need to fundamentally change because all the new technologies have resulted in a change not in the production technology, but rather in the coordination technology.<sup>12</sup> These coordination technologies include the technologies that we will be discussing that promote better decision making.

#### **2.1.6. Hard Wired to Share What We Know**

It's official now: It is highly unlikely that a *Planet of the Apes* scenario will ever exist here on Earth. Turns out that an undervalued aspect of what sets humans apart from all other species is our tendency to share our knowledge. Our willingness, even desire, to share what we know is referred to by anthropologists as *ratcheting*.<sup>13</sup> And this is no small thing; it might be one of the most important qualities that allowed humans to advance and thrive. Our tendency to share what we know may have provided us with an insurmountable advantage when it comes to competing with all other species. Universities excel as places where information is shared broadly, but many organizations are not good at sharing information (although there are notable exceptions).

Knowledge management has been around for some time and has a mixed record of success.<sup>14</sup> Much of this mixed



success relates to actually getting people to utilize the systems in place, and it appears that incentives are the problem (and organizations being locked into these systems). A sophisticated enterprise content or knowledge management system will go to waste if the right incentives and organization does not support it. The organization consists of a number of elements, including content management software systems and a culture of collaboration and information sharing.<sup>15</sup> There has to be an incentive to share information and an incentive to collaborate. The system itself is just one small piece of the puzzle.

This notion of reciprocity or reciprocal altruism is also well understood within cultural anthropology literature. We are much more likely to be generous with those who are generous with us, and the same applies on the organizational level. The topic of knowledge management is a broad one, and our focus here is on how collaborative decision making and how you can use new and developing technologies to assist in decision making. One of the fastest-growing segments of knowledge management is the use of collaborative software systems to assist with decision making. An ever-growing body of literature across many different disciplines provides support for the efficiencies of collaboration.<sup>16</sup>

### **2.1.7. Collective Intelligence**

Some of the better known examples of the utilization of collective intelligence include Wikipedia and InnoCentive. InnoCentive is a web-based service that outsources companies' research problems, inviting solutions from the web community. Good ideas are rewarded with cash prizes. Of course, this is one of the reasons democracy works as well as it does. It is impossible for any one person to see the whole picture, but collectively we often get it right (maybe not right away, but eventually).

Individually, we are prone to make decisions that are susceptible to all sorts of individual biases and environmental factors. However, when we gather information from a variety of information sources, we are much more likely to make good decisions.

Unfortunately, a number of historical and environmental factors paint democracy in the workplace as somehow being subversive.<sup>17</sup> Many strongly support democracy at a national level but not at the organizational level. This is an unfortunate fact, because like our desire to share what we know, getting involved in our organizations should be encouraged (as should expressing what we think).

### **2.1.8. Asymmetric or Private Information**

The core reason that employee involvement and cooperation and collaboration are so critical relates to the notion of asymmetric or private information. There was a time in my own career when many organizations put in place employee participation programs, but primarily as window dressing. As you can guess, they were not especially effective. However, if done right, employee participation programs can serve two equally critical functions. They can serve to better engage employees, and they can serve to get the best possible information to those who are making decisions.

The term used in the economic literature to describe this type of information is *asymmetric information* or *private information*, and the fact of its existence is why organizations should go to tremendous lengths to ensure that their employees are engaged, motivated, have a strong incentive to share information, and (probably most important) that they *do not leave*. Once you have found someone who is an especially good fit with your organization, you want to go to great lengths to ensure that he or she stays. The information they have at their disposal, and whether they decide to share and act on this information, has the potential to tremendously increase the probability of organizational success.

Asymmetric information simply means that only I know what I know. Only the individual knows how hard he or she can work, for example, or whether he or she has any good ideas about how to improve the production process. If they are in direct contact with the customer, they also have significant information about how customers like to be treated and about customer preferences. If the employees are in direct contact with the products being built, they also have access to tremendously valuable information about the production process and the quality of the products. If they are responsible for new product development, they certainly have a great amount of information about great new products. Not leveraging this information is like organizations leaving money on the table, but many organizations do just that.

### 2.1.9. Game Theory 101

This section discusses the classic example of the prisoners' dilemma, often used to explain game theory. You can see from the following example that it is the self-interest of both prisoners to hope the other prisoner confesses. However, it is not in either prisoner's self-interest to confess. It is unlikely that either prisoner will convince the other to confess. So in this case, the best possible outcome is one of working together or cooperating. There will be a cost, but it will not be as high as if they both choose to go it alone, as shown in Figure 2.1.

Individual 2		
Individual 1	Cooperate (remain silent)	Defect (confess)
Cooperate (remain silent)	2 years in jail 2 years in jail	4 years in jail 1 year in jail
Defect (confess)	1 year in jail 4 years in jail	3 years in jail 3 years in jail

Figure 2.1 The prisoners' dilemma

Collaboration and shared decision making work because by setting shared rewards people eventually figure out that it is in their self-interest to work together. One aspect of game theory that human capital management (HCM) has direct bearing on is employee turnover. The greater the employee turnover, the less likely that a cooperative culture will emerge. This argues that there should be a premium placed on ensuring that key contributors stay with the organization.

## 2.2. THE POWER OF COLLABORATION: THE SCANDINAVIAN MODEL

Each year, a number of business publications list the best countries or cities to do business. The cover of a recent issue of *The Economist* magazine announced “The next supermodel” while showing a picture of a Viking (a Viking with his nose turned up). The subtitle under the picture of the skeptical-looking Viking was “Why the world should look at the Nordic countries.” This edition of *The Economist* includes a 14-page special report that provides a number of insights into the Scandinavian model. Table 2.1 pretty much says it all. Of course, keep in mind that organizations are not countries. Also keep in mind, though, that a number of businesses are bigger than some countries. There are lessons we can extrapolate to our organizations.

Overall Rank	Country Prosperity	Global Competitive	Ease of Business	Global Innov	Corruption	Human Develop	
1	Sweden	4	13	2	4	10	3
2	Denmark	12	5	7	1	16	2
3	Finland	3	11	4	1	22	7
4	Norway	15	6	14	7	1	1
5	Switzerland	1	28	1	6	11	9
6	New Zealand	23	3	13	1	5	5
7	Singapore	2	1	3	5	26	19
8	United States	7	4	10	19	4	12
9	Netherlands	5	31	6	9	3	8
10	Canada	14	17	12	9	6	6
11	Hong Kong	9	2	8	14	13	18
12	Australia	20	10	23	7	2	4
13	Britain	8	7	5	17	28	13
14	Germany	6	20	15	13	9	14
15	Ireland	27	15	9	25	7	10

**Table 2.1 International Economic and Social Comparisons**

The argument people make about the Scandinavian model is that these countries are relatively homogenous and so this kind of shared-destiny philosophy is more likely to thrive. This might well be true; but even so, our most diverse organizations are certainly much less diverse than any one of these countries. So, if these characteristics are associated with their success, organizations should almost certainly benefit from them. Another defining characteristic of these countries is they have some of the lowest wage inequality of any of the major economies. This is certainly a large part of their success and is something that organizations can learn from. The power of everyone sharing in the prosperity of the organization is a powerful motivator and means of engaging the workforce.

#### **2.2.1. What Kinds of Organizations Could Benefit from a High Degree of Collaboration?**

The short answer is pretty much every one of them. Based on case studies of organizations that do an especially good job with collaboration, knowledge-intensive organizations such as consultancies and other organizations do an especially good job of sharing the intellectual capital of their members. Oddly, although a substantial degree of collaboration exists *between* academics across institutions, there is generally not as much collaboration *within* academic institutions. Part of the problem with academic institutions is a tendency for each of the schools or departments to work as silos (something the private sector works hard to eliminate, with varying degrees of success).<sup>18</sup>

However, certain types of organizations would benefit to a greater degree than some others. For instance, knowledge-intensive firms that do not have collaborative systems in place are losing out on a substantial amount of potentially productivity and profit-enhancing information.

However, it is not only knowledge intensive firms with employees that are highly educated and skilled that can benefit from collaborative initiatives.

In fact, though, organizations can have a high degree of *information capital*, and this may exist in organizations where few employees have formal educational qualifications but that have access to a high degree of competitive information based on direct contact with customers, the products and production process, and the innovative process.

### **2.2.2. The Benefits of Collaboration**

Nearly everywhere you look there is an increasing focus on collaboration. Knowledge-intensive firms have adopted open office plans that promote the free flow of information. Michael Bloomberg did this at Bloomberg LLC, and this is also the way in which he structured City Hall upon becoming mayor of New York. Firms have adopted a tremendous number of knowledge management software for the organization. There is a growing body of evidence that the better we are at collaboration, the better we are at coming up with great products and first-rate service.

### **2.2.3. The Bottom-Line Impact of Participative Decision Making**

The question here is really this: Why bother with collaborative decisions making? Doesn't this just slow things down? This is another topic I have researched and one that indicates that there are gains associated with greater involvement. In companies where collaboration is the norm, you are likely to get much greater investment (engagement by employees and stakeholders). A significant body of research indicates a strong link between employee involvement and the ultimate success of the enterprise.

Greater performance outcomes are associated with greater collaboration for a number of reasons. An engaged culture is critical to successful collaboration, and advanced analytics can assist with this. In addition to the substantial benefits associated with having employee feel more engaged, substantial efficiencies are associated with the flow of information. Those who are in direct contact with the products being built, with the services being delivered, with the customers—these people have access to asymmetric information, and without question, developing collaboration systems will lead to much greater and sustained competitive advantage.

Substantial research indicates a positive economic impact from collaboration. However, executives (or a small group of executives) often make big decisions based mostly on the information they have readily at hand. As discussed in [Chapter 1, “Challenges and Opportunities with Optimal Decision Making and How Advanced Analytics Can Help,”](#) decisions made this way often lead to outcomes that are far from optimal. Many decisions might be much better if they included as much information as possible. Collaborative decision-making systems are a vehicle to get the right information to the right people, who can then make the right decisions.

#### **2.2.4. Organizational Culture**

Considerable changes need to be made in organizations to make them places where employees are fully engaged and have an incentive to share what they know and are intent to stay (and so not spend time looking for the next job). Building such an *organizational culture* is worth the effort.

I have never liked the term organizational culture. This admission will get me in trouble with friends who conduct research on the topic, but it always struck me as



simply too vague. For instance, with regard to the Challenger disaster, I recall hearing that a problem with the organizational culture at NASA ultimately led to the disaster. Honestly, to say that the culture caused the disaster doesn't tell me much of anything. What actually led to the disaster were a very identifiable decision-making structures and specific incentives.

Essentially, corporate culture boils down to who does what and how do we motivate for productivity. All the activities associated with HCM revolve around these two questions. So, what do we mean specifically by the term analytical culture? What does this mean for analytics and decision making?

Let's consider the Challenger example again. If the facts were acted upon, a tragic disaster could have been avoided. The question then arises: How do we design an organization and incentives so that it is only the facts that are acted upon? Blame is often assigned to the culture for all sorts of bad behavior and suboptimal results. Correct modeling, deep analytics, sophisticated algorithms, and statistical techniques are only part of the story. You also want to look at what specific behaviors are being rewarded and encouraged through incentives and who has the authority to make decisions.

#### **2.2.5. Optimal Incentive Contract for Collaboration: Sharing Control and Return Rights**

One of the most efficient incentive contracts is transferring the rights of ownership to nonowners. The two rights of ownership are *control rights* and *return rights*. Control rights are rights that come with ownership, which say that the owner has the right to do whatever he wants with the assets. Return rights are the rights to any returns, financial or otherwise, associated with the asset.

Sometimes the most efficient incentive contract is to transfer these rights of ownership to nonowners. In practice, this is done all the time. Executives are given a lot of freedom to make decisions about the assets of the organization, and they are in turn awarded some portion of the returns from the use of the assets. At the executive level, this sort of contract is generally a given. As we move to other positions in the organization, this might not be so common (ascribing both rights to employees).

There are many examples where one or the other of these rights is to some degree transferred to nonexecutive employees. There are many examples in which organizations provide opportunities for employees to participate in decisions or to manage assets that they are in direct contact with. The same applies to some degree of participation in the gains associated with the use of those assets. What is more unusual is for nonexecutives to have both of these rights transferred to them.

We need to explore three issues here:

- Transferring control rights without return rights does not provide an incentive to maximize the output from that asset (for example, either technological or human capital).
- Transferring the right of returns without transferring control rights means that employees will not have the authority to fully utilize the asset to obtain the maximum return. For example, they do not have the authority to cross-sell products.
- The most efficient incentive contract is when nonexecutives have both rights transferred to them. That is, they can cross-sell products and receive compensation for doing so.

### **2.2.6. Models of Collaboration**

I have had the good fortune of being associated with two very collaborative and cooperative work environments. One was a research center at the London School of Economics (the Centre for Economic Performance; CEP). The other was the European headquarters of Cargill, Inc., located at that time in Cobham, Surrey.

They were both tremendously challenging and supportive cultures. They expected world-class cutting-edge social science research and world-class work, and no one in either place was shy about being as critical as they were supportive. Both of these places were filled with bright and hard-working individuals who valued competence and collaboration and a nice mix of work, play, and socializing. Strong ties developed between people, and people were happy to share their expertise with one another. I believe the cultures in these places were also the reason for their success. The CEP had two future Nobel Prize winners associated with it, and Cargill, Inc. is the largest private company in the world.

I have also worked where the environment was much more Darwinian—a place with little collaboration, where people routinely helped themselves to others ideas, took credit for others' work, and were generally (no other way to say it) mean spirited. I liked the collaborative places better.

Some people excel in Darwinian workplaces. Microsoft has this sort of reputation. Microsoft has enjoyed great success (being a near monopoly has not hurt), but I do not believe this model maximizes the potential benefits from individual and collective private information.

One organization that typifies many of the positive aspects of what I am advancing here is the SAS Institute,

located in Cary, North Carolina. It also happens to be one of the premiere makers of advanced analytical software.

### **2.2.7. The SAS Institute**

The SAS Institute was established in 1976 by five co-founders and is one of the top providers of analytical software in the world.<sup>19</sup> James Goodnight is the CEO and primary owner, controlling a two-thirds share of the company. SAS supplies many Fortune 500 companies with advanced analytical products.

Goodnight had worked for NASA, where employees were not trusted, executives were treated much differently from most workers, people did not talk to one another, and employee turnover was 50%. He vowed that if he were to start a company, things would be different; at SAS, they are.

Employees work a 35-hour workweek. There are on-site physicians, social workers, daycare, a gym—almost every service you can think of. The notion is that if daily tasks and concerns are taken care of, employees will be much more able to concentrate on their jobs.

One of the most impressive metrics is the fact that turnover is extremely low for a technology company. It hovers around 4%; the range for most technology companies is between 30% and 60%. It is estimated this low turnover rate saves the company \$65 million annually, not including all the valuable information that employees take with them when they leave.

The organization is built upon a few important pillars, including the following:

- Invest heavily in getting the hire decision correct.
- Employees work a 35-hour workweek.

- No stock options, but profit sharing and bonuses.
- An annual employee and manager survey gauges morale.

SAS's compensation systems are designed to foster interdependence. For instance, individual targets are not set for salespeople; instead, sales team targets are established. How well they do as a team determines how well the salespeople are rewarded. If you hire the right people, this serves as a powerful incentive. It provides an incentive to both help each other and to monitor one another.

Also note that no stock options are given. Instead, everyone participates in a company profit-sharing scheme, and everyone is bonus eligible. I believe they are doing exactly the right thing by not offering stock options. SAS is a private company owned largely by Jim Goodnight, and though it is entirely possible for private firms to put in place a phantom stock-option program, in this case it is unnecessary and would detract from the type of organization in place.

And, it has to be said, they are a hugely successful organization. They make great products (I talk about a number of them), have always been profitable, have never laid anyone off, always issue profit-sharing payments, and continue to grow. They have an interesting business model where they lease software to companies, with a yearly renewal of the lease; so, they are extremely responsive to their customers. This model has been a pivotal component of their success.

#### **2.2.8. EMC|One**

An excellent example of an initiative with a focus on both the organizational culture and the technology was in place at EMC. During the recession, when there was a focus on cutting costs, many EMC employees used a social media platform to suggest ways to cut costs and increase efficiencies. Changes that were made were more palpable to employees because they were part of the decision-making process, and because of the aggregation of information from many, the decisions themselves were better.<sup>20</sup>

#### **2.2.9. Boston Scientific**

Another firm that does an especially good job with collaboration is Boston Scientific.<sup>21</sup> According to John Abele, one of its founders, one of the biggest challenges of developing a collaborative organization was not with the technology but rather with other factors. Abele emphasizes the importance of soft skills when it comes to something as critical as collaboration. Abele described a training course for a surgical method as follows:

Its real value, though, lies in the “wisdom of crowds” approach to advancing and proliferating the best new techniques. Software tools for collaboration abound, but it’s the soft skills that bring minds together.<sup>22</sup>

### **2.3. ADVANCED ANALYTICS AND COLLABORATIVE DECISION MAKING**

In the first instance, advanced analytics can assist with the determination of whether your organization, division, plant, department, or team could benefit from collaborative decision making. The decision framework should look like this:

1. Should you put in place a collaborative decision making process?

A. Degree to which employees have access to potentially productivity enhancing information (1–10)

B. The impact that information could have on output (1–10)

C. Decision required immediately (1–10)

2. What form of collaborative decision-making process should you put into place?

### **2.3.1. Challenges and Opportunities with Participative Decision Making**

Enterprise content management (ECM) software makes much of knowledge management and collaboration possible. These systems hold the text, videos, social media, and other content that ultimately facilitates the sharing of this information. Interestingly, while much of IT spending decreased during the recession, spending on ECM increased. Spending increased by 5.1% in 2009, and 7.6% in 2010 (with revenue for ECM in 2010 of \$3.9 billion). Estimates suggest that the annual compound growth in ECM purchases will increase at 11.4% through 2015.<sup>23</sup>

This is not entirely difficult to explain. Firms were doing their best to do more with less, so employees were (apparently) using whatever information source they could find. Organizations purchase these systems for a number of reasons, including the following:<sup>24</sup>

- Improve effectiveness
- Reduce operational costs
- Optimize business processes
- Achieve regulatory compliance and e-discovery goals

- Attract and retain customers

A number of excellent tools can assist with the collaboration process and ultimately assist with the making of much better decisions. Organizations are also starting to get much better at this. Organizations that can tap into the knowledge skills and abilities of their workforces are at a sizable competitive advantage over those that do not. Much of this is motivated by leveraging and retaining employee know-how. This is certainly the case in all knowledge-intensive firms such as consulting and research and in development-intensive industries. However, nearly all firms have institutional knowledge and experience that can be better leveraged.

You'll note in other chapters a partial focus on the use of analytics to *avoid* problems. In this section, most of the focus is on optimization. The underlying assumption here is that a treasure trove of information resides within employees, and because of all the technologies that have come online recently, it is critical to get the incentives and the organizational structure right.

In settings where there is little incentive to share information across divisions or even with fellow employees, intergroup cooperation is much more likely than intergroup competition to promote positive outcomes. Competition between groups is fine, but you increase your chance of success substantially if a strong element of cooperation exists within the organization.

### **2.3.2. Software, Advanced Analytics, and Cooperation and Collaboration**

Business intelligence software has some functionality referred to as *collaborative BI*. However, these systems are not as comprehensive as collaborative decisions-making platforms.<sup>25</sup>



Here are some impressive software products that can assist with this process:

Cogniti

Decision Lens (CMD)

IBM Cognos BI V.10.1 (CMD and collaborative BI)

Lyasoft: Lyza (CDM and collaborative BI)

Microsoft SharePoint (CDM)

Panorama Software: Necto

Purus Technologies: DecisionSurface (CDM)

SAP: SAP StreamWork (CDM)

### **2.3.3. Deep Q&A Expert Systems**

Where can decisions associated with collaboration and knowledge management be assisted by AI and deep Q&A expert systems? Quite a number of potential problems and opportunities can be addressed and opportunities uncovered. Cray Computer's YarcData has come out with a new computer called uRiKA (pronounced Eureka) that is similar to IBM's Watson:

- Determinant of the primary method of decision making in your organization
- Determinant of the optimal decision-making strategy for your organization
- Recommended course of action

As stated previously, many vendors are operating in this space, and there is not enough bandwidth in this book to profile them all. Again, excellent sources of information for comprehensive evaluation of the various vendors and

their products include Gartner Research and Forrester Research. The specific vendors I discuss are so profiled because they provide features that I believe are especially pertinent to HCM decisions, with one caveat for this chapter. Generally, when discussing other software in this book, the discussion focuses on information associated with HCM and related decisions. This evaluation will not be limited to only HCM decisions but will instead include a broader set of decisions. These systems usually contain a variety of business intelligence, including a variety of decisions support tools. With regard to collaborative decision making (CDM) software, as with much of the software I discuss, the primary obstacle to use is organizational culture issues. Top management might not care to give up the power that comes with control over decision making. According to Gartner,<sup>26</sup> decisions associated with these systems include resource allocation, vendor selection, planning, and forecasting—all topics that are engaged with within HCM.

These systems facilitate the collaboration of many different parties to gather as much information as possible about an issue, ultimately using this information to suggest a more informed decision. Are the decisions better? This is a question that needs to be tested. Of course, with issues such as are they faster or slower, one would assume the decision making process may be slower, but this is not necessarily the case. Gathering all the information necessary to make a decision might seem to slow down the decision making, but making an informed decision certainly requires a substantial amount of research. This technology can speed up the process of obtaining the necessary information. So, the jury is out on this question of speed.

The quality of the decision is clearly a critically important aspect of the decision-making process. What

about evidence that decisions using analytics are more robust? Again, there is a clear impact on performance associated with the use of advanced analytics. One such CDM system is the SAP StreamWork. The system is stand alone and allows whomever is the decision maker to find and select the best possible people to be included in the decision-making process based on information found in their profile. It provides signoff capability for those with various degrees of authority. It also captures the entire decision-making process and documents and stores it so that it can be revisited. The system interfaces with other SAP systems, making it possible to upload spreadsheets and dashboards, polls, pro/con tables, and a number of decision-making tools. In addition, it is possible to collaborate with external customers and clients, at the same time that confidential worksheets are kept confidential.

So, this in turn boils down to a simple question: What specifically can we do to see that our information capital is maximized? And how can advanced analytics assist with this process? If you want to be convinced that we do an especially lousy job with prediction, look no further than merger and acquisitions. We are truly terrible at predicting which firms are likely to work well in concert. Much of this boils down to incomplete and inaccurate predictive models.

### 3. Value Creation and Advanced Analytics

#### 3.1. THE WEALTH OF ORGANIZATIONS AND WHAT ADVANCED ANALYTICS CAN DO

If there are tectonic changes associated with our understanding of how we make decisions and what actually comprises human nature, the same holds true for our understanding of where value lies within organizations. Historically, financial and technological capital was considered the primary driver of value creation.<sup>1</sup> More recently, they have come to be viewed as commodities—essential inputs, but easily transferable and (generally) readily available. (If you are working for a cash-strapped start-up, small company, or in a dying industry, *readily* available financial capital might not ring true. However, if you are associated with any of the Fortune 500 with its \$2 trillion in cash reserves, it may.) It is also increasingly understood that the input that does not lend itself easily to commoditization is inputs from human capital.

The reason human capital is so difficult to commoditize is because it possess something other forms of capital do not: *asymmetric* or private information. Unlike financial or technical capital, if it so chooses human capital can keep what it knows to itself, withhold effort, or, frankly, just leave. To maximize the contribution of human capital, employers develop incentive contracts—policies and practices developed to enable and motivate the workforce. When these practices and policies that maximize human capital's contribution are combined with other complementary forms of organizational capabilities (for example, work processes, technologies), it becomes nearly impossible for the competition to

replicate, consequently providing a powerful and sustainable competitive advantage. The trick is to determine exactly which policies and practices for your *specific human capital and organizational capabilities* optimally promote your organizational objectives.

Getting human capital management (HCM) policies and practices right provides two main benefits. One, you will be much more likely to retain the human capital that is associated with your success, and two, you will have greater output, more innovative products and services, much more satisfied customers, and greater product and service quality. Consequently, this will result in cost savings (employee turnover is very expensive) and greater growth.

The use of advanced analytics can assist in making these determinations much more accurately. You can do this in a number of specific ways, including the following:

- *Predict* much more accurate outcomes.
- Use better models of organizational value creation.
- Model how humans actually decide.
- Utilize agent-based modeling.
- *Recommend* optimal practice and policy choice.
- Determine optimal policy and practice.
- Deep Q&A expert systems.
- *Signal* more accurately ability and potential.
- Determine optimal selection and promotion.
- Use bibliographical data.

- *Map* individual and team performance to organizational outcomes.
- Performance management and incentives.
- Map contribution to organizational objectives.
- *Share* knowledge and know-how.
- *Evaluate* the impact of planned and potential policy and practice changes.
- *Optimize* employment levels, hours worked, and benefits.
- *Diagnose* problems and recommend solutions.

### **3.1.1. Information Capital**

As discussed in Chapter 2, “Collaboration, Cooperation, and Reciprocity,” human capital has private or asymmetric information, information that only they know. This information can relate to skills and abilities or how hard they can really work or information about customers, new products, or ways to make the production process more efficient and effective. This information that only they know has considerable value, a quantifiable value.

The existence of asymmetric information is the reason why the effective management of human capital is so critical for organizational success. This is also one of the primary reasons why it is critically important to retain key human capital. One of the primary reasons employee turnover is so costly is because employees have a bad habit of taking what they know with them when they leave. Human capital has the unique ability to decide what information it cares to share and what information to keep to itself. However, there is another source of information that also has tremendous value to

organizations, and that information is found in data, the data organizations keep on their human capital.

### **3.1.2. Constant and Unrelenting Experimentation**

Every organization is unique, and so is everyone working within it. That in itself provides a strong argument that the notions of best practice (it should work for everyone everywhere) and benchmarking (comparing base salaries, for instance) should become less and less important. This does not mean that seeing what the “market” is up to is not valuable, but in terms of really achieving an impossible-to-replicate competitive advantage, you want to *know what works for you*. What this requires, and what we have the tools to achieve, is constant and unrelenting experimentation.

Most organizations have everything they need to constantly be evaluating and, more important, experimenting with new ideas and ways to engage, enable, and excite the human capital. This does not mean that you have to roll out a tremendously expensive new program, but you can experiment at one work site or with a work team and see how the new initiative is received. We should always have the answer to this question: Is the program worth it? Or, did the program work? For instance, one type of program that has been around for a long time is the organizational wellness program. Do these programs save the organization money or not?<sup>2</sup>

Take, for example, Yahoo!’s new policy that requires everyone to come into the office. There is an identifiable date, so assuming that they have the necessary data, they have everything they need to determine whether (after the introduction of that new policy) employee turnover decreased, increased, or stayed the same. They can look at absenteeism, employee morale, whether the company developed more innovative products, the number of

customer complaints, and so on, ultimately determining if there is a relationship between the introduction of this new policy and outcomes of interest.

Panel data analysis provides us with the means to determine the holy grail of econometric analysis. This type of analysis allows us to evaluate (and hopefully establish) a cause and effect relationship, enabling us ultimately to say declaratively that a particular policy and practice was closely associated with a specific outcome. Time series or panel analysis consists of evaluating the impact the introduction a policy and practice has on variables of interest. For example, you just put in place a child-care facility in your office in New York, but not in California. Once some time passes, say three months, you have pretty much everything you need to conduct impactful econometric analysis, establishing (or not) a cause and effect relationship between the use of a specific practice and the impact on outcomes of interests. Those outcomes can include everything from employee turnover, absenteeism, sales, and customer satisfaction, to name a few.

Organizations are constantly conducting cost benefit analysis associated with market plans, new products, and so forth. However, the same sort of analysis associated with costing HCM issues is done less often.

Organizations can experiment in different ways to evaluate and refine policies and practices that are in place and thus tailor their activities to obtain the maximum long-term positive impact.



### **3.1.3. Gold in Them There Databases: Human Capital Data**

One of the projects I worked on while I was working at the Center for Economic Performance (CEP) at the London School of Economics was a Data for Analysis exchange. The arrangement was if organizations would provide researchers at the CEP with data from their human resources information system (HRIS), we would use that data for publications, and in turn we would provide them with a rigorous and thorough evaluation of the impact of the policies and practices they had in place. At the time in Britain, the late 1990s, there was considerable speculation that a minimum wage was going to go into effect, and it did in 1999. Researchers were interested in the impact this would have on employment. The standard economic argument holds that as wages increase, we buy less, in this case employees; so based on this theory, we should see unemployment go up. Here again there is at best mixed evidence supporting conventional economic theory. Yes, if the minimum wage is very high, organizations are less likely to hire. However, there is an optimal pay level in which employee turnover drops (these are most likely service sector jobs) and profits increase (again, it is not rocket science: having to constantly hire and train people is costly). I considered this data bartering/analysis arrangement to be a marriage made in heaven, a top research university providing an organization with rigorous, unbiased, and objective research, and the CEP would get some really great data. The organizations could remain anonymous if they so chose, and they would get for free an analysis that would normally cost them a lot of money.

One frustration I had when working for organizations was that we never really had time to evaluate the impact of the practices we were putting in place. We were so tied up with the immediate day-to-day activities that evaluating the effectiveness of what we were doing was

not on the radar. At the time, I knew that was suboptimal, because conducting this sort of analysis could provide extremely valuable information on the impact of the policies and practices in place, and also inform future decisions about what to do. We (I was really just involved in the project at the very beginning) did end up getting a number of organizations to participate, and those that did participate got some really great analysis, and scholars at the CEP were able to publish some great papers using the data.

When people think about valuable data, they often think about data on consumer spending habits or people's search results, which is information that is ultimately very valuable to advertising organizations. Less often considered is the treasure trove of data organizations have on their own primary driver of organizational success: human capital.

Organizations usually have a large amount of data on employee salary histories and demographic data. There is also data on training and performance appraisals and possibly employee satisfaction surveys. In addition, and very importantly, there is data on the date a new incentive plan was put into place (for example, when the child-care facility started or when a wellness program was established). Couple this with organizational performance data and you are able to conduct a panel data analysis that provides a clear cause and effect relationship. Often, unfortunately, at best data is used to show correlations between two variables. Yes, information from correlations may point us in the right direction (or the wrong one), but it says nothing about cause and effect. Here again is an opportunity provided to us by big HCM data and sophisticated analytics. (I have not talked about how critical data integrity is, but it is a fundamental starting point.) We can use this information

to both evaluate what we have done and to make better decisions about what to do in the future.

#### **3.1.4. Not Only Human Experts Are Prone to Biases**

As discussed earlier, relying on the experience of one human expert exposes decisions to biases but the same can be said when evaluating empirical research.

Empirical research is subject to different but no less problematic biases including the following:

- **Measurement error:** Are you accurately measuring the concept you are attempting to measure (for example, employee morale and satisfaction)?
- **Omitted variable bias:** Is the observed result influenced by factors not included in your model (for example, variation in the quality of managers)?
- **Reverse causality:** Do higher profits make happier employees or do happier employees make higher profits?

### **3.2. VALUE AND HOW TO CREATE IT: INTANGIBLE CAPITAL**

In addition to paradigm-shifting discoveries about how we make decisions and how rational we really are, there has been paradigm-shifting research related to what makes organizations successful and the role human capital plays in this process. Much of this research has been conducted by Baruch Lev of NYU's Stern School of Management<sup>3</sup> and his students. Intangible capital is defined as all those factors that ultimately lead to value creation, including reputation, intellectual property, and human capital.

Increasingly, the question is being asked: What drives intangible capital formation? While a substantial amount of the discussion has revolved around the issue of the measurement of intangibles,<sup>4</sup> the work of those like

Robert Kaplan and David Norton has gone a long way toward identifying how it is formed and developed. One of the key drivers of intangible assets is inputs from human capital.

### **3.2.1. Who Really Holds the Keys to the Kingdom**

A term used to describe a combination of IT, human capital, and other organizational capabilities is *organizational capital*.

One definition of organizational capital is:<sup>5</sup>

The knowledge used to combine human skills and physical capital into systems for producing and delivering want-satisfying products. It relates but is not limited to the following: (a) operating capabilities; (b) investment capabilities; and (c) innovation capabilities.<sup>6</sup>

Others view organizational capital as primarily residing within human capital,<sup>7</sup> and still others view it as embodied in the organization itself.<sup>8</sup> Organizational capital recognizes that inputs from human capital combined with other organizational capabilities are the primary value creation mechanisms within organizations.

Yu Peng Lin and I were interested in just what role organizational capital played as a mechanism for why we were seeing better performance in companies that broadly distributed stock options. As mentioned, organizational capital is meant to identify organizational capabilities, human and technological. By evaluating a measure of organizational capital, we were able to determine whether the higher degree of output was due to this combination of human and technical capital. We found strong evidence that stock options were associated with greater organizational capital and greater output.<sup>9</sup>

This research showed that much of the value created from stock options was due to an increase in organizational capital, and we concluded that this was also associated with much lower employee turnover. This finding, along with substantial other research, points us toward making certain that employee turnover is kept as low as possible. This, in turn, means that the value-creating mechanism within an organization is largely a function of inputs from human capital. This is not to suggest that the other inputs are not necessary, but maximizing the contribution of human capital is the way to create significant value in the organization.

It is difficult to adequately emphasize just how critical it is, for the well-being of the organization, to keep key employee turnover as low as possible. When an organization finds someone who is an especially good fit, the organization should ensure that they are motivated, satisfied, and challenged. Due to its vesting requirement, broad-based stock options are especially good at keeping employees tied to the organization. This “retention effect” ultimately results in greater output and financial returns.

Again, I want to emphasize that this does not mean that every organization everywhere would be better off if they offered stock options to everyone. The key is to have an engaged workforce, and there are many ways in which to accomplish this, depending on the nature of the organization and the workforce.

### **3.2.2. The Nature of the Organization**

Although it might sound esoteric and philosophical, the topic of the nature of the organization has very practical implications. Why firms or organizations exist at all is a question that has engaged the social sciences for a very long time. Within economics, the answer to this question is largely found within the “transaction cost” literature. This literature states that it is much more efficient to conduct certain activities under the umbrella of an organization. What is important to remember is that all organizations at their most elemental are simply coordination and incentive systems. So, this boils down to two simple questions:

- Who does what?
- How do we get them to do it?

### **3.2.3. The Cost of Employee Turnover**

The direct costs associated with employee turnover has been estimated to be anywhere from 1.5× annual salary to as high as 5× for difficult-to-fill positions. So, the direct (executive search fees, time spent recruiting and interviewing, and so on) is in and of itself substantial. These are all easily identified costs that should be fairly easy to extract if you want to determine an exact cost for your organization. However, these costs are really just a small part of the overall cost to an organization when employees with valuable information leave the organization.

You are also losing all their accumulated organizational-specific human capital. We will see that keeping employee turnover as low as possible makes especially good sense if you have employees who have access to very valuable information in the form of information on customers, new products or services, product quality,

and their own human capital; and this means just about everyone.

Keeping employee turnover as low as possible justifies investing in programs and policies that are focused specifically on that end. For instance, child-care services, or a health club, or deferred compensation, whatever policies fit your specific organization. As mentioned, the company SAS has onsite health care, child care, and social workers available to assist with elder care and other family issues. These programs all allow employees to focus on their jobs, and they also serve to keep employee turnover low. The related costs of these programs are more than paid for by the 4% or 5% annual employee turnover that this company sees versus the 20% or higher rate in the rest of their industry.

### **3.3. STRATEGIC CHOICE AND ADVANCED ANALYTICS**

At the time I worked for Cargill, Inc., the company employed both distressed asset traders and cowboys. Do you think the same policy and practices should be in place for both types of employee? Do you think the same policies and practices should treat both job families the same? Do you think what motivates a cowboy is the same as what motivates a financial trader? What makes for a great cowboy? What makes for a great distressed asset trader? Probably not the same characteristics.

Oddly, many organizations and some of the research has long looked for *best practices*. These are practices and policies that work every time for everyone; essentially, one size fits all. Does following the best practice philosophy actually optimize the contribution from human capital? The answer is no. What motivates a cowboy will not motivate a derivative trader, and, for that matter, what motivates one cowboy will differ significantly from what motivates another.

The stock option example I mention in the first chapter is another example. Yes, broadly dispersed stock options are associated with greater levels of productivity, but the important qualifier is that this in no way means that everyone should give options to everyone or to anyone for that matter. Nor does it even mean that every technology firm should use stock options. The company I mentioned earlier, SAS, a tremendously successful privately owned company (giving phantom options in private firms is done often) does not give anyone stock options. They have one of the lowest turnover rates in the industry. The practices and policies you put in place depend entirely on what you are trying to accomplish and with whom.

Effective human capital management has been defined as follows:

A pattern of planned human resource deployments and activities intended to enable an organization to achieve its goals.<sup>10</sup>

An issue that needs immediate attention in a world of practically an unlimited number of potential HCM deployments and activities is this: Which specific ones are the most effective in any particular situation? Recently, there has been some controversy surrounding the optimal choice of policy and practices.

There are two aspects to strategic HR issues: first, the *determination* of the optimal way in which the HR policies and practices can support the objectives of the firm; and second, the *execution* of these policies and practices. The use of advanced analytics and emerging technologies can assist considerably with the determination of optimal HR policy and practice choice, and the emerging technologies can go a long way toward the execution of the various policies and practices.



This is the domain of strategic HR management, and ideally, to make optimal choices, you want to consider a combination of micro and macro factors. What practices make the ideal choice under specific situations, and how can advanced analytics assist with that?

An equation for this model is as follows:

Organizational Strategy + HR Policies and Practices =  
Organizational Success

### **3.3.1. HCM Practice Choice and Advanced Analytics**

According to Bruce Kaufman and Ben Miller, authors of the article “The Firm’s Choice of HRM Practices: Economics Meets Strategic Human Resource Management,” the primary question associated with strategic human resource management research (SHRM) is this: “What is the firm’s optimal (performance maximizing) choice of HRM practices?”<sup>11</sup> The authors review a number of different approaches associated with HR practice determination, including the following:<sup>12</sup>

- **Universalistic:** The universalistic approach holds that there are certain best practices that should be adopted by everyone everywhere because they will universally promote superior performance. The specific practice choice in the universalistic approach is not well defined, and this approach consists largely of general concepts (for example, extensive training, decentralized decision making, extensive information sharing).
- **Contingency:** The contingency approach holds that the choice of practice is contingent on the specific situation. This view adopts a best fit approach contingent on factors such as firm size, skill level and tasks of the workforce, labor market conditions, and so on.
- **Configurational:** The configurational approach consists of a systems approach in which the various HR

functions (for example, recruitment, selection, training, compensation) complement one another.

Assumed within these approaches is that the potential performance effect is multiplicative; that is, the more of them you use, the greater the impact on performance. There seems to be general agreement that the “one size fits all” approach is faulty and so, instead, an integrated approach is the most sensible approach.

Consequently, how do we model ideal HR practice choice? According to Kaufman and Miller, management scholars generally consider economic models to be too simplistic,<sup>13</sup> and economists view management as light on substance and heavy on description and prescription.<sup>14</sup> However, the authors draw from both the management and economic traditions to determine the factors to consider when deciding what practices to put in place that are most closely associated with successful outcomes. More recently, there has been a focus on what has been referred to a “high performance work practices” (HPWP) or practices that engage and motive the workforce. However, it is also recognized that these practices vary by situation.

This model is well suited for explaining (or in our case determining) practice choice across industry, organizational life cycle, firm size, country, and so on and predicts the use of the various practices within a particular setting. The  $X_i$  variable is the one of interest to us. This variable is actually a vector (or list) of practices associated with optimal HCM practice choice.

- **Firm size:** The demand should increase with the size of the organization.
- **Wages:** If you are paying above market rate, expending effort on maximizing the contribution of human capital is very important.

- **Technology:** Team production.

In essence, the model uses the following equation when attempting to determine optimal choice:

$$HRMi=f(Qi,Wi,Xi)$$

The next question is this: What practice do we use when? The answer to this question will vary considerably depending on the situation you are in. In many cases, the default has been to put in place the same HR policies and practices that a competitor (or an organization that is operating in the same labor market, which may or may not be in the same industry) uses. Because there are few true apples-to-apples situations, it is most efficient to take the time to carefully evaluate your individual situation. This is not to say that knowing a competitor's policies and practices is not valuable, but the adoption of exactly what they are doing is rarely advisable.

Suppose, for instance, that you are about to open a new plant in a different part of the country, or maybe in another country. You have some data on local pay rates and the kind of practices that the competitors have in place. However, it is a green field site in a business your organization is new to. How do you decide what policies and practices to put into place? You need to abide by existing laws and the other conventions of the region or country, but you still have plenty of latitude to choose policies and practices that you believe will maximize organizational efficiency.

The information necessary to make policy and practice determination is easily handled by tools associated with advanced analytics, but not so easily handled by us. The choice of policy and practices and how they align with the other HR policies and practices can quickly become complicated. This is due to the large number of different HR policies and practices that exist. You have to consider

which ones maximize the potential for meeting organizational objectives as well as how they interact with all the other organizational and functional policies and practices in place.

### **3.3.2. Business Intelligence Alignment of HCM Practices and Policies with Business Strategy**

There have been a number of developments in business intelligence (BI) and analytics recently. These developments involve the use of ever-more sophisticated analytics and the presentation of those analytics. In addition, there have been advances within the HR profession, providing much clearer insights into how and where effective decisions are made.

The use of analytics has a long history within HR as well, with many practitioners and academics alike making formidable contributions to the discipline. Much of this work has concentrated on the use of analytics to establish a connection between HR activities and the performance of the firm.

Increasingly, strategy maps are being used for more robust analysis. This is important because to date many of the analytics available only allowed for simple descriptive analytics. More recently developed analytical tools enable you to be much more declarative about whether two variables have a causal relationship. For example, these systems should allow an answer to questions such as this: Has the introduction of a new on-site child-care facility resulted in an increase in employee morale and a decrease in employee turnover? Then, ideally, it would be of further benefit to determine the exact dollar impact the adoption of a child care facility. Are the costs associated with setting up and running an on-site child-care facility more or less than the cost savings associated with reducing employee turnover and absenteeism? Also, are there added benefits associated

with the establishment of the on-site child-care facility?  
For instance, is there a benefit associated with the attraction of potential new employees?

### **3.3.3. Decision Science, Business Intelligence, and Implications for HCM Decisions**

It is generally agreed that the field of decision science got its start with Fredrick Taylor in the early 1900s.<sup>15</sup> Fredrick Taylor is, of course, known for *scientific management* and *Taylorism* and his use of time-motion studies to determine optimal job rates, which was in turn tied to pay and the infamous “piece rate” systems that rewarded quantity over quality. Taylor may have gotten things started, but decision science<sup>16</sup> did not really take off until WWII, during which the techniques were applied to strategic and tactical problems during the war. Simultaneously, an increase in computing power allowed for more and more sophisticated analysis.

The challenge with decision science is the emphasis has long been on how people *should* make decisions rather than on how people actually do make decisions. Fast forward to today and sophisticated BI analytics are mostly found within finance and general strategy products. They include such products as IBM’s CFO Performance Dashboard version 3 Advanced Edition and SAS’ Strategy Management.<sup>17</sup> One big advantage of these systems is that they allow for rigorous evaluation of the relationships between variables. IBM’s CFO Performance Dashboard,<sup>18</sup> for instance, provides financial key performance indicators (KPIs), and it integrates IBM’s Cognos BI software and IBM’s SPSS statistical capabilities. This provides a financial intelligence and allows for “what if” analysis and also includes predictive analysis using causal modeling that provides potential outcomes associated with specific business decisions and scenarios.

Although considerable variation exists across industries, on average 70% of the cost of doing business is due to human capital costs. Consequently, the more this resource is optimized, the better; and advanced analytics provides a number of tools that can assist with this. Advanced analytics offers a number of potential ways in which to make better decisions about HR policy and practice choice, including the following:

- Dashboards, scorecards, and strategy maps can be used to better understand relationships between variables and assist in establishing line-of-sight causal relationships between performance outcomes.
- Advanced analytics with predictive capabilities can establish connections between programs and policies and organizational performance outcomes (for example, productivity, profitability, employee turnover, employee morale).
- Q&A expert systems can assist with the determination of optimal HR policy and practice choice.
- Applications can help diagnose problematic outcomes such as employee turnover.

Recent work has established a connection between effective HR management and firm performance.<sup>19</sup>

The alignment of HCM practices with business objectives has evolved into how these policies and practices map to organizational objectives. Many of the corporate performance management strategy products display the relationships between various metrics and how they co-vary. This largely takes place through the use of dashboards, scorecards, enterprise metrics frameworks, and the analysis of structured and unstructured data.<sup>20</sup> According to Forrester Research, a number of BI vendors offer “consolidated HR analytics solutions.”<sup>21</sup> The benefit

of these sorts of products is that they allow integration across a variety of different enterprise resource planning (ERP) vendors.

#### **3.3.4. Machine Learning and HR Practice Choice**

What can machine learning add to the determination and execution of the selection and execution of HR policies and practices? Once the initial model is established, the next stage can be to further determine whether there are other patterns associated with policy choice and practices and stated objectives. As discussed, machine learning is especially good at pattern identification. HR is a data-intensive function. Machines that learn can do just that and can comb through a wide range of data looking for patterns.

- **Machine learning**

Identify why turnover is taking place.

“Learn” what characteristics are associated with superior performance.

- **Predictive modeling**

Use machine learning to better predict whom you will need to hire in the future.

- **Deep Q&A expert systems**

Get advice based on rigorous research rather than one person’s opinion.

- **Prescriptive recommendations**

What can deep Q&A systems assist us with relative to determination of policy practice and choice?

Again, the policies and practices in place are often a function of tradition or benchmarking. What may have made sense 10 years ago or relative to the plant next to you in a totally different industry and in a different point in the life cycle will almost certainly not be pertinent to your given situation.

### **3.4. SOFTWARE APPLICATIONS, ANALYTICS, AND HR DECISIONS**

Interesting technologies that have considerable potential for impacting HCM decision making are strategy maps and sophisticated scorecards that include analytics and that are integrated within an ERP system. These can provide a very rich set of information and data that allows for forecasting and what-if analysis and that can go a long way toward establishing a cause and effect relationship between practice choice and outcomes.

Most people doing HCM are too busy with the transactional to have time to engage in analysis. The potential of these systems is substantial. For instance, it is possible to start with an inventory of employee skills to match those with the strategic objectives of the firm. This is what these systems now allow for. Much of the advanced analytics consist of the following three capabilities:

- **Forecasting capabilities** are used to accurately assess future needed skills. It is also possible to evaluate the needed skills mix using a variety of different scenarios. An example is the potential entrance into new markets requiring a new set of capabilities.
- **Predictive modeling** allows for an analysis of past events to predict future outcomes and assess both areas of opportunity and risk. For instance, it is possible to identify employees who are at high risk of leaving the



organization, allowing time to develop interventions to reduce undesirable turnover.

- **Optimization** provides a method to determine the ideal allocation of resources (for example, allocation of a bonus pool across employees while keeping an eye on internal and external equity).

#### **3.4.1. Software Options and Optimal HCM Practice**

This would often be associated with the notion of strategic HCM. Alignment of HR practices with business objectives is critical to organizational success. Much of this boils down to an interface of human capital, with technological capital (e.g., I.T. systems).

A number of specific tools do an outstanding job of helping to make decisions that ultimately impact the success of the organization. One of the most integrated systems is SuccessFactor's BizX, short for Business Execution Software.

The software offers a complete set of applications, including the following:

- **Performance and Goals:** Facilitates the communication of individual goals and enables managers and executives to monitor how individuals are progressing on goals and to issue rewards when objectives are met.

- **Compensation:** Ties performance appraisals and performance management to rewards.

- **Recruitment:** This application provides a means to track and manage perspective candidates and also provides access to social media and a means of collaborating within the organization to facilitate decision making.

- **Learning:** Mostly an e-learning or a learning as management solution (LMS).
- **Collaboration:** This refers to a mobile collaborative device providing a mechanism to assist with decision making and information sharing.
- **Workforce Planning:** Allows for forecasting the impact of a variety of strategies.
- **Employee Central:** A user-friendly HR self-service data center.
- **Workforce Analytics and Reporting:** Provides actionable intelligence to decision makers.

#### 3.4.2. Enterprise Resource Planning Software

One of the competitive advantages (perhaps the primary advantage) of ERP software is its integration with all the other systems, such as finance, marketing, operations, and IT. Because HR is a part of a larger whole and always needs to support business objectives, ERP software is a nice fit.

A number of significant factors are currently impacting ERP software systems.<sup>22</sup> One factor is that more and more organizations are moving from an on-premise application of cloud-based software as service (SaaS) or platform as a service (PaaS) model. There is also a movement toward including a broader range of functionalities. Standalone applications such as applicant tracking systems are now integrated in with e-recruitment software, which are further integrated with workplace planning software, compensation, corporate learning, collaboration systems, and so on. These combinations are called *talent management suites* and offer the advantage of integration of information. Finally, there will be further development of mobile apps and

interaction with external data (for example, with social media).

That may well be the mission of Amazon when their data analytics recommend a book that we would never have chosen on our own but end up loving. This sort of computation logic allows for not only utilization of historical time series analysis but is now able to further interact with real-time data as well.<sup>23</sup>

### **3.4.3. Talent Analytics**

IBM's Cognos Workforce Talent Analytics provides a broad suite of packaged reports and tools, including the following:

- **Talent Acquisition:** Their system provides an analysis of costs and the time it will take to acquire talent. It also analyzes the current pool of talent and how accurate its source is (for example, executive search firm).
- **Succession Planning:** Tracks current employees to identify and fill vacant positions.
- **Talent Retention:** Tracks the retention of employees.
- **Talent Development:** Measures costs and effectiveness of training programs on the skills and development of employees and how well they meet organizational goals.

#### **3.4.4. SAS Business Intelligence**

The SAS Human Capital Management software (version 5.2.1, as of this writing) provides comprehensive HCM advanced analytics that help with all the primary analytical functions, including forecasting, prediction, optimization, and scenario planning. Overall, this software provides a method to align the firm with organizational objectives.

SAS HCM software includes a number of useful tools that enable forecasting, predictive modeling, and optimization. One feature allows for the identification of top-performing employees who are at risk of leaving. In addition, SAS offer both time series and structural equation modeling. This provides significant help with establishing cause and effect between variables. Other advantages include the following:

- The system provides prepackaged metrics that provide a view of metrics such as revenue per employee and how close it is to established goals.
- Allows for “what if” analysis, providing a means of better anticipating a variety of workforce planning scenarios.
- Integrated in with the other SAS solutions and so can be used to see where the organization is relative to goals.

#### **3.4.5. Talent Scorecard**

SAS’s Talent Scorecard is essentially a strategy map for HCM that enables the following:<sup>24</sup>

- Establishment of a link between strategy and execution. It does this by tracking KPIs.
- Establishment of cause and effect relationships (one of its biggest benefits). This is possible through evaluating

variation between KPIs and goals.

- **Alignment.** One key benefit of these systems is that you can customize the metrics to your situation and thus allow for alignment of practices with strategy.
- **Determination of potential challenges and opportunities** through the use of alerts.

#### **3.4.5.1. Human Capital Budgeting/Planning**

This is one of the more interesting and exciting SAS solutions. It integrates SAS Human Capital Management with SAS Financial Management. This provides a link between operational strategy, human capital strategy, and financial strategy. It goes further and allows for predictive analytics and what-if analysis.

#### **3.4.5.2. Predictive Workforce Analytics**

It uses predictive modeling to identify employees at high risk of leaving. It further provides analysis of how skills shortages may impact the larger organization. It provides a mechanism for determining who might leave and who may stay. Again, it is used primarily for forecasting, descriptive and predictive modeling, and optimization.

#### **3.4.5.3. Strategy Maps and Advanced Analytics**

Many of the strategy map applications mirror the rationale associated with Robert Kaplan and David Norton's balanced scorecard. The overall approach is an attempt to better understand the links between execution and results. Essentially, they operationalize the theory of intangible capital.<sup>25</sup>

According to Kaplan and Norton:

Executives in all sectors and in all parts of the world were facing the dual challenges of how to mobilize their human capital and information resources.<sup>26</sup>

### **3.4.6. Talent Management Suites and Advanced Analytics**

Gartner began reporting on talent management suites in 2005, and in 2011, they started to evaluate them as a single market.<sup>27</sup> One advantage associated with these suites is that they enable vertical and horizontal integration between a company's various functional areas and the various functional areas associated with HCM.

According to Gartner, a large portion of these systems were used for reporting. More recently, as I have already discussed, scorecards and dashboards have been added. However, these too can often be used primarily in a descriptive manner, rather than for predictive purposes.

Integrated systems such as these offer a number of advantages. There are advantages associated with having all the information in one place, and, of course, there are cost efficiencies associated with such integrated systems.

Increasingly, HCM software has consolidated. So, what were once independent functions are now all included in one suite.<sup>28</sup> These suites include some or all of the following functions:

- Workforce planning
- Talent acquisition
- Compensation
- Performance management
- Career development
- Succession planning
- Corporate learning

In addition, the inclusion of the following functions would prove valuable:

- Integration with broader ERP (for example, finance and operations)
- Social networking
- Collaborative decision-making software

## 4. Human Science and Selection Decisions

### 4.1. OPTIMIZING SELECTION AND PROMOTION DECISIONS

One of the few criticism of Sheryl Sandberg's (with Nell Scovell) book *Lean In* is that it focuses mostly on the supply side (what women should be doing) rather than the demand side (what organizations can do to eliminate biases).<sup>1</sup> During my own review of the topic of biases in selection and promotion decisions, I found substantial room for improvement needed at the organizational and institutional level. The extent of gender bias alone in our organizations remains formidable. According to findings by the Organization for Economic Co-operation and Development (OECD), in member countries, women are 17% less likely to be employed and earn 20% less than men.<sup>2</sup>

Why this matters is because any hiring or promotion decision based on factors other than who is the best candidate for the job will ultimately lead to suboptimal performance outcomes. What can advanced analytics do to assist with eliminating biases? A lot. Biased decision making is discrimination, and using advanced analytics to assist in the decision-making process will help eliminate biases. What difference does eliminating bias make? Also, a lot. Getting the right person in the right job drastically improves the probability of success.

I, however, have a bias (although it is not actually a bias because that suggests it is unfounded) when it comes to selection decisions. Time spent making as robust a decision as possible is time very well spent. It is in everyone's self-interest to be working in a meritocracy (in effect, where people are doing what they are best



suited to be doing). In this type of organization, it is not the loudest, the prettiest, or the boss's nephew who gets the job or the promotion. Instead, it is the person most likely to perform in the position. Any and all extraneous factors are eliminated from the selection decision, including the obvious demographic qualities (age, race, gender, disability, and so on). Also eliminated are factors like school attended, how well the interview went, how good someone's golf game is, and various other factors that decision makers may have a bias about but that have no bearing on job performance.

#### **4.1.1. Performance and Selection**

I do my grocery shopping at a large chain store close to where I live. I go there pretty much daily to pick up my lunch and any other food I need. One of my pet peeves is disengaged or generally uninterested check-out people—especially those who toss my food items in the bag without paying any attention to product crushability. Generally, they are quite good. On occasion, though, I arrive home to find the raspberries and nectarines crushed beneath the peanut butter. So, recently, when I was there picking up some things, I could not help but notice the extreme care with which the check-out person was taking when packing my purchases. He packed, unpacked, arranged, and rearranged my items and was especially careful with products high on the crushability index. I complimented him on the fine job he was doing, and we discussed the variation found in the performance of check-out people. I asked him about the training he received (a couple of hours) and asked whether everyone received the same training (they did) and if there was a mechanism in place to financially reward those like him who did such a fine job (there was not). I went on to say that it is a little odd that it is not customary to “tip” check-out folks—because like waitresses and waiters, the customer is in direct contact and the quality of the service provided matters (to me and my nectarines anyway). He really liked the idea (or at least that someone would suggest it). Finally, I asked directly what motivated him to do such an excellent job, to which he replied, “I simply pack other peoples food like I would pack my own.”

This chain would be very wise to do everything in its power to retain and motivate this individual and, frankly, clone him. Much of what this chapter covers suggests how the use of tools from advanced analytics could allow this chain to do the next best thing to replicating him.

#### 4.1.2. Making the Unobservable Observable

One big advantage of using data analytics is that it can assist with making what is unobservable observable. As discussed earlier, the notion of asymmetric information recognizes that only the individual really knows how hard he or she can work and his or her own ability. Organizations spend a large amount of time identifying proxies to assess ability and predict potential contribution (for example, GPA and college major). An example is the job interview, which has not been shown to be a very good predictor of job success.

You may have wondered how people like Bill Gates, Steve Jobs, Larry Ellison, or Mark Zuckerberg (or David Karp, founder of Tumblr and who did not finish high school) could be so successful without finishing college. (Alternatively, you might wonder how so many who graduated from college *are* successful.) According to economic theory, one advantage to getting an education is that it sends a signal, a signal that someone is high ability. It signals that they can stick with something to its completion and have the ability necessary to see that it is accomplished. As we become better at identifying attributes associated with success, increasingly, these traditional signals have less meaning. Each of the company founders listed has great vision and ability, and many of the normal signals (educational certification, GPA) were just not necessary.

The fact is, if you have the ability and the skills and have acquired the necessary knowledge, the formal degree and all the traditional check lists are becoming less important. This does not mean that I am disparaging a college education. For me, college was transformational; new worlds (countries anyway) were opened up to me. The point is that the better we get at measuring ability, aptitude, and potential, proxies become less relevant.

#### 4.1.3. Eliminating Biases from Selection Decisions

SAP recently announced its plans to staff 1% of its workforce with people on the autism spectrum by 2020. They have found that having employees with autism increases productivity and engagement.

In 2009, Gary Moore and Dan Selic established the nonPareil Institute.<sup>3</sup> The charter of the institute is to provide those on the autism spectrum with training and technical job skills. This spectrum includes those at the high-functioning end who may have Asperger syndrome. This syndrome is characterized by difficulty with social interaction but also being very logical and very focused (traits important for computer programmers).

Some computer programmer will tell you that communication skills are very important when it comes to being a successful programmer. For some coding projects, this is certainly true. Others will tell you that it depends on the type of programming that you are doing. For example, if you are managing projects and coding, then social skills are critical. However, if your job mostly focuses on the actual coding associated with the project, and even if the project requires interaction between programmers, as long as the communication is focused on the task, those on the autism spectrum may perform exceptionally.

We all have our preconceived notions of what autism is, and so we might consciously or unconsciously exclude those with autism from consideration for a lot of things, including jobs. If we were to instead focus on the specific job, and the characteristics that makes for an excellent programmer *in a specific setting*, someone on the autistic spectrum could (and has been shown to) make a superb employee.

This is what advanced analytical tools enable us to do. We can use them to establish ever-closer approximation of fit between the task or job and those who function in those jobs. This is what advanced analytical tools enable us to do. We can use them to establish ever-closer approximations of fit between the task or job and those who function in those jobs.

#### **4.1.4. Human Science and Employee Selection**

Advanced analytics has gained substantial traction in employee selection. Numerous companies have come up with innovative ways to predict who will make the best employees.<sup>4</sup> This includes the company Gild, which uses analytics to predict who will be the best computer programmer, and the company Evolv, which focuses on hourly employees.<sup>5</sup> Gild has developed an algorithm that trolls through various data points to determine which of these items are associated with being a great programmer. Evolv evaluates personal characteristics to predict how well someone is likely to perform a job and also how long he or she is likely to hold that job.<sup>6</sup>

According to an article in *Fox Business*, the CEO of Yahoo!, Marissa Mayer, insists on approving every hire.<sup>7</sup> In this case, tools from human science could help Mayer substantially with her decision-making process. Absent the use of sophisticated analytics, there are potential downsides to Ms. Mayer's approach. The obvious is the potential for slowing the hiring process down to a crawl. In addition, there is considerable potential for biases to be present in her selection decisions. The potential for bias is actually exasperated because she tends to prefer to hire those who went to top-tier schools and prefers computer science majors over electrical engineers.<sup>8</sup> Tools such as those being developed by Gild and Evolv could assist Yahoo's CEO (along with virtually everyone else making selection decisions) to make accurate, unbiased, and timely decisions.

#### **4.1.5. Skills Shortages**

Even during the depths of the recession, substantial skills gaps and vacancies existed throughout the United States and other developed economies. The shortage of technical talent was particularly acute. This may mean that more students should be pursuing technical degrees, or it may mean that the technical degrees do not provide the skills needed by organizations. Everyone is better off if the matching of job requirements with specific knowledge and skills is clearly identified.

A multitude of online courses are available to anyone anywhere. It would not be difficult to develop a curriculum using free online course from places like MIT and Stanford for one of the hottest emerging jobs: Data Scientist. If you are sufficiently motivated you can become proficient in one of the most marketable jobs today. However, this is only part of the equation, the supply side. The other side, of course, is the demand side: organizations making it clear what specific skill set they are looking for. This is the role of workforce planning.

Workforce planning is a critical function for the success of the organization, but it is too often not done as well as it could be. Organizations may be too quick (or slow) to hire during an upturn and too quick to lay off upon a downturn. One of the biggest challenges I have run into time and again in my own professional life is having all the other resources readily available (such as financial and technical) but lacking the human capital that is ready and able to execute the plan. At this point in our very slow recovery, many organizations are seriously pondering the decision to hire or not to hire. They are loath to miss opportunities, but overstaffing is in no one's interest. Advanced analytics can assist with making a more accurate workforce headcount projection.

## **4.2. WORKFORCE PLANNING, TALENT ACQUISITION, AND DECISION ANALYTICS**

Workforce planning and talent acquisition are well suited for advanced analytics. Workforce planning consists of determining the current workforce situation, evaluating that against what is going on in the macro-environment, and making workforce adjustments (either reduce or increase head count). Advanced analytics can assist with making much more accurate planning projections.

It is possible to get an accurate read on the current situation of the firm and to determine the future needs of the organization. This requires a mechanism for effectively scanning the environment, in order to get an idea on the state of the economy, the workforce, and your organization's challenges and opportunities.

Substantial research provides evidence that getting the right employee is associated with higher productivity, greater profitability, lower employee turnover, and generally much better organizational outcomes.

Arguably, who you decide to bring in to your company is an important decision (perhaps the most important). If you bring in the wrong people, not much else of what you do matters. Granted, depending on the country in which you reside, you may have a fair degree of flexibility to sever the employment relationship. Wherever you are, though, hiring and training employees takes much time and energy. So, the better your recruitment and selection decisions, the better performance outcomes and cost savings.

Traditionally, the selection decision has been heavily weighted toward the interview. However, this has been shown to be a poor predictor of future job performance. A number of other instruments are considerably more useful when making selection decisions, and this section

focuses on where these instruments and current and emerging analytical tools complement one another. For instance, one tool increasingly used today and a good fit for developing and emerging technologies is the use of biographical data (or Bio data) for selection decisions.

The recruitment and selection process is one rife with potential biased decisions making. Two researchers recently found that when pictures are included with a curriculum vitae, as they are often in Europe and Asia, they found that attractive men were more likely to be invited in for an interview. The inverse applied for attractive women. The less attractive, the more likely you are to be invited. Bradley Ruffle and Ze'ev Shtudiner determined that this was not because attractive women were considered less intelligent, but rather because recruiters (who are generally female) are attempting to limit the competition.<sup>9</sup>

#### **4.2.1. Workforce Planning and Predictive Analytics**

The topic of workforce planning is one that brought me to the use of analytics to make better decisions. I became interested in the topic back in the late 1980s, when it was referred to as human resource planning. The person I worked with while interning at Honeywell had done influential work on the topic. For me, the topic pulled together a number of interesting subjects, including environmental scanning, a vision for the direction of the organization, and the utilization of tools and techniques to predict what skills, abilities, experiences, personal qualities, and knowledge would enable people to achieve organizational success.

Workforce planning, in particular, has a big impact on whether an organization has the bandwidth to respond to ever-changing business challenges and opportunities. Workforce planning, like all human capital management (HCM) decisions, has been viewed as part art and part



science. I am clearly attempting to put as much science as possible into the decision-making process.

One of the more important and upfront decisions that has to be taken is how many employees do we need? Generally, organizations are notoriously bad at getting this number right; and it matters a lot. Having the right talent in the right place at the right time makes all the difference. Firms miss significant opportunities when they do not have the right employee in the right place at the right time.

Workforce planning consists of the following steps:

- Scanning the macro-environment
- Organizational strategic objectives
- Current workforce situation
- Projected workforce needs
- Analysis
- Action plan to fill gaps

#### **4.2.2. When Is Workforce Planning Necessary?**

This is a topic in where organizations can utilize organizational data to evaluate the impact of past recessions, downturns, or periods of fast economic growth on employee headcount. Looking back over the headcount trends during the economic cycle to evaluate appropriate headcount (in busy or not-so-busy times) will provide data to help in future headcount determination.

Workforce planning may be much more helpful and necessary (and difficult) in substantially dynamic environments. If the organization is experiencing

predictable growth, and business as usual is expected to continue with fairly static employee turnover, a fairly uncomplicated workforce planning system is needed.<sup>10</sup> If the situation is a dynamic work environment in which there is uncertainty in the environment, there is a need for more sophisticated workforce planning methods.

#### **4.2.3. Challenges with Forecasting**

Daniel Kahneman recounts a story about his experiences with a curriculum planning group in Israel.<sup>11</sup> He provides a detailed story about how upon serving on this committee, he and the other committee members were confident that they were making good progress.

Kahneman decided to check the assumptions that both he and the other members of the group maintained. Everyone in the group wrote down how long they thought it would take to write a book and develop a new curriculum. The estimate given by those present was somewhere between 1.5 years and 2.5 years, with the average being 2. It occurred to Daniel to ask one of the fellow group members, the dean of the School of Education and someone who had considerable experience with curriculum development, how long on average it took the other groups in which they had experience to complete the same tasks. According to Kahneman, the dean looked somewhat dismayed and said on average 7 years and that 40% did not complete the task at all. He then asked the dean to compare the skills of the current group with the skills of the other group. Apparently, the dean worked with some pretty high-skilled curriculum planners, because even with the future Nobel Prize winner in the group, he ranked the group as below average. In the end, it took 8 years to complete the book, and the curriculum was never used.

Kahneman saw this as one of the more formative events in his professional life. It had a substantial impact on his view of forecasting, which he and Amos Tversky labeled

the *inside view* and the *outside view*.<sup>12</sup> The inside view is the one we initially assume when evaluating a potential outcome. For instance, until he took the time to reflect, the dean thought it would take only up to 2.5 years to complete the book. It was not until after reflecting on the other curriculum planning groups that a more realistic view emerged. Forecasting based on previous data or information from similar tasks and related outcomes can be considered the outside view.

The COWI consulting group and the academic Bent Flyvbjerg have taken this process and applied it to a variety of processes that involve forecasting (mostly estimates associated with costing projects). The process is called *reference class forecasting*, and it applies mostly to transportation policy and planning.<sup>13</sup> The process consists of the following steps:

- (1) Identification of a relevant reference class of past, similar projects. The class must be broad enough to be statistically meaningful but narrow enough to be truly comparable with the specific project.
- (2) Establishing a probability distribution for the selected reference class. This requires access to credible, empirical data for a sufficient number of projects within the reference class to make statistically meaningful conclusions.
- (3) Comparing the specific project with the reference class distribution, to establish the most likely outcome for the specific project.<sup>14</sup> This might sound complicated, but it can be applied to a number of different forecasting issues that arise within HCM. In essence, this entails looking back at previous workforce planning numbers and evaluating to determine how close they are to actual.

What's more, experimentation can be undertaken. Seeing what happened during the last recession allows

an organization to do a much better job of predicting the likely outcome associated with the next downturn, and how and when to start getting back in the game again. The same applies when things are going along well; this will provide you the information necessary so that you can know best when to start throttling back on hires.

It is true that when it comes to headcount and labor costs, the emphasis is on maximum flexibility. Two problems generally emerge when attempting to forecast future outcomes. One is *optimism bias*, and the second *strategic misrepresentation*. This means that the starting point for this question (optimal workforce planning) is getting the model right. What factors go in to predicting the kind of knowledge skills and abilities we will need to carry out the strategic objectives of the organization?

For examples of these and other tools, please go to:  
[Decision AnalyticsInc.com](http://DecisionAnalyticsInc.com).

#### **4.2.4. External Big Data and Employee Recruitment and Selection**

One of the primary new sources of data for selection and recruitment is social media. There is an explosive interest in the potential predictive power of social analytics. This data is being used to predict social uprisings and to target consumer preferences. IARPA, the Informatics branch of DARPA, recently held a competition of fund research associated with determining the optimal utilization of social media.

Social analytics are already being used extensively within the marketing function, with much of this evolving around the use of sentiment analysis to examine and determine how consumers or potential consumers feel about a specific service or product. Organizations are also increasingly using social media to assist in

recruitment efforts and to gauge the morale of the organization.

Other organizations are also providing very valuable data that can be utilized to make more accurate headcount and selection decisions. For instance, Glassdoor is a company that provides good background information into what is being said about other companies.<sup>15</sup>

Founded in 2007 by Richard Barton, Robert Hohman, and Tim Besse, Glassdoor provides information on job postings for more than 150,000 companies across 100 countries. They provide salary information, CEO ratings, and impressions of the work environment from current and former employees.

There are challenges associated with the use of social analytics. The issue of privacy is a serious issue. Data privacy laws are in place in Europe, and the issue can be contentious in the United States. It is becoming increasingly common for interviewers to ask for passwords to gain access to social media content.<sup>16</sup> This has become pervasive enough that state legislatures are proposing bills to prevent employers from discriminating against employees who refuse to give access to their social media information.<sup>17</sup>

#### **4.3. HUMAN SCIENCE AND SELECTION AND PROMOTIONS DECISIONS**

The overriding question here is: What process allows us to predict the ideal employee. Clearly, this largely depends on the type of employee you are looking for.

One of the more promising tools to assist with selection and promotions decisions is the use of biographical data (Bio data). This information is based largely on identifying specific characteristics that ultimately predict job success. Google has been using this technique to assist with hiring decisions for some years.<sup>18</sup> There is

evidence that Bio data surveys are better predictor of future performance than, say, the job interview.

You'll recall my earlier example of the excellent check-out person I encountered. In the case of that grocery store chain, they would administer a survey to him that would identify characteristics and attributes, then administer a survey to prospective candidates evaluating for the same qualities. This can all be done online and very cost effectively.

#### **4.3.1. What We Have to Learn from the Use of Advanced Analytics for Player Selection in Professional Sports**

Some of you may have seen the movie *Moneyball* starring Brad Pitt, Jonah Hill, and Philip Seymour Hoffman. The book the movie is based on, *Moneyball: The Art of Winning an Unfair Game*, was written by Michael Lewis. It is the story of Billy Beane, the then general manager of Major League Baseball's Oakland A's. Beane's team had the third smallest payroll in the MBL, so he used analytics to provide his team with a winning advantage. At the time, in 2002, the use of analytics in sports was considered radical, even foolish. Now, the use of analytics to make decisions within sports is widespread. Since 2005, MIT has held a Sports Analytics Conference, and it has grown in size and influence.<sup>19</sup> The conference in 2012 had representatives from 73 professional teams from 6 sports.<sup>20</sup> Professional sports, with the tradition of keeping player statistics, make an ideal candidate for the use of analytics in decision making. Baseball, in particular, with its 162 regular season games, provides an ample sample size for rigorous analysis (more so than the data provided by the 82 games in basketball or the 16 in football).

The movie *Moneyball* has done much to bring analytics into popular consciousness. While there is no question that the use of analytics has helped to put predictive

analytics on the radar for many, much of what is being accomplished in the professional sports arena is an attempt to do exactly what firms are spending a tremendous amount of time doing. They are attempting to predict who will be first-rate employees. The crux of the matter is determining which characteristics are actually associated with superior performance.

As those who saw *Moneyball* may remember, traditional analytics did not predict success. (In the case of the Oakland A's, that would be winning games.) This is an important lesson that can be learned from the use of analytics: The factors that are actually associated with predicting success are usually much broader than traditionally thought.

The same hard work to establish what is actually associated with success in your particular organization is just as critical. For example, you often hear the phrase “we only hire the best people.” It should read like this instead: We only hire the best person for our specific organization and situation. An example is that many organizations now recognize the value of hiring people who are also willing and able to work collaboratively.

Many of the advances associated with increased accuracy of recruitment and selection are due to more accurate models of what ultimately impacts enterprise success. Therefore, it is critical that firms are clear on what is associated with success in their specific organization and follow this up with an appropriate recruitment, selection, incentive, and performance and talent management programs.

We have a lot to learn from professional sports teams. Keep in mind a couple of critical factors here. Most sports, except golf and singles tennis, epitomize a team production function. Of course, there can be a star center or a great shortstop or quarterback who makes a big

difference; however, it is impossible to win alone. The same obviously applies when attempting to achieve organizational goals.

#### **4.3.2. Biases and the Selection Decision**

Few decisions in organizations are more susceptible to bias than the selection decision. In March 2013, the magazine *Nature* ran a special issue on the inequity female scientists face. The results are quite startling. Women are much less likely to get hired, promoted, receive grants, or get tenure, even after controlling for all other factors such as labor market participation (for instance, taking time off), experience, and education.

The selection decision is one of the most critical aspects of the employment decision and also is subject to considerable downside risk. Traditional hiring practices come with a number of potential downsides. There is the *halo effect* and the *similar-to-me* bias, neither of which can influence an algorithm. To see the impact of technological advances in HCM decision making, you just have a look at Google patents.<sup>21</sup> Doing an open search on “employee selection” returns 17,300 sites. The use of technology to assist with many of these appears to be focused on the use of technology to enhance selection decisions. Many companies are starting to use advanced analytics for the selection and recruitment decisions. This is one function where there is quite a lot of scope for the utilization of these technologies to make better decisions.



#### **4.3.3. Selection Tools: Augmented Biographical Survey**

Using bio data as a selection instrument consists of using personal history as a predictor of future job performance.<sup>22</sup> Making selection decisions based on bio data has a long history.<sup>23</sup> In a journal article published in 1922, Dorothy Goldsmith finds the approach to be useful when attempting to predict the success of salesmen.<sup>24</sup> This technique has been shown to be effective and is viewed by researchers as one of the most effective tools for predicting successful future job performance.<sup>25</sup> However, it is not being used extensively. In a survey of HR professionals, comparing 11 different selection devices (including personal hunches), bio data ranked tenth in terms of perceived validity, ninth for practicality, and tenth for legality.<sup>26</sup> James Breugh challenges these perceptions and states that the use of bio data for selection decision should be more widely used.

One of the worst predictors of employment success is the job interview, and job testing is not much better. You might be able to nail the GRE, but you might lack the proverbial “fire in the belly.” Aaron Rogers, the quarterback of the Green Bay Packers (Super Bowl winners in 2010), started off in a community college, and he could not get a scholarship. He played and he played well; he had something to prove, and he constantly reminds himself of those days.

The use of bio data is a straightforward: Determine successful characteristics of current job holders and determine the relationship of these characteristics to job performance. Prospective job candidates are then screened for these characteristics.

The use of the bio data it allows for the inclusion of candidates who may have been screened out using traditional measures.<sup>27</sup> An algorithm allows for an evaluation of a much broader set of characteristics, and

they also avoid the potential downsides human decision makers often exhibit.

In the first instance, start by identifying those behaviors, characteristics, and activities that lead to success on the job. Ultimately, this also needs to be mapped to how job success leads to organizational success. At this point, there is also a role for Kahnman's "thinking fast." Of course, I say this with my standard warning against all the biases associated with a decision like this. However, a manager or executive with long experience and expertise may well have a good intuition about someone.

Advanced analytics in the form of predictive modeling is ideally suited for the use of bio data. Analytics can go considerably beyond the straightforward who-to-hire question. We can use these techniques to help reduce or eliminate discrimination and even wage inequality.

#### **4.3.4. Challenges with the Use of Bio Data**

There is, however, scope for problems associated with the use of bio data instruments. For instance, there is concern that the use of bio data tools may identify negative characteristics associated with performance (such as addictive tendencies) or result in less diversity by perpetuating a *similar-to-me* bias.

These are risks with these two issues and another example of where seasoned human expertise plays a critical role. If the recommended candidates are trending toward too little diversity, adjustments can be made. In addition, the tool should be carefully validated so that it accurately reflects *actual* job tasks and also attributes that accurately predict success at those tasks.

As discussed, any kind of bias is suboptimal when making selection decisions, and the stronger the connection between attributes or characteristics and

performance outcomes, the greater the validity of the selection instrument. A well designed bio data instrument should provide a strong connection between attributes and performance, eliminating all other factors from consideration. Effort should go into verifying the measures of these characteristics and attributes and their relationship to performance. Purely technically, bio data should provide a direct data-based connection. However, selection decisions will ultimately be made by someone or ones. Those ultimate decision makers need to be aware of their potential for bias and guard against it. If in doubt, like flight instructors tell pilots working toward obtaining an Instrument Rating (flying by instruments alone), trust what the instruments are telling you. If you have put the time in to make a robust validated instrument, the same applies here.

#### **4.4. APPLICATIONS OF HUMAN SCIENCE TO SELECTION DECISIONS**

##### **4.4.1. The Application of Expert Intuition to Selection and Promotion Decisions**

There is room for well-seasoned professional intuition when it comes to selection and promotions decisions; however, there is also substantial room for biased judgments. Making judgments about whether someone is a good fit with the organization and the team often requires expert intuition; however, tools from advanced analytics can help eliminate other extraneous factors.

##### **4.4.2. Applied Game Theory and Selection Decisions**

In order for cooperation to emerge it requires the same employees. Hiring and promotion decisions should include predictive analytics on the likelihood of the employee staying with the organization.

#### **4.4.3. Deep Q&A Expert Systems and Selection Decisions**

Certainly, a Watson-like expert system can assist with selection decisions. A database can be built containing Bio data and the track record of the performance of hires and promotions. This data can be used to predict the likely success of new hires and promotions. In addition, these systems can be used to make recommendations regarding what developmental experiences are needed by employees.

#### **4.4.4. Predictive Modeling and Selections Decisions**

Characteristics and attributes predicting the ideal employee for your organization can be built using a combination of Bio data and performance data. These techniques can also be used to predict future number of employees needed, what attributes and characteristics make for a great executive, actuary, sales clerk, teacher, etc. Information from these models can be used to identify developmental needs.

#### **4.4.5. Applied Econometric and Machine Learning Techniques**

There are a number of tools and techniques from econometrics and A.I./Machine Learning that can be used to make better selection decisions.

- **Multiple Regression Techniques:** Multiple regression techniques can be used to assess impact. It can be used to determine the impact on performance associated with the introduction of a new policy or program.
- **Decision Trees:** Essentially a graph or model depicting steps to a decision. This can be used to provide evidence-based recommendations on the type of developmental experience an potential executive should obtain prior to promotion.

- **Monte Carlo Simulation:** This consists of using computation algorithms to arrive at probability distributions, allowing determination of the likelihood that a particular intervention (such as putting in a child care facility) will have on employee turnover.

## 5. Human Science and Incentives

### 5.1. HUMAN SCIENCE AND INCENTIVES

Daniel Ariely, the author of *Predictably Irrational*, is one of the top behavioral economists working today. In a TED talk in 2012, he discussed some of his research associated with motivation and work.<sup>1</sup> In this talk, he recounts a presentation he gave at a major software company in Seattle. His presentation was to 200 software engineers who had over the previous two years been charged with coming up with the “next big thing.” The week before Ariely’s talk, the COO had met with the engineers and told them to stop working on the project. According to Ariely, the group of engineers he spoke to that day were some of the most depressed people he had ever encountered. The research he discussed was on work, meaning, and motivation and spoke directly to why these engineers were so disheartened. Ariely’s research found that a focus on pecuniary (financial) rewards is misdirected; the focus should be on making work rewarding by making it meaningful and challenging—and when done well, acknowledged and recognized.

The topic of incentives and motivation is one in which the new understanding of human science has substantial significance. If we are not just profit-maximizing cyborgs, how exactly are we to be motivated? Evidence indicates that the way we have been compensating people can do more harm than good. Consider, for example, the financial crisis. All one had to do was look at the way in which compensation was structured at financial institutions to see that a financial crisis was eminent.<sup>2</sup> Incentive contracts for investment bankers provided an incentive to take extreme risks.<sup>3</sup>

I do not think it is an overstatement to say that one of the most critical issues facing organizations today (and many economies) is the establishment of a robust connection between rewards and performance. Take, for example, the issue of executive compensation. Much evidence supports a disconnection between executive rewards and performance.<sup>4</sup> Executive compensation is often set as a function of the power of the executive rather than performance of the firm.<sup>5</sup> The disconnection between rewards and performance extends well beyond those who occupy the executive suite. Research has shown substantial pay differences based on gender alone.<sup>6</sup> And gender pay bias is only one form of wage discrimination; age and race are associated with biased decision practices, but *not* with job performance. Again, if we need to be reminded why this matters, it matters because it matters to human capital. Treating people with bias will *cause* disengagement (lower morale, lower productivity, higher turnover), ultimately resulting in suboptimal organizational performance.

In addition, the wages of those in the middle class have been mostly flat or declining over the past 30 years.<sup>7</sup> This occurred during the same period that company profits were soaring. The flat real income growth applies to not only manufacturing and service workers, but also in varying degrees to professionals including teachers, airline pilots, nurses, and so on. Wage inequality undermines organizational effectiveness, and, more broadly, economic prosperity. This is no small thing. In the United States, consumer spending drives 70% of the economic activity. If we want growth, we need to more accurately allocate profits to those responsible for making them. This includes making a strong line-of-sight connection between rewards and performance, but it also means making informed decision about what incentive practice to use. For instance, it may mean that high-performing individuals and teams of store check-out

clerks and hotel room cleaners should be getting stock options, but top executives should not.

There are a number of roles here for human science. The use of analytics can result in the establishment of a more robust connection between performance and rewards, not only for executives but for everyone in the organization. There is also the opportunity to include more pertinent information when developing incentive schemes. No two people's situation or preferences are identical, and yet organizations reward entire job families in exactly the same manner. Organizations have relied too heavily on benchmarking data (and inaccurate assumptions about what motivates people), virtually ignoring individual motivational profiles. Treating everyone in precisely the same manner has almost certainly led to suboptimal performance outcomes. As detailed in [Chapter 4, "Human Science and Selection Decisions,"](#) a number of companies are applying human science to questions related to employee selection. However, applying these new developments to incentive contracts and performance management decisions is much less well developed.

I believe any discussion about selection decisions has to also include incentives, and vice versa. If you are attempting to choose people who will help make your organization thrive, that means you want someone who is motivated and engaged. You will want to keep them engaged, and the only way that will be accomplished is if you determine what motivates them and their team.

When I use the term "incentives," I use it broadly, using a total compensation approach that includes both pecuniary (that is, base salary, bonus, and so on) and non-pecuniary (that is, organizational culture and brand) incentives. Earlier I discussed the privately held analytic software company SAS. Their pecuniary components of



their incentives are a small part of a much larger “total compensation” approach. In many ways, this is a much more optimal way in which to structure incentives. SAS provides day care, in-house social workers, and a health club. These components of total compensation are more in-line with how humans, as opposed to econs, are motivated.

To access tools associated with this book, visit my site at [DecisionAnalyticsInc.com](http://DecisionAnalyticsInc.com).

#### **5.1.1. Incentives, Motivation, and Human Science**

The standard underlying motivational assumption associated with incentives is that of rationality and profit maximization—that people evaluate incentives typically based on a short-term, self-centered, income-maximizing framework. This is not the entire picture, and with the help of advanced analytics, we can develop incentive contracts that focus on what really motivates people.

As with selection decisions, compensation decisions are prone to biased decision making. Getting the incentives wrong can lead to human capital focusing on the wrong things and to employee morale and engagement problems, employee turnover, or, as some would argue, to the collapse of an organization or an entire economy.<sup>8</sup>

Compensation is clearly a key business decision and impacts the success of the organization. Executive compensation is a divisive topic, and getting incentive contracts right for executives (closely aligning pay and organizational performance) is critical for the well-being of the organization. However, establishing a pay-for-performance connection is important at all levels in the organization, not only the executive level.

A challenge in compensation that advanced analytics can address is overdependence on benchmarking to establish

total compensation packages. One of the more beneficial aspects of advanced analytics is that it allows for the inclusion of a broader amount of information when designing incentive contracts. Not only can market data be included, but also information about what actually motivates the specific individual and team.

Representatives from one well-known organization sit down with employees when they are hired and ask them how they would like to be paid. Of course, at that point, discussions associated with base salary and any variable pay and benefits have already been discussed, but employees have room to “tailor” their compensation to their own preferences. This sort of individual tailoring of compensation may strike you as odd; it seemed strange to me when I first heard about it. After all, organizations usually dictate the various components of compensation. The *individualization* of incentives is exactly what advanced analytics is well suited for. One size does not fit all; what motivates me might not motivate you, and our situations certainly differ. This again goes back to the issue of asymmetric or private information. The individual has information about preferences, but the organization also has asymmetric information about what they would like to see accomplished. Combining the two in a manner that maximizes both parties’ utility is the ideal.

#### **5.1.2. Incentive Contracts**

In the standard economic approach, firms develop incentive contracts for employees because organizations do not know how hard employees can work, so they need to incur costs in the form of incentive contracts in order to keep employees in line. Otherwise employees might shirk duties or engage in *moral hazard*, self-interested misbehavior.

One approach to compensation is to compensate people based on their marginal revenue product or their bottom-line impact on organizational performance.<sup>9</sup> The problem with this is that it is difficult to determine individual (team or group) contribution to organizational performance.

Piece rates are viewed as one of the more efficient forms of incentives, and they do have a strong incentive effect. Piece rates compensate based on the quantity of goods produced. The challenge with this form of incentive is when you reward based on quantity, you often see a sacrifice in quality.

Generally, incentive schemes in organizations are based on a tournament model and focus on individual contribution. We come by the tournament model honestly because most organizations are hierarchical, with much of the decision-making authority residing with those at the top. Hierarchies with consolidated decision-making authority at the top of the organization are an efficient organizational design if those in the executive suite have perfect information and perform all the tasks of the organization.

Tournament-structured compensation can produce inefficient behaviors. This incentive contract structure can promote mistrust and animosity between employees. Tournament incentive structures may provide an incentive for employees of one department to withhold information that would have been helpful to those in another. The entire organization loses out when individuals and teams are rewarded for not sharing potentially value creating information.

Much of the research associated with incentive compensation has been done using research from sports. As a long-time fan of the Green Bay Packers (and being one of 363,948 “owners”),<sup>10</sup> I am certainly

interested in getting the incentives right in our sports teams. However, the problem has been that the findings for sports (specifically tournament compensation) have been extrapolated to compensation in organizations, and this can be problematic. As covered in Chapter 4, advanced analytics has been applied to selection decisions in sports, but has not yet been applied in the same way to incentives for athletes and team success. Research has found benefits associated with tournament pay (the winner-takes-all philosophy) for individual athletic performance; however, there is not much research evaluating incentives and the success of the team as a whole. Yes, a Michael Jordan can make or break a team (the typical NBA team has a roster of 15 players, not the 500, 5,000, or 50,000 found in organizations), but not even Jordan was an island. Without Dennis Rodman pulling down all those rebounds, Jordan does not get the ball and the shot. As in organizations, sporting teams may benefit substantially from spending more time getting not only individual, but also group and team incentive compensation, right.

### **5.1.3. Collaboration and Tournament Compensation Do Not Go Together**

We do not have to look any further than the Tour de France to find a problem with tournament compensation. This is an example of how the power of tournament-based incentives can promote suboptimal non-value maximizing behaviors. Lance Armstrong embodies the problem with tournaments perfectly. By his own admission, he cheated and lied. We do not like folks who cheat; however, tournament-based incentives can provide an incentive to do just that.

Contrast Armstrong's behavior's with the behaviors of one of the most decorated soldiers in World War II: Audie Murphy. He was awarded the Medal of Honor at

age 19 and was also awarded military honors in both France and Belgium. His entire life, Murphy insisted that the awards should have been given not to him individually, but rather to his entire military unit.<sup>11</sup>

If tournament compensation does not work, or has too many potential downsides, what kind of incentive schemes do work and when? If you see the value in collaboration and cooperation within your organization, including team and group incentives are necessary.

#### **5.1.4. We Get What We Pay For**

We should not underestimate the importance of establishing and maintaining a strong and credible connection between compensation and performance. Many serious organizational and social problems result directly from poorly designed incentive schemes. The near collapse of the financial system is an example; we got exactly what we paid for. Bankers across the globe were rewarded for swinging for the fences, the rating agencies were compensated by those who they were meant to regulate, and banks were aware that any gains were theirs to keep, but excessive losses would be borne by others.

Back when I was graduating from college, there were those who thought IBM was the top place to go work. One of the reasons everyone wanted to work for IBM was because the pay was higher there than pretty much anyone else. It was thought this attracted the top people. This pay practice is referred to as efficiency wage.

The notion of efficiency wage states that if you pay above market rate, you attract the best talent. You will work extra hard if you have been “gifted” a higher salary.<sup>12</sup> Of course, all the gifting was almost not enough to save Big Blue, which nearly crashed and burned. Yes, they hired from the top schools those with the highest GPAs, but it

might not have been the most optimal way in which to attract and incent people. The notion of efficiency wages, with its focus on financial rewards alone, may not motivate maximum value creation from human capital.

In addition to the larger macro-level issues, a number of significant micro-influences are equally problematic. One of the biggest challenges with compensation is the problem of internal and external equity. For example, merit pay has long had a credibility problem because of the perceived, and frequently real, subjectivity that is often a part of the review process. Done correctly, the use of advanced analytics can substantially reduce subjectivity associated with merit-based compensation decisions.

Clearly, from an organizational performance perspective, rewards make a significant impact on the success of an organization—starting at the executive level and moving through the ranks of the organization. Generally, the closer one can get to making a strong connection between pay and performance, the more likely he or she is to see the compensation approach as being equitable and reasonable.

## 5.2. HUMAN SCIENCE AND MOTIVATION

When I first started writing this book, my focus was squarely on the use of advanced analytics because organizations will be more successful and make more money if they start making better and less biased hiring and compensation decisions, and this remains accurate. However, as the process went on, it also became apparent that by making more accurate selection and pay decisions on the micro-level, we are chipping away at what many believe to be the two largest macro-level social issues of our time; inequality of opportunity and inequality of wages. This book, and the related software we are developing, became even more interesting and engaging. It is starting to be better understood that meaningful work is as important if not more important than financial rewards.

In the introduction to this section, I mentioned a talk that Daniel Ariely gave to a group of software engineers in Seattle. In the research he presented to the software engineers that day, Ariely was interested in the relationship between financial rewards, meaning and effort. In order to test these notions, he and his collaborators developed a test in which participants would, for a financial reward, assemble LEGO Bionicles (I didn't know what those were either; sort of like miniature robots). They received \$3.00 for the first Bionicle, decreasing by 30 cents each time they built one—for example, \$2.70 for the second one, \$2.40 for the third, and so on. In the first round of this experiment (referred to as the “meaningful condition”), Ariely and his colleagues would watch the participant make the Bionicle, place it under the table, give them the materials to make another, and so on. The average participant constructed 11. In the second experiment (they referred to it as the “Sisyphus condition,” referring to the king who was punished by God to roll a rock up a hill for eternity only to watch it roll back down right before it got

to the top), they took the Bionicle that the participant had just assembled and disassembled it right in front of them. In the Sisyphus condition, they only built 7 on average.

They then described the experiment to a new group of participants, without actually having them build Bionicles, and asked them to speculate on what they thought would be the outcome. The average participant speculated that 8 would be built in the meaningful condition and 7 during the Sisyphus condition. They got the direction correct, but not the magnitude.

They also factored in a participant's love for LEGOs; that is, some people just love building things with LEGOs, so presumably the greater the love for LEGOs, the more they would build. This is exactly what they found in the meaningful condition: a very strong relationship between intrinsic satisfaction and the number of Bionicles built. In the Sisyphus condition, there was no correlation between the number of Bionicles built and intrinsic satisfaction. Apparently, Ariely concludes, any joy or satisfaction associated with building LEGOs was crushed when the Bionicles were taken apart right in front of them.

What this is telling us is that when we are designing incentive contracts, the financial element is only part of the story and may well not even be the most interesting part. This will of course vary by person and by industry and job and location; however, contributing to something meaningful and being recognized are powerful motivators.

When it comes to designing incentive contracts that include these motivational components, expert intuition can play a very important role. It is hard to imagine that the executive at the large software company in Seattle that delivered the bad news to the software engineers



about their project would leave everyone hanging. Here you have 200 software engineers demotivated and underutilized. As Ariely points out, this had an impact on productivity and could have easily led to employee turnover. Their financial compensation was probably not impacted, but the significance of their work was completely undermined.

What does this aspect of human science have to do with advanced analytics? If you are attempting to accurately *predict* how people are going to respond to a new policy, practice, or some other action, it is important to understand an impacting effort and engagement is about more than just money.

### **5.3. PERFORMANCE MANAGEMENT**

The objective of performance management systems is to align the individual (and the team) activities with organizational goals. Often, however, a long list of secondary factors influences performance management decisions. Performance management decisions are subject to a wide range of biases and information asymmetries. Advanced analytics can provide a mechanism to eliminate many of the factors influencing evaluator bias. Performance management is defined as follows:

The means through which managers ensure that employee's activities and outputs are congruent with the organization's goals.<sup>13</sup>

The focus of much of strategic HCM is the alignment of HCM practices and policies with business objectives. For policies and practices to have an impact on performance, they need to ultimately influence value-creating employee behaviors and activities.

First, you want to determine the right set of policies and practices in your specific situation. Unfortunately, performance management practices are often handed down because this is what was always done, or it is what the firm next door is doing. Keep in mind that the overall objective is employee engagement—getting everyone on the same page, excited, and motivated to carry out the objectives of the organization.

Performance management provides the following functions:

- Help determine which performance management and incentive system to put into place
- Develop a line-of-sight connection between individual and team performance and organizational objectives
- Evaluate the effectiveness of the policies and practices

#### **5.3.1. Biases Impacting Performance Management and Compensation Decisions**

A challenge that organizations encounter is one of managing performance well. Part of the issue is also a problem with the *model* (that is, determining which factors are associated with superior performance). There are a broad range of factors, including the following:

- Skills, abilities, knowledge, and individual characteristics
- Organizational characteristics and business objectives
- External and internal conditions and constraints<sup>14</sup>

Getting performance management right matters; employee engagement and satisfaction is associated with superior business outcomes.<sup>15</sup> However, numerous factors conspire against the accurate evaluation of

performance. Of all the HCM-related activities, one that certainly has much downside potential for biased decisions is performance management. Some argue that evaluators are inconsistent and that there is a high degree of subjectivity in such evaluation.<sup>16</sup>

- **Appraisal politics:** This is more common and more problematic than most other forms of biases. In the case of appraisal politics, evaluators consciously distort ratings to achieve individual or other division or company goals.

- **Similar to me bias:** We generally view ourselves as being competent and effective; so if we find someone who is very much like us, we are more prone to positively evaluate and reward that person.

- **Halo and horn effect:** This bias occurs when a rater ascribes one positive quality to all qualities. The inverse is the horn effect, when a negative quality is ascribed across all other characteristics.

Few topics have the potential to be more contentious within an organization than decisions related to compensation rewards. It can be a process that is rife with many of the biases outlined in [Chapter 1, “Challenges and Opportunities with Optimal Decision Making and How Advanced Analytics Can Help.”](#) For instance, merit pay has long been considered problematic because it was thought to be prone to subjectivity bias. (That is, those who were liked by the boss were given higher bonuses than those who were not.) It is safe to say that there are many, many ways to get compensation wrong, and numerous factors often go into the compensation decision.

Both Gartner and Forrester Research<sup>17</sup> evaluate a variety of different tools to assist with total compensation decisions. There are tools that can assist with the

administration of compensation; however, the application of more advanced tools to these problems is less well developed.

### **5.3.2. Strategy Maps and Performance Management**

In the previous section, “5.2 Human Science and Motivation,” I discussed how the new human science recognizes that we are not only about income or profit maximization, but we also are looking for our work to have significance and meaning. In this section, I will be discussing how some tools can assist us with developing better connections between our decisions and effort and between organizational performance and outcomes. This will ultimately result in a more equitable dispersion of rewards.

I have already spent some time discussing the Balance Scorecard, and this is certainly a tool that can be used to better reward executives. There are a number of different automated scorecards available that go a long way toward establishing a line sight connection between performance and individual and team behaviors and activities.

Certainly in the case of executives, all of the data is readily available to link their decisions on capital expenditures, strategic initiatives, and execution to operational and financial outcomes. Furthermore, there are excellent performance management tools such as IBM CFO Performance Dashboard or SAS Strategy Management that can provide all the necessary data.

Strategy maps can provide a variety of metrics that represent operational outcomes. It is possible to see how these metrics co-vary relative to one another, and assuming the system maintains historical metrics, it is possible to do what we discussed in Chapter 3; we are

able to establish cause and effect through the use of panel data.

In addition, dashboards and scorecards can provide tools to help identify relationships between metrics and performance, including human capital metrics such as labor costs, employee turnover, and employee morale. As I mentioned earlier, Forrester Research and Gartner Inc. provide an excellent review of all these and other products.

## **5.4. APPLYING HUMAN SCIENCE TO INCENTIVE CONTRACTS**

### **5.4.1. Irrational, Cooperative, and Looking for Meaning**

By focusing primarily on financial rewards, incentive contracts mostly miss the mark. Most of us like working together, doing challenging but meaningful work, and being recognized when we do well. The underlying assumption of rationality and profit-maximization in incentive contracts is incomplete. Tournament-based incentives force individualized, non-cooperative, winner-take-all behaviors that fail to maximize value creation in collaborative organizations. To maximize value, organizations need to develop incentive contracts that promote cooperation and collaboration and recognize both team and individual accomplishments.

#### **5.4.2. Complexity Theory and Incentive Contracts**

The Santa Fe Institute, founded in 1984 in (you can probably guess where) Santa Fe, New Mexico, is a very interesting research center.<sup>18</sup> The main focus of the Institute is complexity theory. Its researchers include physicists, economists, computer scientists, and fiction writers (the author Cormac McCarthy, author of *The Road* is based there). They were doing big data research way before it was cool. They attempt to model and predict the actions of individuals and groups, exactly what we are attempting to do. They have applied their work to such things as predicting movements of the financial markets and the likelihood of terrorist attacks. They have also done much work in “Agent-based Modeling,” allowing for non-rational responses of individual agents. These very sophisticated models could be used to predict individual and group behaviors in organizations using various individual and group incentives.

#### **5.4.3. The Application of Expert Intuition to Incentive and Motivation Issues**

When it comes to merit pay or bonus payments, there is much room for biases to enter in the decision process, so “gut” decision should be used with caution. However, when it comes to determination of what will motivate or demotivate an individual or a team, there is much more room for intuition to play role. With stock options, for example, due to the vesting requirement, many of the positive effects on performance may be related to reduced turnover, but paying all employees in the same manner as executives with a company-wide incentive may well positively impact engagement and promote collaboration.

It is also possible to build mechanisms for factoring in expert judgment into the tools themselves, as in Dr. Virginia Apgar’s test to evaluate the health of a newborn.

She came up with the important variables, and it is an expert that is assessing the newborn. The same kind of “weighting” used in the Apgar test can be incorporated into data-driven decisions related to selection and incentive decisions.

#### **5.4.4. Applied Game Theory and Incentive Contracts**

I have explained the Prisoners Dilemma, which is an important element of game theory, in an earlier chapter. Another assumption is that in order to arrive at a cooperative solution, the “game” needs to be played over and over again. What this assumes is that the agents (employees) will be consistent (they will not quit) in order for this cooperative solution to eventually emerge. Practically speaking, if our organization would benefit substantially from cooperation and collaboration, then keeping the same employees is important. Having high employee turnover means that there is less likelihood that employees will ever establish a stable cooperative equilibrium. They need to establish the necessary history (bonds, trust) with each other in order to realize the full benefits of collaboration. This further implies that incentive contracts that have a strong employee retention effect (that is, a vesting requirement) are advisable where cooperation is beneficial.

#### **5.4.5. Deep Q & A Expert Systems and Incentive Contract Decisions**

Much like with selection decisions, the use of a “Watson-like” Expert System could provide very useful information and intelligence on what incentives to use when. It could provide evidence-based recommendations for both types and forms of specific incentives, drawing from a database containing research and data on a broad range of incentive contract options. Information on the organization, the individual, and the executive-level team could be included, providing recommendations based on the specific set of circumstances.

#### 5.4.6. Predictive Modeling and Incentive Contracts

The same question asked in the last chapter (what predicts a great employee) is essentially the same one we are asking here. What predicts the optimal incentive contract for a cowboy, a physician, an executive?

Complicating matters when it comes to determining optimal incentive contracts is that we are using a broad definition of incentives with an overall focus on what is it that motivates the individual, the team, and the organization as a whole to superior performance. In addition, we can also include both employer and employee preferences (or characteristics).

It is possible to obtain predictions on how teams, departments, and divisions will respond to prospective changes in incentives. Agent-based modeling provides an ideal mechanism for attributing for “non-rational” responses by individual agents. Most models assume “rational” responses, which we know is not how humans actually act.

#### 5.4.7. Applied Econometric and Machine Learning Techniques

There are a number of tools and techniques from econometrics and A.I./Machine Learning that have direct application to problems encountered in HCM. At least a partial list includes the following:

- **Multiple Regression Techniques:** Multiple regression techniques are the workhorse of much of analytics. They can be used to determine the impact on performance associated with the introduction of a new incentive scheme.
- **Decision Trees:** Essentially a graph or model depicting steps to a decision. This can be used to provide evidence-based recommendations on, for example, who should receive restricted stock and how much.



- **Monte Claro Simulation:** This consists of using computation algorithms to arrive at probability distributions or optimizations or calculate a solution to a differential equation. This technique could be used assess the probability of someone resigning.

- **Neural Nets:** Are used to model complex relationships between variables. Can be used to model probable outcomes in groups.

- **Linear and Non-Linear Programming:** Techniques using mathematical optimization to determine most efficient outcome. Used to determine most cost-effective payment package.

## **5.5. APPLICATION OF HUMAN SCIENCE TO SPECIFIC INCENTIVE ISSUES**

### **5.5.1. Executive Compensation**

As I discussed, one of the most highly charged organizational topics of the past 30 years has been the issue of executive compensation. For a time, it was thought that executives should hold a “meaningful” stake in the company, which led to the distribution of a substantial number of shares to executives. There has been substantial criticism that the stock gains had little to do with the actual performance of the executive. More recently, there is the back-dating scandal in which stock grant dates were “back dated” to when the stock value was at its lowest, ensuring the highest possible appreciation. Compensation consultants have also been criticized for adding to the problem by ratcheting up compensation for executives.

In the book *Pay Without Performance*, Lucian Bebchuk and Jesse Fried provide a convincing argument that the determination of executive compensation is largely a function of executive power.<sup>19</sup> Though the corporate

board sets the compensation level, the CEO may still have considerable influence (depending on how much power he or she has) over the compensation package. This by definition means that these executives are receiving a disproportionate amount of the profits, which means, quite frankly, they are literally taking someone else's earnings. The closer we can link pay to actual performance, the more fair and accurate the dispersion of profits. The use of analytics in the decision-making process can assist in eliminating any of the influences not directly associated with actual performance.

By applying advanced analytics to executive compensation, we can accurately evaluate historical performance to determine the maximum effectiveness of the compensation package. One of the most promising techniques is the use of indexing compensation against peer companies to determine the level of impact associated with a particular payment package for executives.

A significant amount of research provides information on what works when. This research could be included in an expert system and provide evidence-based research on what incentive approach to use when and where. Having a "Watson-like" expert system would allow for making evidence-based recommendations on components of incentive and motivational components appropriate for the executive and the organization.

With the use of predictive modeling, based on insights from the new human science, we can go a long way toward predicting the desired outcomes. This would entail including organizational and individual characteristics, as well as organizational and individual objectives. There are numerous data sources available that would enable one to develop and experiment across a broad range of different incentive schemes at the

executive level. The Edgar database is publically available data maintained by the Security and Exchange Commission that contains detailed compensation data on every publicly traded company in the United States. This free data source provides compensation data on the top five highest paid individuals in every publicly traded company. In addition to the data on executive compensation, there is also data associated with the financial performance of these firms. Here is all the data needed to conduct a very rigorous analysis of what works in executive compensation and what does not. The same data is commercially available through S&P Execucomp and through the executive compensation information provider Equilar.

One of the more informed means of compensating executives is through the use of indexation. This comprises evaluating the performance of the executives based on how well they do in comparison to an index comprised of peers or even the S&P 500. Though this is often considered relative to the top executives, this indexation should comprise not only the CEO compensation, but also the entire executive team.

In addition, most firms will also have detailed strategic and operational outcomes. All of these data sources can be organized in order to develop. The ERP systems will almost always include the data necessary in order to evaluate the performance of the top executives.

## **5.5.2. Other Possible Human Science Incentive Applications**

### **5.5.2.1. Low Wage Low Skill Workers**

Earlier, I discussed my experience with the checkout person where I do my grocery shopping. Check-out people, along with most service sector employees, fall into the category of “low wage low skill.” They are often in direct contact with customers, which essentially makes them the “face” of the company. Also, by merit of their proximity to the products and consumer, they have access to information and intelligence that those many layers up do not. This information is valuable, and there should be an incentive to share and/or act on it.

The new human science would suggest that this group may be under-rewarded financially for their contribution, and would be excellent candidates for team or company-wide incentives in order to provide incentives to share information on customer preferences.

### **5.5.2.2. Merit Pay and Teachers**

I believe most would agree that teachers play a crucial role in all societies. The impact they have on individual and cumulative human capital can be quantified, it adds-up to the aggregate output knowledge-based organizations. Motivating and retaining high-quality teachers is essential for the wellbeing of an economy.

Here too the focus on pecuniary rewards may be at least partially misdirected. Developing a motivation profile and a reward system that motivates continued superior performance is critical.

#### 5.5.2.3. Incentives for Physicians

One place we should endeavor to get it right is with healthcare workers. The neoclassical view held that the highest ability would sort to jobs with the highest income. This is one of the reasons why physicians are paid so well in the United States; we want those with the highest ability to become doctors.

The World Health Organization ranked 191 countries on the quality of their healthcare, including costs. The United States spends the most per capita, and was 38<sup>th</sup> overall (immediately above Slovenia and one below Costa Rica).<sup>20</sup> It may well be that a connection exists between the extremely high costs of healthcare and the way in which physicians are compensated.

An optimal incentive approach for physicians may be the approach taken by the Mayo Clinic and the Cincinnati Clinic. They are considered two of the best healthcare facilities in the United States (and the world), and both pay their physicians a salary, rather than a piece rate system based on the number of patients seen and procedures or tests ordered.

#### **5.5.2.4. Wage Inequality**

There are a number of ways in which the new human science can help to eliminate wage inequality. The first is to accurately assess contribution through the use of advanced analytical techniques, including strategy maps, scorecards, and reward in line with actual contribution. Secondly, recognize that much potential value creation resides with those who are in direct contact with customers, the products and the innovation process, and providing an incentive to maximize that value is important. Furthermore, the information frontline employees possess is also valuable, and there should be an incentive to share or act on that information. Taking these steps should serve to both increase profits and disperse them more accurately to those who are responsible for making them.

## **Conclusion**

The New Human Science is a combination of the new understanding of how we make decisions, our human nature, and developing technologies. These new combined insights and tools impact the way we make decisions, who we select, and how we select and motivate people.

In this book, I have shown how the new human science and advanced analytics can aid decision making; the critical role collaboration plays in organizational success; where value is derived from; and how eliminating biases from selection, promotion, and incentive decisions will also make for more equitable and successful workplaces. More information and tools to assist with decision making can be found at [DecisionAnalyticsInc.com](http://DecisionAnalyticsInc.com).

Much more needs to be done on this topic. More tools need to be built, and more topics need to be explored, including the following.

### **GARBAGE IN...**

This is so ubiquitous a problem that it hardly bears mentioning: All of this depends on the quality of the data. If we start with corrupted data, what we do with it and the insights it provides are largely useless.

## **OUR ARGUMENTATIVE NATURES**

The English version of law, like much of academia, is largely based on an adversarial model. Both sides develop their argument as thoroughly as possible and fight tooth and nail. Obviously, there are upsides to this approach. However, the one tremendous downside is that neither side is really all that interested in the *truth* of what actually happened; they just want their side to win. This has the very unfortunate result of placing both sides in a position in which they deep six facts that might not support their specific position. The use of advanced analytics to better get at the facts of the matter needs much more attention.

## **ADVANCED ANALYTICS AND DIAGNOSIS OF HCM ISSUES**

In 1999, then 3-year-old Isabel Maude came down with a high fever, vomiting, and a skin rash. The doctors diagnosed chicken pox but failed to identify the much more serious condition that developed: necrotizing fasciitis (or what is more commonly referred to as the flesh-eating disease). It took a substantial amount of time for the physicians to get the diagnosis right, and that delay almost cost Isabel her life. It also resulted in a long series of plastic surgery for Isabel.

The problem was anchoring bias. The doctors diagnosing the illness were simply certain that they had gotten it right. Had the flesh-eating disease occurred to them, they could have almost certainly made a more accurate diagnosis. One positive that came out of this near tragedy was Isabel's parents establishing the organization Isabel Health Care, which develops decision-support software for doctors. We need to develop an evidence-based deep Q&A expert system that can assist with determining human capital management (HCM) issues and solutions.



## THE SCIENCE (AND ART) OF PREDICTION

There are two ways to view the world: deterministically or probabilistically. It is difficult to argue that the world is entirely one or the other (although many hope we have some degree of free will). Though what we observe largely appears to be deterministic, we also see that the world seems to contain a healthy dose of randomness. The way products are arranged in a supermarket may not *cause* us to purchase goods, but it may increase the *likelihood*. We are not always going to choose the right employee, but if we apply some simple state-of-the-art decision mechanisms and techniques, we can increase the likelihood.

## THE CHALLENGES WITH BEING EMPIRICALLY DECLARATIVE

These problems plague large-scale academic research because it is not clear whether we are really measuring employee engagement or effectiveness. It could well be something else that we have not identified that is actually causing the result we are seeing. Or it might be the proverbial cart-horse issue: Is the well-performing company pulling the engagement or effectiveness or vice versa? We can go some way toward reducing the impact of each of these problems, but it is difficult to eliminate them entirely.

One reason for many of the problems with these large-scale research projects is they would like to say something about generalizability. That is, do the effects observed apply to everyone? Each of these provides challenges to actually being able to declare unequivocally that the practices are causing the result. The unfortunate reality is that nearly all the academic research (including my own) suffers to some degree from one or more of these challenges. Fortunately, firms have a much better chance of conducting research into the impact of practice

and policy choice for their specific situation, so generalizability is less of an issue. Driving forward with information on “what works” is what is important, and the answer largely depends on when and where.

## **DECISION-MAKING AUTHORITY AND COOPERATION**

The critical issues that I want to develop in relationship to the Challenger story are these: where the critical information resides, who has the authority to make decisions, and the role of cooperation. The issue here is that there are many within the organization who have critical information, and they need to be in a position where they can share that information with decision makers.

## **SHARING CONTROL AND RETURN RIGHTS**

So, how do you foster an environment of collaboration? The answer is that you share control rights and return rights with your employees. There is powerful incentive effects associated with transferring some of the rights of ownership to employees. Control rights are by definition the right of ownership that allows us to decide what we want to do with assets we own. Return rights are the rights to any revenue generated by those assets.

## **INDIVIDUALIZATION**

Another potential benefit of advanced analytics is the ability to utilize technologies to tailor to the characteristics of the specific situation and the specific individual. There has long been a debate between the use of best practice and strategic choice. In essence, best practice research holds that there is a universal set of practices that everyone would benefit from using. Strategic choice holds that the situation dictates the specific policy and practice. I am firmly in the latter camp.

Have a look at the regression output using simple ordinary least squared (OLS, a process of finding the line of best fit between data points by finding the difference between data points, allowing an estimate when the data is not available). Does anything strike you about the output? If you look closely at the line of best fit (the line running through the data points) either no one or very few actually fall directly on the line.

As we sequence our DNA, we can better individualize our healthcare and our nutrition. Similarly, advanced analytics will better allow us to get the right person in the right job and to determine what actually motivates that person as an individual.

Additional topics that need considerable thought include the following:

- **Agent-based modeling:** This could allow for a much more realistic model of how people actually respond to incentives or other interventions.
- **Neuroeconomics:** This emerging science has tremendous scope for better understanding decision making and how to do so more efficiently.
- **Combinatorics:** The branch of mathematics that provides insight into how rational decisions are made.

## A. Definitions

This appendix provides fairly straightforward and easy-to-understand definitions. Most of these definitions have been sourced from Wikipedia, which I believe to be the premiere source for definitions. The alternative is to draw from a textbook on the subject (usually written by one to five authors). The crowdsourcing capacity of Wikipedia expands the number of experts providing input to dozens, hundreds, or even thousands, thus reducing the likelihood of bias and increasing the likelihood of including pertinent information.

**Advanced analytics:** According to Gartner, Inc., advance analytics is defined<sup>1</sup> “as analysis of structured and unstructured content (such as text, images, video, voice) data using sophisticated quantitative methods (such as statistics, descriptive and predictive data mining, simulation, and optimization) to produce insights that traditional approaches to BI such as query and reporting are unlikely to discover. It is frequently applied to make decisions, solve business problems and identify opportunities by providing better forecasts, causal understanding, pattern identification, process and resource optimization, and assisting with scenario planning process.”

**Agent-based models:** “Agent-based modeling (ABM) is a style of computational modeling that focuses on modeling individuals, components of individuals, or heterogeneous parts of a complex system. ABM as a style of computational modeling requires both mathematical and experimental approaches for its development and application.”<sup>2</sup>

**Artificial intelligence:** Artificial intelligence (AI) is defined in various ways<sup>3</sup> in Russell and Norvig’s book

*Artificial Intelligence: A Modern Approach*. Essentially, AI is focused on *thought processes* and *reasoning*.

Russell and Norvig further differentiate between how humans *actually* think and act and thinking and acting in an ideal manner (*rationally*). AI deals with both *actual* and *ideal* thinking and doing and how machines can mimic and assist this.<sup>4</sup>

**Bayesian probability:** Bayesian probability theory deals with uncertainty and decision making. This attempts to determine the probability of an event (A) occurring given that (B) has occurred. For example, you can determine the likelihood of employees leaving the organization (employee turnover) using Bayesian probability.<sup>5</sup>

**Data mining:** The essential definition of data mining is knowledge discovery in databases, which often follows these five steps:<sup>6</sup>

1. Selection
2. Pre-processing
3. Transformation
4. Data mining
5. Interpretation/evaluation

The emphasis of data mining is on discovering something new in the data.<sup>7</sup>

**Decision trees:** Decision trees are used to predict an item's likelihood based on observations of the item. Classification trees consist of determination of the likelihood of the occurrence of a class to which the data belongs. Regression trees are associated with the

likelihood of a specific value (for example, price of house, hospital stay).<sup>8</sup>

**Expert systems:** Expert systems are computer programs that emulate the decision-making process. As the name implies, expert systems imitate the decision-making process of an expert. They contain a knowledge base and an inference engine. The knowledge base is the rules or “knowledge” created by the expert, and the inference engine is the reasoning used to derive recommendations from the knowledge base.<sup>9</sup>

**Fuzzy logic:** Fuzzy logic allows for nondichotomous answers that are found between 0 and 1 and are not a strict absolutely correct or absolutely false. This allows for reasoning that is approximate rather than precise. It can also be used to mimic nonrational outcomes (*fuzzjectives*).<sup>10</sup>

**Genetic algorithms:** A genetic algorithm is a search technique that borrows from processes found in evolution to find optimal solutions.<sup>11</sup>

**Machine learning:** “At its simplest, machine learning algorithms take an existing dataset, comb through it for patterns, and then use these patterns to generate predictions about the future.”<sup>12</sup>

**Neural nets:** This term refers to the network of biological neurons. In the context of AI, neural nets are the artificial nodes used for developing predictive models.<sup>13</sup>

## Endnotes

### INTRODUCTION

1. IBM Global Business Services. (2010). "Working Beyond Borders."
2. An example is a recent *Wall Street Journal* article on how big data is being used to assist with hiring decisions. [http://online.wsj.com/article/SB10000872396390443890304578006252019616768.html?mod=WSJ\\_hpp\\_MIDDLENexttoWhatsNewsThird](http://online.wsj.com/article/SB10000872396390443890304578006252019616768.html?mod=WSJ_hpp_MIDDLENexttoWhatsNewsThird).
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5. By far, the best way to overview the work of Fehr and others on these and other related topics is to go to Social Science Research Network. You can find much of his work there: <http://papers.ssrn.com/sol3/results.cfm>.
6. Kasparov, G. 2010 (February 11). "The Chess Master and the Computer," *New York Review of Books*.

## CHAPTER 1

**1.** Thaler, R. and Sunstein, C. (2008). *Nudge: Improving Decisions About Health, Wealth and Happiness*.

London: Penguin Books.

**2.** Others books that arrive at much the same conclusions include Richard Thaler and Cass Sunstein's book *Nudge*, 2009, London: Penguin Books; Robyn Dawes's *Everyday Irrationality*, 2001, Oxford: Westview Press; and Dan Ariely's *Predictably Irrational*, 2008, New York: HarperCollins.

**3.** Tversky, A. and Kahneman, D. (1981). "The Framing of Decisions and the Psychology of Choice," *Science*, 211, 453–458.

**4.** I would argue that the fight regarding whether effective human capital management impacts performance has been long won. See the work of Jac-Fitz Enz, Brian Becker, Mark Huselid, Casey Ichniowski, Ann Bartel, Katherine Shaw, and many others.

**5.** An excellent overview of the arguments is found in a book review by Philip Tetlock and Barbara Mellers in the January 2002 issue of the *Psychological Science Journal* 13(1), 94–99. The review is of the book *Choice, Values and Frames*, edited by Daniel Kahneman and Amos Tversky.

**6.** Kahneman, D. (2011). *Thinking, Fast and Slow*. New York: Farrar, Straus and Giroux. 212. The entire book deals with factors that influence our tendency to act rationally.

**7.** If you are interested, you can find much of this work at Social Science Research Network's [ssrn.com](http://ssrn.com), which is an excellent source of research.



**8.** Principal-agent theory states that there are owners and nonowners in firms. The owners incur costs in the form of incentive contracts to align the interests of the two parties. The incentive contracts themselves consist of a combination of formal monitors, substitutes for monitors, and direct incentives. Two issues that quickly surface with broad-based stock options are the free-rider and the line-of-sight problems. The free-rider problem argues that those receiving group incentives such as stock options will always be subject to “free riding” on the effort of others. The second is the line-of-sight problem, which is if your effort does not have a direct and obvious impact on the reward, there will be little incentive to focus on it. These two factors would suggest granting stock options to nonexecutives will have no material impact on performance.

**9.** In all of our research, we found a positive impact on performance associated with the granting of stock options broadly. However, in one of our last papers (July 2011, Sesil and Peng-Lin, *Industrial Relations*), we found that the impact of broad-based stock options was short-lived.

**10.** You can find a large amount of research on ownership culture and a variety of other research on employee ownership at the National Center for Employee Ownership. <http://www.nceo.org/>.

**11.** An interview with Thomas H. Davenport. July 2010, “Are You Ready to Reengineer Your Decision Making?.”

**12.** Kahneman, D. (2011). *Thinking, Fast and Slow*. New York: Farrar, Straus and Giroux. 21.

**13.** Ibid. 22.

**14.** Blasi, J., Kruse, D., and Bernstein, A. (2003). *In the Company of Owners: The Truth About Stock Options*.

New York: Basic Books.

**15.** Ibid.

**16.** Ibid. 5.

**17.**

[http://www.nytimes.com/2007/12/09/magazine/09wwln-idealab-t.html?\\_r=0](http://www.nytimes.com/2007/12/09/magazine/09wwln-idealab-t.html?_r=0).

**18.** You can find a more detailed explanation of each of these in Daniel Kahneman's *Thinking, Fast and Slow*. (2011). New York: Farrar, Straus and Giroux.

**19.** Thaler, R. H. and Sunstein, C. R. (2009.) *Nudge: Improving Decisions About Health, Wealth and Happiness*. New York: Penguin Books. 7.

**20.** Schoemaker, P. and Russo, J. "Managing Frames to Make Better Decisions," in Hoch, S. J., Kunreuther, H. C., and Gunther, R. E. (eds.). (2001). *Wharton on Making Decisions*. Hoboken, NJ: John Wiley & Sons, Inc. 131–155.

**21.** Ibid. 132–133.

**22.**

[http://en.wikipedia.org/wiki/Template:Quantities\\_of\\_bytes](http://en.wikipedia.org/wiki/Template:Quantities_of_bytes).

**23.** Zikopoulos, C., Eaton, C., deRoos, D., Deutsch, T., and Lapis, G. (2012). *Understanding Big Data: Analytics for Enterprise Class Hadoop and Streaming Data*. New York: McGraw Hill.

**24.** Rayer, N. (October 7, 2011). "Maverick Research: Judgment Day, or Why We Should Let Machines Automate Decision Making." Gartner Research Note. Gartner, Inc.

- 25.** “Connecting the Neural Dots,” (Tuesday, February 26, 2013), *New York Times*, Science Times section.
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- 30.** Sallam, R. L. and Cearley, D. W. (February 16, 2012). “Advanced Analytics: Predictive, Collaborative and Pervasive.” Gartner Research Note. Gartner Inc.
- 31.** Ibid.
- 32.** There is excellent work on this topic by, for example, Jac Fitz-Enz, *The New HR Analytics and The ROI of Human Capital*. Also by John Boudreau, *Retooling HR* and (with Peter Ramstad) *Beyond HR*.
- 33.** Sallam, R. L. and Cearley, D. W. (February 16, 2012). “Advanced Analytics: Predictive, Collaborative and Pervasive.” Gartner Research Note. Gartner Inc.
- 34.** IBM Global Business Services. (2010). “Working Beyond Borders.” The survey is based on interviews with 700 chief human resource managers.
- 35.** Ibid. 2.

**36.** Ibid.

**37.** The formula was developed by John Tierney, the *New York Times* journalist and author, and Garth Sundem, self-proclaimed math geek and author. The formula was found in John Tierney's March 13 *New York Times* article "Refining the Formula That Predicts Celebrity Marriages' Doom," in the Science Times section.

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**43.** Ibid. 100–101.

**44.** Yaser S. Abu-Mostafa. (July 2012). "Machines That Think for Themselves: New Techniques for Teaching Computers How to Learn Are Beating the Experts," *Scientific American*, 78.

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## **CHAPTER 2**

- 1.** Roger Boisjoly, an engineer at Morton Thiokol, the subcontractor responsible for manufacturing the O-rings, attempted repeatedly to have the launch stopped. However, his warnings were ignored. He spent much of this time after leaving Morton Thiokol lecturing widely on ethical fact-based decision making.  
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- 3.** Ibid.
- 4.** Davenport, T. H. (May 2012). "The Wisdom of Your In-House Crowd," *Harvard Business Review*.
- 5.** Nowak, M. A. (December 8, 2006). "Five Rules for the Evolution of Cooperation," *Science*, 314. 1563.
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**9.** [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1090311](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1090311).

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**18.** Abele, J. (July-August 2011). “Bringing Minds Together,” *Harvard Business Review*.

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<https://workfamily.sas.upenn.edu/sites/workfamily.sas.upenn.edu/files/imported/pdfs/SASwharton.pdf>.

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### CHAPTER 3

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2. <http://www.businessweek.com/articles/2013-05-06/employers-love-wellness-programs-dot-but-do-they-work#r=hp-lst>.

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## **CHAPTER 4**

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# **Compensation and Benefit Design**

**Applying Finance and Accounting  
Principles to Global Human Resource  
Management Systems**

**Bashker D. Biswas**

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*Dedicated to the memory of my parents and my son.  
And to a prosperous future for my granddaughter,  
Mayah.*

## Foreword

Bashker Biswas and I have known one another for over 40 years. We first met when he joined the corporate compensation and benefits practice at Control Data Corporation as a new college hire. Several years later we met again at Skopos Corporation, where he led the compensation practice for this computer-based human resources application start-up. About five years ago, he joined me at Zain as the director of the Corporate Total Rewards function. Zain is a multinational corporation based in the Middle East. In between, Biswas worked at Coopers & Lybrand and PricewaterhouseCoopers as a Director and a Senior Consultant in compensation and benefits design. He also managed to sandwich a parallel career as a college-level professor at various universities in the greater San Francisco Bay area since 1984.

Over these years, I have witnessed first hand Biswas' vast knowledge and repertoire of compensation and benefit design skills, at the national and international level. It is, therefore, a great honor for me to contribute this foreword and to share with the reader my own insights and appreciation for Biswas' contributions to the advancement of the practice of compensation and benefits design.

For most firms, people costs are the lion share of both direct and indirect expenses. Managing it requires sound accounting, financial management, and good business judgment. Biswas makes an excellent case for extending the HR skill set to include accounting, finance, and business management. I support the extension of the HR professional role from a technician's point of view to a business professional. As in most fields, there is art and science involved in HR. It has been said that within the



classical HR functions, employee relations has the most art and the least science while compensation and benefits has more science than art. The book does a great job of capturing the science of compensation and benefit design.

Traditional human resources management has taught us that sound compensation and benefit programs ought to meet three important tests: (1) is it competitive? (2) is it fair?, and (3) is it consistent? Biswas has extended these tests by two additional measures: (1) is it based on sound accounting and financial management principles? and (2) does it advance the firm's competitive advantage by making the programs commensurate with an organization's financial objectives? These latter measures make the book seminal and a must-read by students of the HR professional.

While traditional human resources management emphasized the importance of evaluating compensation and benefit programs based on their ability to attract, motivate, and retain superior human talent, the contemporary view expressed by Biswas is that they also need to be supported by sound accounting, financial, and business practice. In the past 25 years, it has become fashionable for HR professionals to describe their role as *business partners*. In my view, HR professionals can rightfully claim that title only when bestowed on them by their host organization. Senior management will recognize HR professionals as *partners* only when they demonstrate a working knowledge of the organization's financial and business imperatives and demonstrate the ability to link HR programs to the accounting, financial, and business results of the firm. Until then, the term, to many, has little or no value.

As competition worldwide continues to grow, finding, honing, and retaining a competitive advantage is

becoming more and more elusive. Experience teaches us that HR has a great opportunity to contribute to this endeavor. How? If your firm has a more cost-effective compensation and benefits program, by definition, it has an economic advantage over less cost-effective firms. If your firm has a compensation program better tailored to advance the firm's objectives, again by definition, it has an operational advantage over firms that are unable to focus people's efforts. If your firm is more able to link rewards with both individual and organizational financial performance, by definition, it has an employee relations advantage over firms that are unable to pay for performance.

It is fashionable to hire compensation consultants from well known consulting firms to come in and do the compensation and benefit design work. My experience has taught me that what you will get, at best, is a good boiler-plate solution, and at worst, a flavor of the year, gimmicky proposal. External consultants, for all their technical knowledge, do not have an intimate knowledge of your firm, its aspirations, foibles, and driving force. They also often provide solutions that are difficult to implement or expensive to maintain, making the need for their service a never-ending dependency. Thus it becomes imperative for HR professionals to develop their finance and accounting skills. This book will help with that effort.

Finally, Biswas' book reinforces the importance of custom design. Every firm is unique! There are no two firms alike. Designing one size-fits-all compensation and benefit programs to match current fads or what is in vogue is foolhardy. His repertoire of design options is intended to promote the notion of linking compensation and benefit programs to the unique needs of the organization, from the accounting and financial

perspectives. Biswas' work links design options with a number of critical legal requirements.

Tony Tasca, Ph.D.  
Retired HR Executive & International Consultant  
Palo Alto, California  
December 2012

## **Acknowledgments**

This book would not have been possible without the efforts of my colleagues at DeVry University–Keller School of Management, Sacramento Campus, where I currently teach as a visiting professor. A special thanks goes to Oscar Gutierrez, national dean, College of Business and Management, for introducing this publishing opportunity to the faculty. To Dr. Jose Michel goes much appreciation for facilitating the project. And to Mary Cole MS, MAFM, Professor and Business Manager, for so willingly approving the student support for the project and for facilitating my ongoing teaching career. Also, I want to thank my many students who have helped me in various ways, throughout the years, to improve the clarity of my thinking.

A special word of appreciation goes to Dr. Anythony Tasca for writing the foreword to the book. I have known Tony for 42 years. He knows the art and the science of Human Capital Management, having served as a Chief Human Resource Officer of a very large company, and also having been a distinguished Human Capital Effectiveness Management Consultant to many companies over a period of 38 years.

This project greatly benefited from the efforts of Nusrat Tinni, one of my hardworking graduate accounting students at Keller School of Management, who carried the burden of transcribing the manuscript. Occasionally, I received some research assistance from another brilliant student, Madison Voss. I also want to acknowledge the work of Sharon Evers, who provided additional valuable transcription support.

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I want to especially thank and acknowledge Thomas Hestwood, my friend and colleague of many years. Our joint research and publishing efforts have found expression in two of the chapters in this book. Tom was a strong professional partner early in my career. Our connections have remained steadfast over the many years. I owe a deep gratitude to Tom for agreeing so readily to the use of two of our joint publications in this book.

Finally, and as always, I acknowledge the efforts of my wife of more than 40 years, Usha, who has steadfastly provided support for this project and for many others. On this project, her assistance was invaluable both with the administrative tasks and in the editing of the manuscript.

Bashker Biswas, Ph.D.  
Lincoln, California  
August 2012

## About the Author

**Bashker “Bob” Biswas, Ph.D.**, is the Principal of the Biswas Group Inc., a Global Management Consultancy. Dr. Biswas concurrently holds the position of Visiting Professor at Keller School of Management at DeVry University in Sacramento, California.

Dr. Biswas has over 40 years experience in Total Rewards Management; Finance; Accounting; Executive Compensation; Base, Incentive, Sales and Equity Compensation; Human Resource Strategy; Human Resource Information Systems; International Human Resources; and International Compensation.

The companies he has worked for are Control Data, Bechtel, Memorex, Maxtor, Hitachi Data Systems and BioGenex, and Zain. Dr. Biswas has held positions at the Director level and above since 1982. At Maxtor and BioGenex he was a Vice President. While at Memorex and Zain, he worked out of London and the Middle East/Africa respectively. He has traveled to over 30 countries on various compensation and benefits related projects.

During his tenure in the Middle East, Dr. Biswas conducted Total Rewards and Global Human Resource Management Seminars throughout the Middle East and Africa. He was a leading instructor in the Zain Human Resource Management Academy.

In addition, he has held consulting positions at Skopos Corporation, a venture investment backed HRIS start-up cofounded by Dr. Biswas in 1983, at Coopers & Lybrand, and at PricewaterhouseCoopers. At Coopers & Lybrand, he was a Director of Human Resource Consulting in the San Francisco office and National High-tech Leader for

Human Resource Consulting. Dr. Biswas was also responsible for the firm's National Software Industry Compensation Survey. In total he has provided Compensation Consulting to over 40 companies.

Dr. Biswas has taught at various universities as an adjunct faculty member since 1984. He has authored and coauthored articles in Human Resource Management. Dr. Biswas also has presented at WorldatWork's National Conference and briefly taught in their Certification Program.

Dr. Biswas holds a B.A., M.B.A., and Ph.D., and a post-graduate diploma in Industrial Relations.

He has been a member of WorldatWork (American Compensation Association) since 1972.

## Preface

Accounting is the language of business. *Human resource* (HR) management deals with the major asset of a business: the employee. Therefore, when dealing with employee issues, shouldn't HR professionals use the language of business? Shouldn't a connection exist between these important dimensions? Yet, as often noted by various people, HR management and accounting (finance also) come from different planets. This disconnect was discussed in an article published in the *WorldatWork* journal<sup>1</sup> a few years ago, "Finance Is from Mars, Human Resources Is from Venus," by Wade Lindenberger, CPA, and Kayoko Lindenberger, CBP, Employee Benefits Training and Solutions. But both of these planets are from the same solar system, and commonsense logic suggests that both should be connected by the same force field.<sup>2</sup>

<sup>1</sup> WorldatWork is a premier association, globally, for compensation and benefits professionals.

<sup>2</sup> Lindenberger, W., and K. Lindenberger, "Finance Is from Mars, Human Resources Is from Venus," *Workspan, The Magazine of WorldatWork*, January 2009, pp. 41–44.

So, why are they not connected? What are the main disconnects? What are the reasons for this disconnect? Why does the chasm exist? Why the gaps? What can be done to strengthen the links? What are the knowledge and skill gaps? What specific knowledge areas need to be addressed?

This book seeks to answer these questions, discussing in detail the specific connection points between accounting and finance and HR management.

Throughout this book, accounting and finance are combined into one discipline, although they are not



necessarily the same. Simply stated, accounting people are record keepers, and finance people are the analyzers. However, both group's core foundations are the numbers of the organization. Both groups have to be proficient in the language of business: accounting. Accountants keep the records of the numbers and are responsible for reporting those numbers using the guidelines and rules laid out for them by the rule-setting bodies (GAAP, IFRS, SEC, AICPA,<sup>3</sup> and others). Finance people are analyzers and interpreters of the record. Therefore, a case can clearly be made that accountants and finance people are from the same planet, whereas HR professionals are from a different planet. The goal in this book is to bring these two force fields closer together by imparting to the HR community the finance and accounting skills needed (in a comprehensive manner) to talk the language of business. But why are these groups so far apart? After all, HR professionals also have to talk the language of business if they want to make strategic business decisions.

<sup>3</sup> GAAP (Generally Accepted Accounting Principles), IFRS (International Financial Reporting Standards), SEC (Securities and Exchange Commission), AICPA (American Institute of Certified Public Accountants).

HR management as a function started off in the enlightened period of management, when employee productivity enhanced through improvement in morale, motivation, and commitment. During this period, work behavior started to be considered an important element in overall organizational success. The origins were in Western Electric via the Hawthorne studies. For the first time, studies showed that management had to pay attention to the welfare of employees if they were to achieve organizational success. From those early days, management got a new focus: employee relations. Management hired people to help them with employee welfare. These early employee welfare professionals were usually called employee relation specialists. *Specialist*

here was a stretch. These early staffers were mostly administrators helping managers with the tasks associated with employee welfare. But, then workers started seeing that they could raise their bargaining power with their employers if they joined forces to form unions. Managers started seeing that they needed staffers to help them handle union-related issues, and thus came the advent of labor relation specialists.

Along with the growth in labor relation professionals, organizations during this period saw the growth of personnel administrators. Managers hired personnel administrators to assist them with employee management responsibilities. And so grew the functional specialties of personnel management: recruitment, wage and salary administration, policies and procedures, training and labor relations.

After Douglas McGregor's bestselling book *The Human Side of the Enterprise* started gaining traction, the personnel department was renamed to HR management. The idea was to bring in more consideration to the *human* side of an organization. Therefore, managers hired and sought the guidance of "people specialists": the HR professional.

HR people would be "people persons" (touch-feely or soft-skill experts). They would be guardians of the people side of the business. They would be advocates to management for the employee's view of things and simultaneously represent to employees the management view of things. But the HR functions would continue to be responsible for helping managers with the day-to-day employee management issues, such as recruiting, compensation, benefits, training, development, and employee relations.

The skills and knowledge HR professionals needed to have to do their jobs effectively remained uncertain, and

still does. Senior managers decided that HR professionals mainly needed people skills or soft skills. However, what were really the required core competencies vital for the HR professional? The answer was not clear and remains unclear still today.

During the past 20 years, attempts have been made to define HR core competencies. David Ulrich's landmark book is a case in point, *Human Resource Champions*.<sup>4</sup> Over the past 50 years, whether you are an internal HR staff member or an outside HR consultant or even an HR professor, it can safely be said that there still remains uncertainty as to what knowledge, skill, and core competencies are needed for the HR professional. Also, we remain unsure as to whether HR management is indeed even a profession.

<sup>4</sup> Ulrich, D. *Human Resource Champions: The Next Agenda for Adding Value and Delivering Results*, Harvard Business School Press, 1997.

Let's look at what the criteria are for a particular occupation to be regarded as a profession. For a class of activities to be considered a profession, the class jointly should have the following characteristics, among others:

- The public must recognize the occupation as a profession.
- There needs to be a central regulatory body.
- There needs to be a code of conduct.
- There has to be a careful management of knowledge.
- The activities the profession engages in should satisfy an essential societal need.
- There must be an official recognition of professional status by the government.

- There needs to be standards of competence.

From further analysis, consider these two intriguing characteristics:<sup>5</sup>

<sup>5</sup> Adapted from a post written by R.J. Kizik, found at [www.adprima.com/profession.htm](http://www.adprima.com/profession.htm).

- “A profession is based on one or more undergirding disciplines from which it builds its own applied knowledge and skills.”
- “Preparation for and induction into the profession are provided through a protracted academic program, usually in a professional school on a college or university campus.” This should be accentuated with rigorous testing and examination. Based on these criteria, many organizational activities certainly cannot be considered a profession.

Over time, things have changed. Indeed, the times are still changing. Now organizations all over the world are in a period of turmoil. Some call it *creative destruction*. Pressures have increased to create efficiencies, to reduce expenses, to manage costs, to stay focused on business strategies, to improve financial performance. This is the era of the “lean mean fighting machine.” Intense global competition, scarcity of resources, dried-up funding sources—all represent real organizational success impediments. In most organizations, labor costs are typically the largest cost component.

Over the past few decades, there has been a great deal of talk about the fact that HR professionals need to become a strategic business partner. But this has not become reality. More so than ever, it is now imperative that HR professionals understand and participate directly in the strategic initiatives of their organizations. HR has to move from a counseling role to a more primary role. Now financial realities exert relentless pressures. Customers

are more demanding, and there is incessant pressure to reduce costs. Cost-effectiveness, conserving resources, and regulatory pressures have great impact on business operations. Turnover of critical talent remains a major concern. Globalization requires human resources to think and act globally. Now more so than ever, overhead departments are being asked to justify monies being spent for those departments. These departments are being asked to justify their value add. Foremost under this scrutiny is the HR function. The perception is that in the HR department a bunch of people sit around and do things that the senior management cannot clearly understand; that is, the “line of sight” is unclear between expenses made for this department and their staffs and the organization’s overall financial success. Senior managers are asking tough questions: Why are we doing this and that in the HR department? Can we outsource these activities and save money? Why do we need to staff this department with so many people? Are the large salaries being paid to these HR folks really worth it? Are they doing us any good? Can we do without them? Many business leaders wonder whether they even need HR departments. And so, HR departments are being asked to justify their activities using the language of business: accounting and finance. An interesting article appeared on this subject in the *Fast Company* magazine in August 2005 titled, “Why We Hate HR.” This article looks critically at the role of HR departments<sup>6</sup> and stirred up a lot discussion and debate when it came out.

<sup>6</sup> “Why We Hate HR,” by *Fast Company* staff, August 1, 2005.

Here is the dilemma: HR professionals realize that their survival depends on “coming to the table” (that is, being business savvy). It also means directly tying in HR activities with business strategies in the long term. At the same time, it also means tying these activities and their associated expenditures with the short-term bottom line. The dilemma occurs when we realize the current HR

professional has come to this line of work from a whole host of different backgrounds. There are no common threads of knowledge, know-how, and skills in the current repertoire of the HR professional. This is not true with the accounting or finance professional. To work in their fields, accounting and finance professionals must have professional qualifications (CPA/CMA, BA/MA in accounting, MBA in finance, and so on). If they do not possess these qualifications they would have to secure professional credentials from a recognized credentialing body. This focused qualification credentialing does not exist in a comprehensive manner for the HR professional.

The various professional HR associations have started credentialing efforts, but these efforts remain voluntary. The WorldatWork organization has successful credentialing programs for the compensation and benefits professional (for example, *Certified Compensation Professional* [CCP] and *Certified Benefits Professional* [CBP]). In addition, there are no specific college degree requirements for working in the HR department. People working in HR departments have college degrees starting from theater arts to advanced graduate degrees in electrical engineering. Also, many successful HR folks have no college degrees whatsoever.

The orientations of the HR departments vary from organization to organization. No common threads can be discerned. As evidence of this, consider the mind-numbing plethora of terms and expressions that HR departments use: *talent management*, *succession planning*, *organizational development*, *performance management*, *rewards management*, *work-life balance*, *total rewards*, *onboarding*, *downsizing*, *delaying*, *resizing*, *competency framework*, *internal consulting*, *assessment centers*, and what not. No wonder HR consulting remains a growth industry. This is not true in

accounting and finance departments. Every accounting department has to keep the books, develop and report financial information via standard financial statements, and follow the standards developed by standard setting bodies (such as the Federal Accounting Standards Board and the Securities and Exchange Commission in the USA). Every finance department has to analyze financial conditions using these standard rules and standards.

So, here we are: The HR professional is being required to talk the language of business, but the HR professional does not necessarily know the language of accounting and finance. Many organizations have efforts underway to develop the accounting and finance skills of HR professionals. In a January 2009 article in the *Workspan* magazine of the WorldatWork,<sup>7</sup> authors Wade Lindenberger, CPA, and Kayoko Lindenberger, CBP, talk about American Express Company's mandatory effort through a training program to develop the "financial acumen of our HR professionals."

<sup>7</sup> Lindenberger, W., and K. Lindenberger, "Finance Is from Mars, Human Resources Is from Venus," *Workspan: The Magazine of WorldatWork*, January 2009, pp. 41-44.

But we think this knowledge gap is huge. WorldatWork in its credentialing education courses does have a course titled "Accounting and Finance for the Human Resource Professional." But this general course covers subjects in a broad manner without going into the specifics and details of the connections between HR management topics and accounting and finance. This book is designed to fill this gap.

The HR department has many functions, including recruitment, compensation and benefits, and training. Among them, compensation and benefits is the most technical, requiring hard skills. This is because this function involves dealing with numbers. The activities

involved in compensation and benefits are therefore the most affected by accounting and finance implications.

Also compensation and benefit expenses are often the largest individual line item expense in any organizational setting.<sup>8</sup> Relevant data shows that total compensation expenses in organizations fall within 20% to 60% of gross revenue. In the service sector, this percentage is in the 50% to 60% range. If one considers salaries as a percentage of operating expense, the range can be from 15% to 50%. Data from the Bureau of Labor Statistics in 2008 suggests that in the healthcare industry the salaries to operating expenses ratio was as high as 52%. In for-profit service organizations, the ratio was 50%. In durable goods manufacturing, construction/mining, and oil/gas, the ratio was 22%. And in the retail sector, the salaries to operating expenses ratio was as low as 18%.

<sup>8</sup> In fact, in the national economy, wages represent nearly three quarters of total costs.

Compensation and benefits is the largest expense item for any organization. Therefore, there is a need to clearly understand and articulate the links between compensation and benefits and accounting (finance). It also suggests a need for a closer alignment of accounting (finance) with the activities of compensation and benefits.

Note, as well, that many financial problems can be explained by compensation systems or by the specifics of the tax code. When one cannot explain a firm's behavior with economic logic, the real answer may often lie in compensation systems. We will explore these connections in more detail throughout the book.

This book's main objective is to fully examine the connection between compensation and benefits and accounting (finance). This book explores various aspects



of accounting and finance as they relate to compensation and benefit analysis.

HR-related accounting and finance implications are usually captured in accounting and finance texts in an unconnected manner. In contrast, this book brings into focus in one single publication all of these compensation and benefit and accounting (finance) topics, discussing the major compensation and benefit subfunctions one by one. Within each subtopic, you learn the relevant accounting and finance implications.

Throughout this book, the compensation and benefit topics that have major accounting (finance) implications are discussed. Each chapter deals with a specific compensation and benefit topic, with no particular connective flow between the chapters. A lot of topics covered came from the author's college lectures teaching accounting and finance and from compensation and benefit courses.

In recent years, there has been a transformation from independent applications of various compensation and benefits elements. Now organizations focus on the total compensation system to manage total compensation costs and to educate employees on the true costs of their total compensation package. A new term has been used recently: *total rewards*. Total rewards nomenclature is just a different way of referring to total compensation. Keeping this total compensation focus in mind, this book covers the major elements and program costs wherever necessary.

Before going into the detailed analytical connections between compensation and benefits and accounting (finance), it is important to understand the basics. So, defining terminology is an important first step. The basic framework for the connection that currently exists between the functions also needs to be understood. The

first chapter lays the foundation before detailed analytical connections are explored.

When talking about compensation and benefits, you must consider that a total compensation program consists of various elements. Normally, a total compensation structure includes the following elements:

- Base
- Cash incentives or bonuses
- Equity compensation
- Cash-based long-term incentives
- Executive compensation
- Sales compensation
- Expatriate compensation
- Risk benefits
- Retirement benefits
- Perquisites
- Other Benefits

This book analyzes the accounting and finance implications for most of the elements of a total compensation structure. Note here that some of the compensation and benefit topics are more influenced by accounting and finance know-how than others. So, in this book, the topics that have more of an accounting and finance angle are covered in more detail. A good example of this is employee share plans and pension accounting; these topics are covered in longer chapters.

Part I of this book discusses terms and key concepts to lay a conceptual framework for the book.

- Chapter 1, “Introduction: Setting the Stage, covers the foundations of the total compensation system. Terms are defined, concepts are explained, and connections to finance and accounting are established.

- Chapter 2, “Business, Financial, and Human Resource Planning,” presents the connection between business/financial planning and compensation and benefit planning. Assuming that compensation and benefit expenses are indeed the highest expense category of any organization, Chapter 2 emphasizes the importance and explains the connections between the two critical planning processes.

- Chapter 3, “Projecting Compensation Costs,” introduces a financial projection model for forecasting fixed compensation costs. Again, the fixed element or the base salary of the compensation package can be the highest cost element in any organization. So, this discussion recognizes its importance by explaining a detailed cost forecasting model and process.

- Chapter 4, “Incentive Compensation,” deals with one of the most important elements of the total compensation package: incentive compensation. In an era of limited resources and cost reduction, incentive compensation has become important. A concept called *pay at risk* is being discussed a lot. This concept suggests reducing the fixed or base component of the pay package below the market average and then increasing the incentive component. The goal being the total cash compensation (base plus incentive) will be targeted much above the average in the market. If the financial goals of the company are met or exceeded, the employee’s total compensation will be above the market averages. The financial and accounting dimensions of incentive

compensation are explained. Some financially rigorous metrics to be used as the triggering mechanisms for incentive and compensation programs are introduced. These concepts are economic value added, free cash flow, and residual income.

- Chapter 5, “Share-Based Compensation Plans,” discusses all the accounting and finance issues for share-based compensation plans. This area of a total compensation system has many finance and accounting implications, and therefore the discussions in this chapter are quite extensive.

- Chapter 6, “International and Expatriate Compensation,” covers all the finance and accounting dimensions of international compensation programs. This chapter focuses especially on expatriate compensation, which has many finance and accounting nuances.

- Chapter 7, “Sales Compensation Accounting,” provides a detailed analysis of the various accounting and finance issues that impact the effective development, design, and administration of sales compensation programs. Sales commission plan administration accounting is covered. This chapter briefly looks at the software packages available for administering sales commission plans.

- Chapter 8, “Employee Benefit Accounting,” discusses the accounting and finance issues impacting employee benefit programs. The accounting standards framework for employee benefit plan accounting is also discussed.<sup>9</sup>

<sup>9</sup> Financial reporting standards under U.S. *Generally Accepted Accounting Principles* (GAPP) and the *International Financial Accounting Standards* (IFRS) are covered.

- Chapter 9, “Healthcare Benefits Cost Management,” covers employee healthcare benefits and costing. Because healthcare benefits cost is the compensation

cost component with the highest inflation, this whole chapter is devoted to employee healthcare benefit cost containment. This topic is a hot-button issue in many contemporary debates and discussions.

• Chapter 10, “The Accounting and Financing of Retirement Plans,” covers retirement program financing and accounting in its entirety and discusses defined contribution and benefit plans in detail. This is another area of a total compensation system dominated by accounting and finance implications, so we devote a great deal of attention to thoroughly discussing all of these implications. After studying this chapter, you can appreciate all the finance and accounting nuances of defined benefit retirement programs

Part II of the book looks at various nontraditional concepts with regard to finance and accounting implications for global HR management. Key here are discussions about changing the accounting and finance paradigm and considering HR investments, a financial asset, that can be capitalized (rather than completely expensed as a period expense<sup>10</sup>).

<sup>10</sup> Human asset contribution to organizational value generation increases over time.

Recently, *human capital* has been a widely discussed concept. Such an expression implies that the human assets of a company are capital assets, assets that generate value to an organization for a longer time period than just a single year. However, current accounting practice expenses these investments in the period in which they occur. Researchers have suggested that this is a flawed assumption. HR expenditures, they say, are investments, just like other intangible assets, whose value is derived over a period of time. The basis of this argument lies as the foundation of the concepts covered in Part II:

- Chapter 11, “Human Resource Analytics,” discusses the concept of HR measurements or HR effectiveness measures. In keeping with senior management’s demands to justify the business value, the use of appropriate effectiveness measures becomes very important. This chapter examines the various appropriate HR effectiveness measures.

- Chapter 12, “Human Resource Accounting,” covers the paradigm-shifting concept of HR accounting. Although this concept has been around for a while, the accounting profession has not yet endorsed it. Nevertheless, this chapter analyzes HR accounting methodologies and discusses their pros and cons.

Accounting standards are referred to quite often in this book. Currently in the United States, the governing standards are referred to as the *Generally Accepted Accounting Principles* (GAAP).<sup>11</sup> In the global environment, the governing standard is the *International Accounting Financial Standards* (IFRS). The movement to converge these standards into one is well on its way. With the advent of the global economy and preponderance of multinationals, the accounting profession realizes that it does not make sense to operate within a dual standard framework: U.S. GAAP + IFRS. Therefore, an effort is ongoing to converge the standards. A roadmap has been laid, and a transition plan has been implemented. Therefore, both these standards are discussed, when relevant, throughout this book.

<sup>11</sup> These standards are developed and promulgated in the United States by the *Financial Accounting Standards Board* (FASB).

Although this book is U.S. centric, it also has wide coverage of accounting and finance issues with implications for global HR management.

Finally, note that the tax accounting implications for global HR systems are discussed wherever appropriate in each chapter. If you want to learn more about relevant tax issues, refer to legal and tax publications.

# Part I

We start this part of the book with some foundational concepts. First, we cover the basics within the total compensation structure. Second, we discuss the concept of planning and the need to connect total compensation planning with the strategic and operational planning of the organization. Third, we discuss base compensation cost forecasting, and we cover forecasting other total cost elements in specific chapters.

Part I of the book deals with topics that cover the entire total compensation structure. These include base, incentive, sales, international, and equity (share-based) compensation. We also cover topics within the total compensation structure that are commonly known as employee benefits, concentrating mainly on health and retirement plans.

Our focus is to cover the finance and accounting principles within each compensation element. The discussion for each topic stays within the framework of accounting principles and standards as established by the Generally Accepted Accounting Principles (GAAP) and International Accounting Financial Standards (IFRS).

We do not discuss the normal concepts and techniques of designing or developing the elements of the total compensation structure. The normal concepts and techniques are built around the following principles: internal and external equity, motivation theories, ability to pay, and competitive practices. This discussion is left up to other texts. The sole purpose of Part I of this book is to highlight and then discuss in detail the accounting



and finance principles that are integral to all the elements of the total compensation structure.

# **1. Introduction: Setting the Stage**

## **Aims and objectives of this chapter**

- Set the stage for the discussions in this book
- Discuss the concept of costs versus expenses
- Explain the concepts of OPEX and CAPEX
- Examine various compensation and benefit elements
- Discuss in detail the concept of base salary
- Discuss the treatment of compensation and benefit elements within current accounting systems and structures
- Discuss the current accounting for human resource cost outlays
- Explain the current payroll accounting process for hourly and salaried employees

This introductory chapter examines how finance and accounting principles apply to compensation and benefit program design. The discussion analyzes the current connections and proposes various connection enhancements. In this chapter, you also learn the terms commonly used with regard to compensation and benefits. The chapter also proposes modifications to the accounting process to accommodate a revised classification of compensation and benefit cost outlays and transactions. Thus, the chapter lays the foundation for the finance and accounting analysis of compensation and benefit transactions.

The words *cost* and *expense* are often used interchangeably. Are *human resource* (HR) outlays costs or expenses? What is the difference? Where in the accounting structure and system can one find HR expenditures? Are the current classifications within the accounting framework appropriate? What changes can one anticipate in the current expense/cost classification resulting from the changes in how work is currently done and how it will be done in the future? These and other questions need to be answered before discussing the various specific techniques and analytical mechanisms within the finance and accounting structure that affects HR management (and specifically compensation and benefits).

In this chapter, after answering some critical questions posed here, the basic flow of compensation and benefits outlays,<sup>1</sup> as defined by HR departments, is traced through the accounting framework and structure.

## **THE COST VERSUS EXPENSE CONUNDRUM**

The words *cost* and *expense* are used interchangeably in accounting. But a cost incurred can be an asset or expense depending on the timing of accounting transactions and the concept of periodicity.

Especially in transactions like the acquisition of a physical asset, the cost classification can become an important decision. When a physical asset is acquired, many costs might be involved (for example, purchase price, freight costs, and installation costs). So, the accountant has to decide which cost to include as an asset and which costs to expense immediately. Those costs that are expensed immediately can be called revenue expenditures. And costs that are not expensed immediately but are included in asset accounts are referred to as capital expenditures. Some firms call these expenses *operating expenses* (OPEX) and *capital*

*expenses* (CAPEX). You'll read more about these classifications later in this chapter.

An expense is, in actuality, a cost used up while producing the sales revenue for the business. In other words, expenses are those monetary outlays that flow through to the income statement. In contrast, costs that have not been used up remain a cost and are reported on the balance sheet as an asset. Expenses are those costs that are necessary to make sales within a specific period. A company can incur a cost and spend cash to pay rent in advance for a six-month period, for example. On the day this transaction is made, however, a debit entry is made to an asset account called Prepaid Rent. Only after a month is over and the premises have been occupied for that month does an expense transaction occur, and for that month only; five months of the cost incurred for prepaying the rent stays on the balance sheet as an asset.

Let's take another example. Suppose a restaurant is gearing up for a Christmas banquet for a big corporate event. The owners go out and buy nonperishable restaurant supplies such as napkins and so forth. The cost of this cash purchase is \$5000. Now let's suppose they use up 30% of these supplies for this big corporate banquet. In this case, \$1500 is classified as an expense for that period (the month and year when financial statements are prepared) and the remaining \$3500 will still be a cost but will be reported on the balance sheet as Restaurant Supplies (an asset). In this case, this cost—an outlay of cash—is both an asset and an expense.

Now, suppose that a business buys a piece of land to build a factory. The cost of that land never becomes an expense. That cost continues to be classified as an asset (because land is never depreciated).

If a hospital buys an MRI machine, any cash or credit purchase is first carried as an asset on the balance sheet.

Then, after that, a periodic depreciation expense is recognized in the income statement. So, here again, the entire cost of that MRI machine is not an expense at the time of purchase. Instead, the expense is spread over the useful life of the MRI machine. As a matter of fact, the historical cost of acquiring the MRI machine is always shown on the balance sheet. Depreciation taken each period is recorded as a period expense and also recorded as a contra-asset in an account called accumulated depreciation.

Now consider manufacturing businesses: Cost outlays within a given period for direct materials, direct labor, and manufacturing overhead directly used in making products that were sold within that specific time period are considered expenses for that period and are termed *cost of goods sold*. Cost of goods sold flows into the income statement and is matched with revenue earned during that period. But direct materials, manufacturing overhead (which includes indirect labor), and direct labor remaining in finished goods or in work in process are considered assets. Therefore, here again, not all costs are expenses. Some are assets (balance sheet), others are expenses (income statement). So, in current accounting practice, some employee monetary outlays are assets, some are expenses.

Furthermore, other transactions in a manufacturing company are considered selling, general, and administrative expenses for a specific period. Compensation outlays for the truck driver who delivers materials to the factory are considered expenses for a period. In contrast, electricity used in the factory might be either an asset or an expense depending on whether manufacturing overhead, including factory electricity, is assigned to products as cost of goods or as work in process inventory or finished goods inventory. But all

electricity used in the administrative offices is considered an expense for a particular period.

Adding to the confusion, let's consider monetary outlays for research scientists. Suppose that a firm buys a laboratory machine for a research lab. The cost of this machine might be \$20,000, with an additional \$5,000 expense for installing the machine. As of the date the firm acquires this machine, the accounting system increases an asset account by debiting that account with the total purchase cost of the machine plus all costs necessary to make the machine ready to use. And then the accountant periodically records a debit entry to a depreciation expense account spread over the useful life of the machine, using an acceptable depreciation schedule. This expense is then reported in the income statement, matching it against the current period revenue.

If the same firm were to hire a research scientist during the same period, however, the costs that the firm incurred to hire that scientist—recruitment advertising, search fees (which can be quite large), interviewing costs, and other hiring costs—will all be currently expensed and reported in the income statement. This can lead to a distortion in income measurement because the research scientist's service will extend over more than one year. But currently, the accounting rules require that all the HR cost outlays be expensed during the current period.

Compensation-related outlays for these scientists are all considered expenses for the current period. In accounting systems, though, the cost outlays for physical products (the machines the scientists use) are considered assets and are expensed only over a period of time (their useful life).

The issue of reporting intangibles also needs to be discussed in connection with the recording of HR

outlays. Under current accounting standards, intellectual property that an employee brings and utilizes within the employment setting is not considered a recognizable asset. The current accounting system records as assets only certain other intangibles such as copyrights, patents, and trademarks. The irony is that the intangibles are the outputs of the employees with specifically valuable intellectual property.

In many cases, a big difference can exist in book value versus market value of the assets. For example, in a recent year Google had stockholder equity of \$22.7 billion, whereas its market value during the same period as determined by multiplying Google's market price of its shares by the number of outstanding shares was about \$179 billion. Such a wide difference undermines financial reporting. It can be assumed that most of this big difference results from nonrecognized intangibles. And one of the biggest intangibles is the value of Google's human assets. Part II of this book discusses this concept in greater detail.

So, one can safely say that confusion abounds within current accounting standards frameworks as to how and where HR monetary outlays are classified in accounting systems.

## **CAPEX VERSUS OPEX**

The expressions *capital expenses* and *operating expenses* are often used in accounting and finance. Cost or expenditure outlays can either be capitalized (spread out over a period of time) or taken into a specific time period's profit/loss—in other words, in the time period they were incurred (revenue and expense recognition). This is the difference between *capital expenditures* (CAPEX) and *operating expenditures* (OPEX).

With reference to these classifications, employee-related expenditures are classified differently by different groups. The HR-related cost or expenditures can be classified either as CAPEX or OPEX. CAPEX remain capitalized (a balance sheet classification) until these transactions become expenses for a specific time period. HR accounting proponents suggest that for effective management reporting it might be better to aggregate these accounting entries into one account. If done, it gives business decision makers a more complete picture when making strategic and operational decisions affecting employees.

## **THE CURRENT HR COST-CLASSIFICATION STRUCTURE**

Let's now examine the fundamental elements covered in this book. First, it is important that you understand the terminology commonly used in compensation and benefit analysis. After reviewing this terminology, the discussion turns to these terms within the context of the current accounting framework.<sup>2</sup>

<sup>2</sup> When the term *accounting framework* is used, it means here the accounting structures and framework as established under *Generally Accepted Accounting Principles* (GAAP) and the *International Financial Accounting Standards* (IFAS).

### **Compensation and Benefit Elements**

The most commonly used terminology related to compensation and benefits within the organizations are as follows:

- **Base salary:** Base or basic or fixed pay describes the “fixed” part of pay. This pay element is mainly paid to employees to come to work (to attract employees). It is also paid to employees to do the assigned work by applying the required skills, knowledge, and abilities using normal effort and demonstrating necessary work behaviors. Basic pay is usually the largest component of



the total pay package. In other words, basic pay is the amount of nonincentive wages or salaries paid over a period of time for work performed. It may include additional payments that are not directly related to the work effort.

Compensation professionals use the following methods to determine base pay levels:

- Job-based pay
- Skill- or competency-based pay
- Market-based pay
- A combination of these three

Compensation books adequately explain these methodologies.<sup>3</sup> The professional organization WorldatWork<sup>4</sup> conducts seminars and develops various publications explaining these methodologies. Some compensation specialists have tried to define precisely the distinctions between the terms *base pay* and *basic pay*.

<sup>3</sup> Milkovich, G.T., and Newman, J. *Compensation*, 2008, McGraw-Hill, Irwin, New York.

<sup>4</sup> WorldatWork is the largest professional association of compensation and benefit practitioners in the world.

Chuck Czismar, in a blog post<sup>5</sup> from January 6, 2010, attempts to create a distinction between the terms *base pay* and *basic pay*. He says that base pay refers only to “non-incentive wages and salary paid out over a twelve month period for work performed.” He goes on to define basic pay as “the amount of non-incentive wages or salary paid out over a twelve month period for work performed, but including additional payments not directly related to work effort.” He seems to be referring

to additional variable pay allowances and to 13th and 14th month payments, prevalent in various countries.

<sup>5</sup> [www.internationalhrforum.com/2010/01/06/base-salary-not-so-basic/](http://www.internationalhrforum.com/2010/01/06/base-salary-not-so-basic/).

The term *fixed* is used to distinguish this pay component from others that are of a variable nature, such as bonuses, incentives, and various contingent payments.

Base compensation has other flows (or changes), as well. Here is a list of the cost flows (changes) that affect the base pay in total:

- Part-time status to full-time status
- Full- time status to part-time status
- Change of status to nonpaid leave
- A temporary allowance (on and off)
- A temporary adder (on and off)
- Exempt employee to nonexempt and vice versa in the United States
- Promotion increase
- Annual performance increment or merit increase
- Salary reductions
- Overtime payments
- Workers' compensation (on and off)
- Salary differentials (on and off)
- General increases
- Step increases

- Cost-of-living adjustments

All these variables affect the total base pay expenses and therefore the total costs for employees in an organization. To understand the real impact of employee-related expenditures, there is a need to record and analyze all these expense triggers. Also to forecast or budget these expenditures, all these inflows and outflows need to be documented, tracked, and analyzed. But the current accounting systems do not identify these flows separately in any detail. The payroll systems aggregate these pay transactions into a composite gross rate. To the accounting structure, it is not important to keep track of the various employee flows (although some of these flows could be tracked separately by payroll systems but not by accounting systems).<sup>6</sup> If the salary is stated in monthly terms, these individual expense transactions are tracked in the aggregate monthly stated salary.

<sup>6</sup> The HR inflows and outflows referred to here are important to track for HR management but not for finance and accounting. An intermediate step is therefore needed to track costs of the inflows and outflows for the use of HR professionals.

- **Incentive compensation:** Incentives or bonuses payments are paid to an employee for achieving time-bound goals and objectives. Terms such as *incentive targets*, *objectives (bonus objectives)*, *measurements*, and *ratings* are all contextual terms used in most organizations. Incentive compensation refers to contingent payments paid to employees only when certain predetermined financial or individual objectives are met.

- **Allowances:** Allowances are usually temporary adders to the basic pay. Housing allowance, transportation allowance, and education allowance are common. Allowances are widely used in various countries. Allowances are paid for special situations or conditions.

- **Pay adders:** Adders to base pay are common in the United States. Overtime pay, callback pay, on-call pay are examples of pay elements and are provided for work that is done beyond normal working hours. These adders are governed by wage and hour laws in most countries.

- **Risk benefits:** Risk benefits are payments made for medical, disability, and life (actually death) situations. The benefits in this category are provided to employees in lieu of direct cash payments to mitigate the various life risks for employees and their families.

- **Retirement benefits:** Retirement benefits are common compensation elements that organizations provide to assist employees with their post-employment lives. Retirement benefits can take the form of defined benefit or defined contribution plans.

- **Equity compensation:** Employee equity programs in the past had been mostly provided to senior executives to motivate them to increase shareholder value. This component of pay has seen sweeping accounting changes over the past ten years or so. There has been a growth of many different structures for these plans; nonqualified stock options, incentive stock options, restricted stock options, stock appreciation rights are a few. Accounting, tax, and legal implications are integral to the design, development, and administration of these programs. More recently, issues surrounding executive compensation excesses, earnings management, insider trading, ownership culture, stock option pricing and expensing, dilution effects, and overhang have all clouded this pay element with a lot of debate and discussion.

- **Perquisites:** Perquisites are elements of compensation that are normally paid to senior executives. The practice is widespread around the world. Most common are first-class travel, executive jets,

country club memberships, executive physicals, and financial planning. Perquisites can be direct cash payments or are compensation payments in the form of expense reimbursements for approved executive benefits.

- **Expatriate compensation:** Expatriate compensation is made to employees who are sent by companies to live and work abroad. Within this overall category, there can be many subcategories of payments. Among them are cost-differential payments, housing differential payments, education allowance, tax protection or tax equalization payments, moving expense allowances and foreign-service premiums, and hardship and special area allowances. An expatriate assignment occurs when an employee is transferred to a foreign jurisdiction (different from the headquarters country or the employee's country of permanent domicile).

The appendix at the end of this chapter describes all the terms and words used in the field of total compensation. This will set the stage for a comprehensive analysis of the finance and accounting implications involved in compensation and benefit plan design.

## **THE CURRENT ACCOUNTING FOR COMPENSATION AND BENEFIT COST ELEMENTS**

Now that you know the commonly used terms in compensation and benefits, let's explore how these compensation and benefits cost elements are reflected in accounting systems.

If an employee's job entails directly producing a product (as part of a manufacturing operation), accounting systems classify that employee as direct labor. Another common identifier for this grouping is touch labor. *Touch labor* refers to those people required to touch the

product during the manufacturing process. Those employees who are involved in the manufacturing process but are involved in a supporting activity (such as the manufacturing manager or the janitor who cleans the factory floor) are included in manufacturing overhead. A commonly used term for this category is *indirect labor*. In cost accounting, manufacturing overhead is absorbed into unit product costs through various mechanisms, such as job order costing and process costing. All the specific compensation elements are lumped together by the accounting process into two accounts, normally called direct labor or indirect labor. Both of these account categories become a part of the cost of goods sold cost.

For manufacturing companies, the gross profit is calculated by subtracting cost of goods sold from the revenue. In accounting, therefore, the employees directly involved in making a product contribute toward the achievement of the gross profit of an organization. And in manufacturing, companies' monetary outlays for those employees not involved in making the product are considered period expenses. Normally these expenses are part of the selling, general, and administrative expense account. The selling, general, and administrative expense and other indirect expenses are deducted from gross profit to derive the net income or loss.

Cost of goods sold in the service industry refers to the cost of the employees or machines directly involved in providing the service. Other items like electricity to run the machines and those employees who are not directly connected to providing the service are usually included as part of selling, general, and administrative expenses. This is an overhead or indirect expense. And as stated before, these expenses are deducted after the gross profit is calculated, to arrive at the net profit or income.

Let's look at an example for a construction company. In a construction company, the compensation paid to workers directly involved in construction activities is a part of cost of goods sold, whereas employees who support them (estimators, clerks, material handlers) are included in the selling, general, and administrative expenses.

Note that the actual practice of classifying employee expenses either in cost of goods sold or in overhead expenses can vary from company to company.

In a merchandising business, there are no raw materials, work in process, or finished goods accounts. There is only a merchandise inventory account. All purchases of goods bought for resale become a part of the merchandise inventory account. Only when a specific item sells is the acquisition cost of that item then transferred from the merchandise inventory account to the cost of goods sold account. It is then subtracted from sales revenue to derive gross income or profit. In merchandising businesses, all employee expenses are classified into general expenses, which appear on the income statement after the calculation of gross profit or income.

In financial reporting, some employee costs are included in the asset section of the balance sheet. In addition, employee-related monetary transactions are often included in the balance sheet in a liability account called salary or wages payable. This suggests that some earned wages have not been paid to employees.

A case can be made that most HR cost outlays can be classified as assets. This argument might have some merit if you consider that the compensation paid to software engineers, scientists, electronic engineers, and development engineers is a CAPEX. A case can be made that these types of employees are indeed the true assets

of a company, especially in high-technology and biotechnology firms. They have rare skills, and losing one of these critical skills might result in a decrease in the value of a business. But current accounting thinking does not concur with this line of thought. Current accounting standards state that expenditures should be included in financial statements only if they are clearly measurable in monetary terms and there is reliability and relevance. The accounting profession asserts that there are problems in determining relevant and reliable values for human assets. Accountants believe that human capital measurements are not up to par on reliability and accuracy. If accurate measurements are found, perhaps human capital values can be included in financial statements. But most likely, they would appear as footnote disclosures.

The point to note here is that the HR and payroll systems are identifying employee expense outlays differently from accounting systems. Accounting systems do not capture the true cost flows for the HR financial outlays.

Exhibit 1-1 summarizes all the compensation and benefit cost flows. In one place, it shows the accounting flows of all total compensation elements and also indicates the accounting classification most likely used to record these transactions.

### **Exhibit 1-1. A Summary of the Flows**



HR Classification	Accounting Classifications
Base pay	<p>Direct labor, indirect labor, selling, general and administrative expenses</p> <p>-----</p> <p>Could be an income statement expense</p> <p>Could be an asset on balance sheet</p>
Benefits	<p>Direct labor, indirect labor, selling, general and administrative expenses</p> <p>-----</p> <p>Could be an income statement expense</p> <p>Could be an asset on balance sheet</p>
Incentives	<p>Direct labor, indirect labor, selling, general and administrative expenses</p> <p>-----</p> <p>Could be an income statement expense</p> <p>Could be an asset on balance sheet</p>
Allowances	<p>Direct labor, indirect labor, selling, general and administrative expenses</p> <p>-----</p> <p>Could be an income statement expense</p> <p>Could be an asset on balance sheet</p>
Adders to base	<p>Direct labor, indirect labor, selling, general and administrative expenses</p> <p>-----</p> <p>Could be an income statement expense</p> <p>Could be an asset on the balance sheet</p>

Retirement Benefits	
Define benefits	Pension expense on income statement Net pension liability or asset on balance sheet
Define contribution	Pension expense
Stock related	Stock option expense
Perquisites	Expense: selling, general, and administrative expense
Expatriate compensation	Selling, general, and administrative expense

### The Accounting of HR Cost Outlays – How Payroll Systems Work

Now that you understand cost and expense classifications in general and the HR designations of employee cost outlays, this section covers how accounting systems currently report employee cost transactions in the accounting cycle.<sup>7</sup>

<sup>7</sup> By accounting cycle it is meant: source documents are classified into the appropriate account from the charter of accounts; then entries are journalized; then entries are posted to the ledger; then the trial balance is developed; then period end adjustments are recorded; then the post-adjustments trial balance is developed; then the financial statements are created; then closing entries are entered; and then finally post-closing trial balance is developed.

Payroll departments are responsible for making payments to employees. But not all employee payments are transmitted from the payroll department. Some payments are made as expense reimbursements.

Exhibit 1-2 shows the payment transactions normally disbursed from payroll departments.

#### **Exhibit 1-2. Payment Transactions Made from Payroll Departments**

Employee Payment Category	Accounting Disbursement Point
Base pay	Payroll
Overtime	Payroll
Pay adders	Payroll
Incentives and bonuses	Payroll
Allowances (including international allowances)	Payroll
Sales commissions	Payroll* <sup>1</sup>
Stock program transactions	Stock administration
Perquisites	Payroll or accounts payable
Risk benefit outlays	Accounts payable and TPAs* <sup>2</sup>
Workers' compensation disbursements	Accounts payable and TPAs
Retirement program disbursements, plan contribution	Account payable, TPAs for 401(k)

\*1 All payroll disbursements are those that involve tax-related deductions and involve accounting transactions.

\*2 Third-party administrator

**Exhibit 1-3** indicates in summary form how a typical payroll process works, which we explain in more detail.

### **Exhibit 1-3. Payment Transactions Made from Payroll Departments**

### The Typical Payroll Process Involves

- Calculating gross earnings
- Calculating employee withholding taxes
- Preparing paychecks
- Preparing the payroll register
- Updating employee payroll registers
- Preparing governmental filings
- Journalizing into the general ledger payroll, payroll taxes
- Posting these transactions to the general ledger
- Preparing payroll reports

In addition, payroll systems track payment transactions differently depending on how pay is recorded in HR processes and systems. Employee designations commonly use designations such as salaried, monthly, weekly, or hourly. It should be noted that these are payroll-related computational designations rather than what is conventionally thought—an employee ranking or status designation. If an employee is designated as an hourly employee, the computations in the payroll system might be as in the following example.

Suppose that John Peters is one of six hourly (non-exempt) employees who work for Bagan, Inc. Bagan has a biweekly payroll process. Let's also say that the biweekly period starts on March 16 and ends on March 30. The first week of this period started on March 16 and ended March 23. And during this period, John worked for 46 hours. Federal law in the United States stipulates that any nonexempt employee who works for more than 40 hours a week needs to be compensated at a time-and-a-half rate for those extra hours.<sup>8</sup> In this case, 6 hours are over the 40-hour limit. Suppose John's hourly rate is

\$25.20. In that case, his weekly gross pay is calculated in this manner:

<sup>8</sup> Note that in the USA, there are many differences between federal wage and hour laws and state wage and hour laws.

40 hours @ \$25.20 = \$1,008.00

6 hours @ \$25.20 × 1.5 or \$37.80 = \$226.80

Total gross earnings for the week = \$1,234.80

In the United States, tax is withheld from the gross wage income (which for John Smith is calculated based on his documented deductions on his W-4 form and withholding tax publication—Circular E, provided by the Internal Revenue Service). After that, state income tax withholding is also deducted from gross pay. In addition, the payroll department must withhold Social Security taxes or FICA (*Federal Insurance Contribution Act*). This tax is actually two taxes. One tax is called the *Old-Age, Survivors, and Disability Insurance* (OASDI), and the other is known as Medicare (hospital insurance). The rates for OASDI and Medicare are, respectively, for 2012, 6.2%<sup>9</sup> and 1.45% of gross wages. In addition to these deductions, other deductions will be needed, such as the employee portion of an employee health insurance program (if there are any for the organization).

<sup>9</sup> There is currently a “tax holiday” in place that relieves employees of this deduction.

To further illustrate the gross earnings to net earnings calculation, now let’s assume that for the second week, the March 26 to March 30 pay period, John worked 40 hours.

So, here is the gross to net calculation:

Week 1 gross (which includes 6 hours of overtime pay)	1,234.80
Week 2 gross (40 hours × \$25.20)	1,008.00
Total gross for the pay period	2,242.80

Deductions:

Federal income tax (assumed numbers in this example)	215.74
--	--------

Note

The federal withholding tax is derived after the employee completes and submits Form W-4, Employee's Withholding Allowance Certificate. This amount is based on marital status and the total number of dependant allowances claimed on the certificate. The amount of tax withheld is provided in the wage bracket table, published by the IRS in Circular E.

State income tax	179.43
------------------	--------

Note

The state income tax withholding is calculated in a similar manner using allowances provided on the W-4 form and by using state publications published for the purpose of calculating withholding taxes.

OASDI tax (6.2% of gross pay)	139.05
Medicare tax (1.45% of gross pay)	32.52
Medical insurance copay (assumed number for this example)	54.00
Total deductions	620.74
Net pay	1,622.06

Other possible payroll deductions and adjustments include the following:

- City and county taxes, if any
- Before-tax employee contributions
- 401(k) employee contributions (disbursed to TPAs\*)

- Health savings account (disbursed to TPAs\*)
- Flexible spending accounts (disbursed to TPAs\*)

### **Employer Payments**

Also note the potential employer payments made on behalf of an employee:

- *Federal Unemployment Tax (FUTA)*
- *State Unemployment Tax (SUTA)*
- Employer-matching contributions for 401(k) plans
- Workers' compensation premiums
- Employer portion of Social Security taxes paid on behalf of an employee

### **Accounting Record Keeping**

In the accounting process, employee payment transactions are journalized, posted to the ledger, and recorded in the financial statements in the manner shown in Exhibit 1-4.

### **Exhibit 1-4. Employee Payment Transactions**

Account Title Affected	Category	Account	Financial
			Statement
Product or service expense	Expense	Debit	Income statement
Payroll tax expense	Expense	Debit	Income statement
Workers' compensation insurance expense	Expense	Debit	Income statement
FICA payable	Liability	Credit	Balance sheet
FICA Medicare payable	Liability	Credit	Balance sheet
FIT payable	Liability	Credit	Balance sheet
SIT payable	Liability	Credit	Balance sheet
FUTA payable	Liability	Credit	Balance sheet
SUTA payable	Liability	Credit	Balance sheet
Medical insurance payable	Liability	Credit	Balance sheet
Wages salaries payable	Liability	Credit	Balance sheet

This is not necessarily the case in manufacturing companies, where employee payments can be a part of work in process, finished goods, or cost of goods sold. Exhibit 1-5 gives a description of the accounting entries recorded for payroll transactions.

### **Exhibit 1-5. Accounting Entries for Payroll Transactions**



Date	Cost of goods sold	XXXXX
	General selling and admin expense	XXXXX
	FIT payable	XXXXX
	SIT payable	XXXXX
	FICA OASDI payable	XXXXX
	FICA Medicare payable	XXXXX
	Medical insurance payable	XXXXX
	Wages and salaries payable	XXXXX
	To record payroll for a period	XXXXX
Date	Payroll tax expense	XXXXX
	FICA OASDI payable	XXXXX
	FICA Medicare payable	XXXXX
	FUTA payable	XXXXX
	SUTA payable	XXXXX
	To record payroll tax expense for pay period, xx/xx/xxxx, and then when payment is made to employees	XXXXX
Date	Wages and salaries payable	XXXXX
	Cash	XXXXX
	To record actual payment of current payment accruals	XXXXX

Note here that after these transactions are incurred they become payables and remain on the balance sheet until those outlays are paid out from cash. At that point, those transactions become income statement accounts.

## Accounting for Payments Made to Salaried Employees

For employees who are classified as salaried, the payroll status is normally stated as a monthly wage. This is not a job-level designation. It indicates that in the payroll system these employees' compensation payments are recorded on a monthly basis. In the United States, salaried employees are usually exempt from the provisions of the Fair Labor Standards Act. In other words, they do not have to be paid overtime for any hours they work over 40 hours in a week.

Federal law in the United States that governs overtime earnings is called the Fair Labor Standards Act, which is part of the federal wage and hour legislation. All employers engaged in interstate commerce have to adhere to the Fair Labor Standards Act. There are also state wage and hours legislation with which employers must comply.<sup>10</sup>

<sup>10</sup> FLSA states that any nonexempt (not exempt from the law) employee who works more than 8 hours in a day or 40 hours in a week has to be paid time and a half for those additional hours. In a state such as California, if the employee works more than 12 hours in a day or on the seventh consecutive day in a week, his or her pay must be double time for those hours.

<sup>1</sup> This discussion uses the word *outlay* for HR monetary outflows because, as covered here, some questions exist as to the proper classification of these outflows within prevailing accounting definitions of the terms *cost* and *expense*.

The payroll system pays these employees their fixed monthly salary on each pay date. If the pay period is biweekly, these salaried employees are paid their monthly rate divided by two. The stated salary rate will be gross pay from which the employee's specific payroll deductions are subtracted. These deductions are similar to those used for hourly employees (as described earlier in this chapter).

## **Other Technical Payroll Accounting and HR Issues**

First, there is the issue of thirteenth- and fourteenth-month payments made in many countries outside of the United States. Normally, in the United States, the workday is 8 hours in duration. In a 52-week year, that makes 2,080 work hours in a year:

$$8 \text{ hours a day} \times 5 \text{ days a week} \times 52 \text{ weeks in a year} = 2,080 \text{ hours}$$

In the United States, the number of hours employees can work is 2,080. But we know that most employees take at least two weeks of vacation during the year. Those two weeks are paid vacation days. Therefore, in the 52-week year, the employee does not necessarily work the entire 2,080 hours. If the employee takes a two-week vacation, he or she actually works 2,000 hours. But, employees are paid their annual stated salary. This is because a salaried employee's stated salary is an annual amount. It could also be stated on a monthly basis. In the latter case, you just have to multiply the monthly salary by 12 to get the annual stated salary. Therefore, in the United States, paid vacation is built in to the annual or monthly stated salary. Holiday pay is treated in the same manner.

In some countries, the monthly or annual salary covers only hours actually worked. The vacation is paid as an extra month: the 13th month. The 13th-month payment is identified differently in different countries. In some countries, it is a bonus granted to all employees. In other countries the Christmas bonus is a legal requirement. The additional-month payment adds to wage costs. In Greece, which is in economic chaos, the payment of the 13th month has become a political issue.

The main purpose of this chapter was to explain how the accounting process and the HR process classify compensation and benefit elements. As you learned, to

accurately understand and record HR financial transactions, processes have to be developed to record these expenditures to better understand their impact on operational and strategic business decisions. For example, the critical strategic and operational decision about workforce reductions is often made based on accounting data, which is much narrower in scope than HR inflows and outflows classifications. If a more broadly scoped HR accounting data-gathering process were adopted, business decision makers might not be as willing to terminate the services of thousands of people so readily. As you know, workforce reduction results in devastating consequences for those employees who lose their jobs and for society as a whole.

## **KEY CONCEPTS IN THIS CHAPTER**

- Flow of compensation and benefits cost outlays
- Costs versus expenses
- CAPEX
- OPEX
- Compensation and benefits cost elements
- Understanding base pay
- Base pay outflows
- Current accounting for compensation and benefit cost elements
- Payroll accounting
- Record keeping of HR cost elements within the accounting cycle

- Technical issues with respect to compensation and benefit cost elements
- The definition of all compensation and benefit terms

## APPENDIX: THE TERMS

This appendix describes compensation and benefit terms in more detail than described in the main body of this chapter:

- **Base, basic, fixed, “come to work” pay:** The “fixed” part of pay. This element is provided to employees to come to work and do the job by using the required skills, knowledge, abilities, and appropriate work behaviors. Usually, this component is based on market rates combined with some measure of the internal ranking for the job or position, normally through a job-evaluation system.

Base pay can also be identified in many other ways:

- **Wage:** A fixed regular payment typically paid on a daily or weekly basis by an employer to an employee classified as a manual or unskilled worker. In economics, wage is the part of total production that is the return to labor as earned income as compared to dividends received by owners. Some contend that wages are paid to daily workers who are not necessarily employees. The implication is that the word *wage* is used to define the money a worker receives in exchange for labor (that is, physical labor). There seems to be a connotation that wages are given in exchange for physical labor and not brain power (physical strength in contrast to intelligence).

- **Salary:** A fixed regular payment typically paid on a monthly or biweekly basis but often stated as an annual sum. This is payment made by an employer to an

employee as opposed to a worker. In other words, it is a payment made to a professional or a white-collar worker. A salary is a form of periodic payment from an employer to an employee, as stated in a recruitment contract. The payment differs from wages. In wage payments, each job or hour is paid separately. The distinction between salary and wages flows from the fact that for salaried employment the effort and output of “office work” is hard to measure in hourly terms.

- **Compensation:** The money received by an employee from an employer as a salary or wage. Therefore, the word *compensation* is used as an encompassing word covering both wages and salaries. But the pure definition of this word is money awarded to a person to compensate that person for his or her time, effort, abilities, knowledge, experience, and skills provided to an employer. This is the basis for an exchange; employer pays compensation, the employee provides the employer various personal attributes. When the exchange is not fair from the point of view of either party, there is dissatisfaction. Effective compensation is based on various motivational theories. A discussion about the theories is beyond the scope of this book.

- **Pay:** Pay means the giving of money to someone that is due to him or her for work done. In other words, it explains the giving of a sum of money in exchange for work done. It also alludes to giving what is due or deserved. The notion of payment arose from the sense of pacifying a creditor. I want to pay him for his work (reward him, reimburse her, compensate him, give payment to him or her, or remunerate him or her).

In the current context, this concept needs some thought. It is not just wages or salaries that are being provided. Organizations are paying their human resources; they are rewarding, they are remunerating. The concept here

is that the word *pay* should include both the perspectives of the giver and receiver of pay. This is a psychological transaction as much as it is an economic transaction. Both the supply (what the organization wants to provide) and the demand side (what the employee, who is the creditor being pacified) of the equation need to be considered to make the transaction fair to both parties.

All too often, organizations (both private and public) look at only the supply side and ignore the demand side (what the employee wants), and therefore pay remains one of the most emotionally disturbing work conditions.

- **Remuneration:** One will receive adequate remuneration for the work one has done (that is, a payment, pay, salary, wages; earnings, fees, reward, compensation, reimbursement; formal emoluments). So, this word is also an all-encompassing word.

- **Rewards:** A payment given in recognition of service, effort, or accomplishment. Today, the concepts behind the terminology listed here continue to evolve as part of a system of reward that employers offer to employees. Salary (also now known as fixed pay) is coming to be seen as part of a *total rewards* system, which includes variable pay (such as bonuses, incentive pay, and commissions), benefits and perquisites (or perks), and other schemes employers use to link reward to an employee's individual performance. Tying it into performance in a clear, understandable, and acceptable way remains a continuing challenge. Good in theory, but fraught with real-life issues.

- **Incentives or bonuses:** These payments are provided to employees for achieving time-bound goals and objectives. Words such as *incentive targets*, *objectives* (*bonus objectives*), *measurements*, and *ratings* are all contextual terms used in most organizations. In economics and sociology, an incentive

is any factor (financial or nonfinancial) that enables or motivates a particular course of action. These payments or gifts are added to what is usual or expected. Incentives are often amounts of money added to wages on a seasonal basis, especially as a reward for good performance (for example, a Christmas bonus).

- **Allowances:** These items are not benefits but are additional cash payments for special circumstances. These types of allowances are widely used in various countries. They are sums of money paid regularly to a person, specifically to meet specified life needs or expenses. It is an amount of money that can be earned or received free of tax or tax neutralized; examples are housing, education, hardship, transportation, special area allowances, foreign service premiums, and tax protection or equalization payments.

- **Adders to base:** These payments are common in the United States. Overtime pay, callback pay, and on-call pay (also called *beeper pay*) are common elements provided for work that is done beyond normal work hours or under special circumstances. Overtime is provided for work done over standard legal working hours. Callback pay is special pay provided to technical workers who are called back to work after normal hours because they are needed to address a specific or an urgent situation. On-call pay is similarly an additional amount paid to employees who are required to be on-call by their employers to come into work when asked to do so. *Beeper pay* is provided to employees who have to keep electronic beepers on all the time so employers can access the workers on short notice.

- **Risk benefits:** Medical, disability, and life insurance. These benefits are provided to employees in lieu of cash to mitigate the various life risks faced by employees and their families. Employee benefits are regarded as



nonwage compensation provided to employees in addition to their normal wages. Benefits can be regarded as transactions where the employee exchanges (cash) wages for some other form of economic benefit. This is generally referred to as a *salary-sacrifice* arrangement. In most countries, employee benefits are taxable at least to some degree. Some of these benefits are group insurance (health, dental, life, and so on), medical payment plans, disability income protection, daycare, tuition reimbursement, sick leave, vacation (paid and nonpaid), and Social Security. The purpose of the benefits is to increase the economic security of employees and protect them from unfavorable life situations.

- **Retirement plans:** Employers provide these benefits to assist employees with their post-employment lives. Usually there are two categories of retirement plans: the defined benefit plans and the defined contribution plans. Defined benefit plans are formula based, and defined contribution plans are contribution based. The contributions are made by participating employees. The fundamental objective of these plans is to provide an income-replacement payment. With this payment, participating employees should be able to replace a certain portion of their preretirement income during their retirement years.

- **Equity compensation:** This element in the past was mostly provided to senior executives to motivate them to increase shareholder value. But the equity compensation component of pay has seen many changes over the past ten years or so. There are many versions of these plans: nonqualified stock options, incentive stock options, restricted stock options, stock appreciation rights, among others. There are many accounting, tax, and legal implications to these plans. Some of the issues being discussed within this context are ownership culture,

stock option pricing, dilution, and overhang. The equity compensation element has spawned specialists, legal experts, associations, and interest groups (each with their unique opinions and viewpoints). The important issues in equity compensation are (1) whether these programs have any value if distributed all across the whole employee population, even to the lowest employee levels, and (2) whether the organizations that distribute stock options widely to all levels of employees achieve an “ownership culture.”

- **Perquisites:** Many companies provide executives a wide variety of perks. This practice is widespread around the world. The term *perks* is often used colloquially to refer to payments because of their discretionary nature. Often, perks are given to employees who are outstanding performers and those who have seniority. Common perks include company cars, hotel stays, free refreshments, leisure activities during work time (golf and so on), stationery, and lunch allowances.

## 2. Business, Financial, and Human Resource Planning<sup>1</sup>

<sup>1</sup> Adapted wholly or partly from a paper written by Biswas, B.D., and Hestwood, T., “Human Resource Planning and Compensation: A Developing Relationship.” Conference presentation made at National Conference of the American Compensation Associates 1979.

### **Aims and objectives of this chapter**

- Explain the connections between business planning, human resource planning, and compensation planning
- Develop the need for planning
- Examine the concept of strategic planning
- Explore the connections between strategic planning and operational planning
- Discuss the concept of HR planning
- Review an integrated HR planning process
- Discuss the concept of organizational planning and design
- Develop the connections between HR and compensation planning
- Explain the concept of talent management

This chapter deals with the strategic concept of planning. Effective compensation and benefits program design—from an accounting and finance point of view—requires a solid planning foundation.

Finance and accounting departments usually are the operational guardians of the organization-wide planning activities. Therefore, before delving into the components of compensation and benefits program design (from an accounting and finance perspective), it is important to discuss the concept of planning and how it ties into *human resource* (HR) planning and then compensation and benefits planning.

Integrating HR, compensation, and benefits activities into strategic financial and operational plans is a key first step for the integration of the two disciplines (HR / compensation and benefits and finance / accounting). Therefore, this chapter explores these connections.

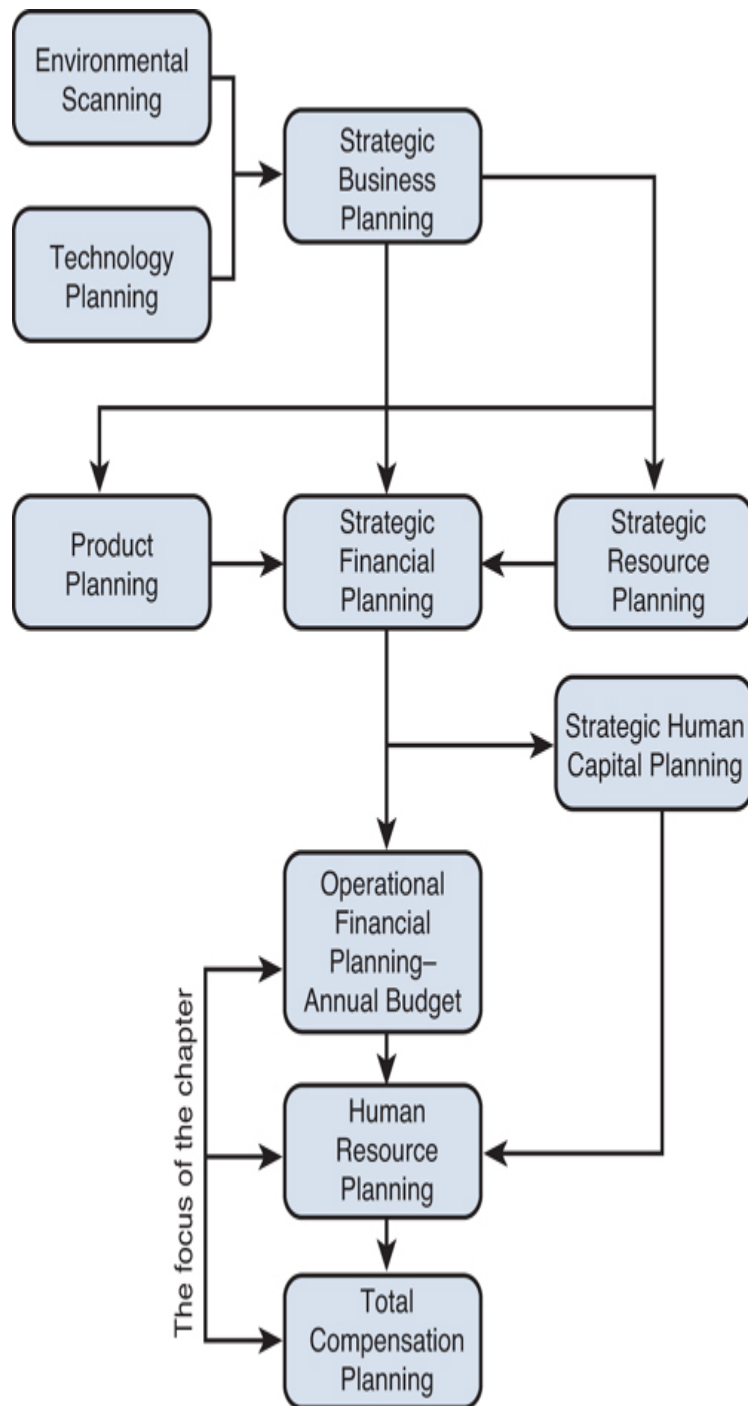
Business and financial planning, as well as HR and compensation planning, have not traditionally been thought of as codependent functions. This is reflected in how HR departments normally are organized. Even in organizations that usually have an HR planning function, it is normally teamed with organization planning and development function. This is because the organization planning and development is often commissioned to conduct organizational effectiveness studies. Compensation is a separate entity. In addition, experience suggests that even informal links between the two functions are few and far in between. Compensation specialists and financial or even HR planners rarely work together on projects and tasks.

However, both the planning and compensation functions can gain by being better aligned. This chapter looks at the reasons why planning is necessary. The focus then turns to a review of a standard structure for strategic business planning and the related strategic and operational financial planning. The discussion then suggests an HR planning model that flows from the inputs of the strategic and operational financial plans.

This chapter also explores the specific benefits a total compensation system can derive from the planning efforts. The chapter ends with a look at how compensation can contribute to the overall planning effort.

## **THE OVERALL PLANNING FRAMEWORK**

Exhibit 2-1 shows a flowchart of planning activities, and is a macro view of the planning process. This overall planning framework identifies the focus of this chapter.



**Exhibit 2-1. A Conceptual Framework for the Connections between Strategic Business and Financial Planning and HR and Total Compensation Planning**

## **The Need for Planning**

Organizations know that success requires planning with regard to both physical and financial resources. (In economics terms, these are the factors of production.) To state an obvious example, electric-generation companies must now plan more carefully than ever to ensure an adequate supply of coal at the right time and place. Electric generation plants require large quantities of coal to operate. It's not just shortages that promote planning, it's the complexity in the form of the global nature of business, of government regulations, of the exponential growth of technology, of human capital challenges, and all the other interests of various stakeholders. Managing the interconnectivity among these varying forces clearly requires planning.

Planning entails many dimensions, each connected to the other in an integrated approach to planning. Exhibit 2-1 suggests a form of this integrated approach. The exhibit suggests that clear connections do indeed exist between these planning processes. Strategic planning or longer-term planning is important, but this activity (at least an in-depth discussion about it) is beyond the scope of this chapter. The discussion here is limited to the connections between operational financial planning and HR planning and the subsequent connections to total compensation planning.

## Strategic Planning

Let's briefly consider strategic planning here. Strategic planning refers to an organization's process of defining its strategy, or direction, and making decisions about allocating its resources to pursue that strategy. The strategic plan identifies and analyzes the current status, objectives, and strategies of an existing organization to determine the direction of the organization. It is necessary to understand the organization's current position and the possible avenues through which it can pursue alternative courses of action. An organization looks at strategy from a long-term perspective. Therefore, strategic planning is considered a process for determining where an organization is going over the next three to five years (long term).

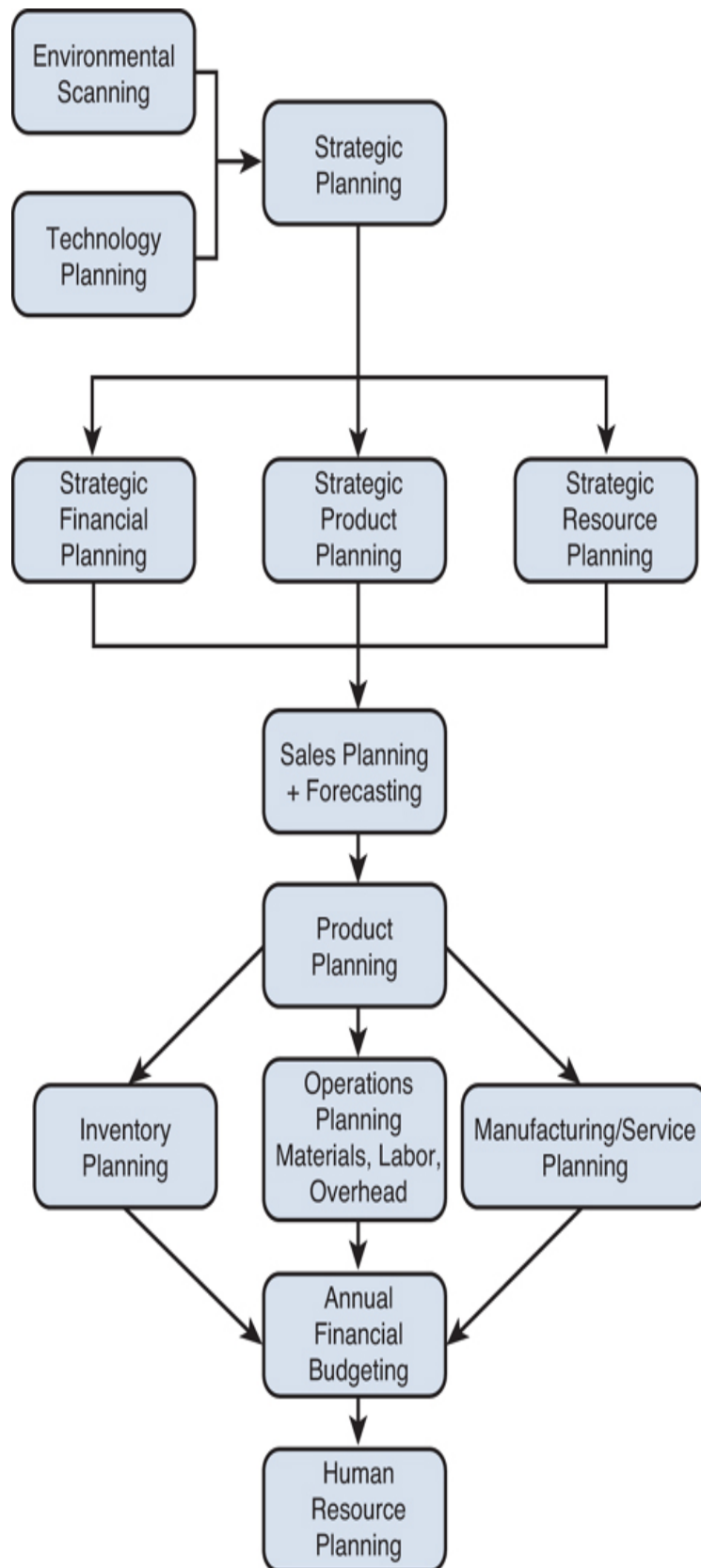
When looking at the longer term, organizations examine existing or perceived *strengths, weaknesses, threats, and opportunities* (SWOT). Information about the future business and social environment the organization operates in is analyzed in connection with the marketing, production, and research capabilities, which then leads to strategy development covering the following issues:

- Vision
- Mission
- Values
- Strategies
- Goals
- Programs
- Objectives
- Resource allocation



Business plans are derived from strategic planning in terms of the products or services to be produced and the materials, people, and facilities necessary to produce them. All of this is converted to the language of business: finance and accounting.

An integral part of the strategic business planning process is the follow-on strategic financial plan, which codifies the strategic plan in monetary terms over the same long-term time horizon. The strategic financial plan then forms the basis for the short-term operational financial plan, often called the annual financial budget. Thus, strategic financial plans become the triggering point for the annual operational financial budget planning exercise. Operational financial planning is also often called profit planning. Exhibit 2-2 shows these connections in the planning process. It also illustrates how strategic financial planning flows through to the operating profit plans of an organization.



**Exhibit 2-2. The Planning Connections**

The annual financial budget or the profit plan is important for many reasons, including the following:

- It is a means of communication throughout the organization.
- The financial budgeting process facilitates management planning for resource usage.
- The financial budget is a mechanism that assists with the most efficient allocation of resources within an organization.
- It also assists in uncovering potential trouble areas, before they happen.
- The financial budget assists in coordinating the varied activities within an organization into an integrated focused effort that is in sync with the strategic business plans of the organization.
- The financial budget structure lends itself to the tasks of monitoring and controlling, which are necessary to ensure that progress is measured and all the required activities within an organization are on track.

Therefore, strategic and operational financial planning is certainly a key success factor for any organization.

Within this context, the focus now turns to HR planning and the subsequent total compensation planning.

## HR PLANNING

The HR function is on a continual talent hunt for the right human resources at the right times and the right places. This is similar to resource acquisition and consumption in other areas throughout the business world. All business functions, including the HR function, face supply issues and therefore must plan for such. This section covers a few of the reasons why such planning is vital.

First, organizations require a sufficient number and quality of the “right” talent (talent management) available to meet future organizational needs. With regard to this requirement, a number of factors make HR planning a necessity:

- **Technical obsolescence and associated technological innovations:** In many technical fields, a person’s professional knowledge can become obsolete within five years. Firms that require the development of new or expanded technology must constantly retrain and reeducate their employee base. Of course, talent acquisition, training, and education take time. To have that time requires HR planning and a global view of the HR capital asset or resource.

- **Scarcity of the right type of talent:** In some occupations and areas, the unemployment rates for specifically skilled professionals is nearly zero. And this is in spite of the high overall current unemployment rates and the increasing numbers of structurally unemployed individuals. Managers and skilled professionals in such fields as specialized engineering programming, robotics, and biotechnology are still in short supply. Shortages in specific types of needed talent are going to continue for some time to come.

Organizations confront some interesting attitudinal problems with an issue like this. Consider this analogy: Many motorists, as demonstrated by their driving patterns, still find it hard to believe that there is a diminishing supply of fossil fuel resources in the world. Similarly, many managers and HR professionals find it difficult to believe that there might be a shortage of the right talent to fill specific openings. If these shortages are real then organizations should be planning for the optimization of human capital resources.

- **Lack of an adequate level of geographic mobility:** Because of the employment needs of spouses and quality-of-life considerations, more people are unwilling to relocate. Because of this inability to motivate employees to relocate, the supply of qualified candidates may be inadequate to meet the needs of many organizations.

- **Transferability of skills:** As long as talent shortages remain and technological innovation continues, professionals in those fields will find it easier to transfer their skills and talents from company to company. Companies cannot count on people spending their whole careers in one organization.

Second, organizations must identify problems that are hindering the optimal use of human resources, leading to organizational ineffectiveness. To meet the needs of the future, employee and organizational effectiveness needs to be improved at every possible opportunity. The planning process provides an opportunity to identify shortages of skills, overstaffing or understaffing, and other human resource problems.

Third, HR planning integrates the goals and actions of the disparate HR functions and enables HR management to allocate resources to the functions capable of contributing most to the organization's needs. The

activities of the separate functions (compensation, staffing, training, and so on) should be based on the objectives of the business. For example, recruiting may be rejecting applicants for technician jobs without knowing what training could be done in-house to make technical employees more effective and in tune with the current business needs. Compensation may be developing a system of flexible benefits, even though the real need is extra dollars of base pay to help get people in the door and to keep them there. Planning facilitates the use of a “systems approach” to HR management.

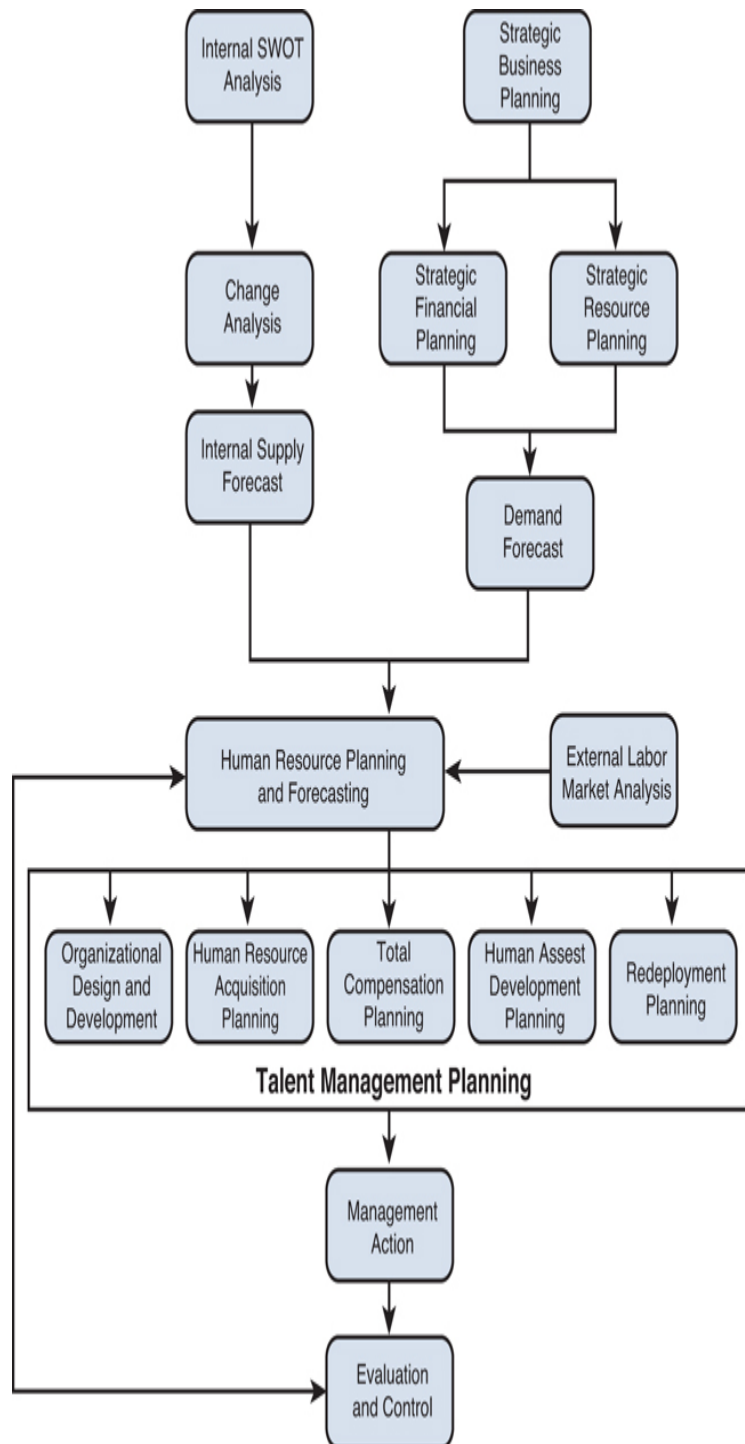
The last reason for HR planning is that it creates the ability to respond quickly to unexpected business and financial changes, such as mergers, acquisitions, financial consolidations, and product demand.

### **An Integrated HR Planning Process**

Financial planning, HR planning, and compensation planning have a lot to gain by being more closely associated. Therefore, HR planning is the process by which an organization forecasts the future HR requirements of the organization and then develops and implements policies and programs to meet those requirements.

Now that we have established the need for HR planning, let’s expand on the definition of the term and look at a model for the process.

HR planning is the process by which an organization forecasts the future HR requirements of an organization and develops and implements plans, policies, and programs to meet those requirements. This definition emphasizes the integration of HR plans with the development of the HR programs necessary to achieve those plans. The model of the planning process shown in Exhibit 2-3 illustrates this approach.



**Exhibit 2-3. An Integrated Human Resource Planning Process**

The model consists of four major components. The first component is the process of developing future HR requirements—the true planning part of the process. The

second component is the establishment of HR policies and programs necessary to achieve those plans. We call this step talent management. The third component comprises the actions taken by HR professionals and managers to implement HR programs developed in the second component. The last component is the evaluation of the success or failure of the actions taken.

### **Demand Planning**

HR plans are formed by comparing projections of expected demand for the HR talent (the right side of the model) and the potential supply of the talent (the left side of the model). Forecasts of demand are not going to proceed without an analysis of the capabilities of the existing workforce to meet them.

There is a great deal of variability among organizations in the procedures used for defining the HR requirements. Some companies have a team at headquarters that determines the needs by means of quantitative forecasting. Other organizations leave it up to division or department managers to forecast and plan their talent needs based on unit objectives and plans. The financial planning staff then totals the projections from these departments to develop an organization forecast.

Note that in this planning process even though the number of employees may remain constant based on current conditions, the composition of the workforce might need to be changed because of current business conditions. This might then require a change in the HR programs.



## Organization Design and Planning

The next step in the planning process is organization design and planning. Organization design and planning is a process by which tasks are defined and grouped into positions and jobs and then integrated into an organization's structure (thus enabling the achievement of future business objectives). In other words, managers need to outline not only the number of employees they are going to require but also the required knowledge, skills, abilities, behavioral dimensions, experience levels, and competencies. Managers also need to develop the optimum organization structure based on guidelines provided about work levels and spans of control. Organization design and planning activities are becoming an integral part of the systematic talent management process. However, the trend has not been widely established, and many differences among organizations still exist as to what organization planning and development means and how it is implemented.

Also, the word *competency* has recently entered into the lexicon of HR management. In practice, though, there are multiple definitions and interpretations of this word. From among them all, the definition that makes the most sense states that competencies are the optimum set of knowledge, skills, abilities, and associated work behavior necessary to achieve the company's strategic and operational business objectives.

Organization design and planning is introduced into the HR planning process to deal with a common deficiency of many planning processes: the failure to define talent needs in terms specific enough for use by all the stakeholders: supervisors, managers, and the various HR functions. Talent forecasts are often stated only in quantitative terms. (For example, the marketing department will need 20 new people, and the accounting department will require 10 new people.) To ensure that a

sufficient degree of detail is made available, managers must be asked to conduct organization design and planning exercises.

### **Forecasting Demand**

Exhibit 2-4 presents a format for the development of a talent demand forecast—the next step in the planning process. This needs to be completed after the organization design and planning step. The exhibit presents future talent requirements, by department, for major job categories and job grade or salary levels. Special knowledge, skills, ability, experience, and competency requirements are noted in footnotes of the exhibit. An organization chart may be required as well. Large organizations may want geographic breakdowns or have other specific data-clustering requirements.

**Exhibit 2-4. 2013 Projected Additional Staff Requirements**

Job Category Department	Executive Gr. 26+	Middle Management Gr 19-25	Management Gr 15-18	Supervisor Gr 11-14	Totals
Marketing					
Accounting					
Regional Sales Offices					
National Accounts					
Totals					

## **Supply Planning**

Let's turn now to the supply side of the model. In this part of the model, we examine the quality and capabilities of the current talent pool. This is compared to the talent requirements needed over the forecast period. The comparative analysis will determine whether the workforce can meet the needs of the future.

We should not assume that the current talent pool is performing adequately or that it will meet future job requirements. One way to examine the quality and capabilities of the current talent pool is to conduct a talent review. The talent review is a systematic assessment of the qualifications and skills of individuals in the organization and the potential of those people to fill higher-level jobs. It involves questions such as these: Is the department meeting its goals and objectives? Are present incumbents performing adequately? If not, what actions can be taken? Are there enough resources in the current talent pool to fill key positions if current incumbents leave? Is our current talent pool being adequately trained to do their jobs in the future?

Often, information useful to compensation comes out of these discussions. Examples include information about perceived job-classification problems or the problems associated with high-potential employees, who are not being paid in line with market rates. Compensation specialists should become part of the team that conducts the talent review to ensure that issues affecting them are fully appreciated.

The next step on the supply side of the model is to determine the talent changes expected over the course of the planning cycle. In this part of the process, you always examine key segments of the talent pool. The analysis can be extended to the total talent pool if the future supply of workers is unstable. Forecasted changes

include terminations, retirements, and layoffs. The data on these changes can be derived, especially in the case of terminations, from an extrapolation of historical trends in turnover grouped by termination reason. In the case of retirements, recent company experience can guide you. The talent changes should be projected by location, division, and job-family categories.

To integrate the potential internal supply information with the demand requirements, the information from each department or division is summarized on a table such as the one presented in Exhibit 2-5.

**Exhibit 2-5. 2013 HR Plan**

	Current 12/31/12	Planned 12/31/13	Add/ Growth	Replace	Terms	Promotion
Marketing						
Accounting						
Sales						
Engineering						
Other selling, general, and administrative (SG&A)						
Management						
Executive						
Totals						

This exhibit shows data for each talent group, the current staff, the planned talent pool, additions to the pool, and the number of replacements that may have to be hired to reach a total year-end talent level. To provide a complete

picture of the talent situation, each department or division can provide a narrative summary of the HR problems and challenges they anticipate confronting over the forecast period. They should explain how they plan to deal with the problems. By combining qualitative and quantitative information in this fashion, the organizational planning process can better meet the needs of all HR functions and, of course, those of the business as a whole.

### **External Labor Market**

Organizations must also consider the projected availability of the right type of workers in the external labor market. The unemployment rate for different kinds of workers, labor force participation rates, and the external demand for similar skills and experiences can all have a major impact on an organization's HR plans. The external dimension will affect the organization's ability to attract new talent. The conditions in the external labor market affect an organization's turnover. The more opportunities there are in the external labor market, the higher the internal turnover. Therefore, organizations must keep track of the external market because it can affect the internal talent tool. This data is often available in local newspapers. For example, a manufacturer studied labor market conditions in a Southeast Asia location and found them ideal. There was a high rate of unemployment among skilled workers and a good labor pool to draw on. When the manufacturer opened a plant in that city, they found that other firms had also looked at the favorable conditions there and had decided to exploit the same location. The end result was that when all of these new businesses arrived, an acute labor shortage developed.

Planning information is gathered at different levels, in different degrees of detail, and over different time frames based on the type of organization. For example, in

industries with relatively stable product markets, such as the airline industry, planning can be carried out on an overall company level without significant problems in the accuracy of the information. In more volatile industries and where the information needs to be specific, such as the technology sector, planning is more likely to be initiated at the division or department level. Divisional and departmental plans are rolled up to derive the company total.

### **Management Action/Evaluation and Control**

Before we look at the relationship of planning to compensation, let's look at the two last segments of the model. Management action is the implementation by line managers of the programs developed by the HR department. The most sophisticated programs in the world will not be successful if improperly implemented and administered. The commitment of top management, the involvement of line managers in policy and program development, and the clear and careful communications are still the most important elements for the successful implementation and administration of programs.

The final step in the model is the evaluation of the contributions that each HR function makes to the achievement of the talent management goals of the business. Data needs to be collected on the actual achievement results compared to the objectives that were set in the planning process. This is where HR effectiveness measures come into play. Chapter 11, "Human Resource Analytics," discusses these measures in more detail. Procedures should be developed for taking corrective action for deviations from planned objectives.

The theory of constraints can be an effective method used during the evaluative phase. The theory of

constraints calls for determining the weakest links and then focusing corrective attention on those areas.

## **HR PROGRAMS**

The relationship between HR planning and the functional areas of human resources (compensation, benefits, recruiting, training, and employee services) can be clearly discerned. Recruiting uses the information to plan programs such as college recruiting, difficult recruiting efforts, and major recruiting campaigns such as those necessary to staff new programs, plants, or divisions. Training and development uses it to identify the kinds of talent that are being added to the organization and the training and developmental needs the talent pool is likely to require. The relationship between planning and compensation is less obvious and is the one examined in some detail in this chapter.

### **Compensation**

To start our look at this relationship, let's identify the major compensation activities. We will then discuss those components that can derive benefits from HR planning. The compensation activities that have been identified are as follows:

- **Program development:** This is the design of salary ranges, salary-increase guidelines, incentive plans, and other techniques used by managers to determine individual employee salaries.
- **Program costing:** The next chapter covers this important component.
- **Job analysis and classification:** This is the process companies use to ensure internal equity or pay consistency within the organization.

- **Program administration:** These are the processes used by managers and HR departments to administer salary programs.

- **Executive compensation program development:** These are special compensation programs designed exclusively for the senior management in an organization.

### **Program Development**

Compensation departments engage in some planning activities when developing salary programs. Typically, compensation planners collect data on the rate of inflation, changes in the cost-of-living indices (a measure that is used to gauge changes to the inflation rate is the change in the cost-of-living index), and union settlements. Compensation planners use such data to develop salary programs. However, most of the planning activities done currently are for the short term, normally a year. Short-term plans by their very nature are a response to immediate problems such as turnover, complaints about inflation (not in the USA now), or recruitment difficulties. One cannot ignore these immediate problems, but it is also important to analyze the longer-term implications of the actions taken.

An example of inadequate planning in program development is evident in the experience of a West Coast company. Although overall market average salaries for highly skilled engineering personnel in the labor market were increasing, the salaries of new college engineering graduates were not moving as fast as those in the general market because of the relatively high number of unemployed fresh college engineering graduates. Reacting to a short-term problem, the company decided, therefore, to move their range minimums less than the midpoints and maximums to control the cost of adjusting the salaries of employees low in the range. The



company should have examined the future long-term trends in the external labor market by looking at long-term surveys of business activity. Had they done so, they would have found that the situation would reverse in the near future and that there would be a growing shortage of the specific types of engineers the company needed and that hiring salary rates would go up. Several months later, the failure to adequately adjust range minimums made it difficult to hire new college graduates in engineering. So, the company had to make reactionary mid-year salary-range adjustments. (Note this example is from a situation observed a few years ago.)

Information about the types and numbers of employees who will be added to the organization is also useful in developing increase guidelines and salary ranges for different job families. For example, suppose that your firm will increase its number of experienced engineers by 5% next year. The unemployment rate for those specific engineers is near zero, and turnover in your firm is significant. Even though your firm is already paying above market rates, you might have trouble finding and absorbing a large number of engineers without salary-compression problems.

Salary-compression problems occur when new employees come in at salary levels that put pressure on the salaries of existing employees. Under these circumstances, an organization will likely have to allocate more dollars to the engineering salary program than to the other programs by designing more liberal salary-increase guidelines and making bigger range adjustments for the engineering job family. If these additions are unknown (and therefore not being planned for), the organization might find it hard to attract the talent it needs without causing serious internal compensation problems.

The HR planning process can also provide information about jobs that are becoming more important or less important to the organization because of changes in the nature of the business. Compensation specialists can then be sure that important jobs are being included in benchmark job samples used to measure external competitiveness. For example, an international biotechnology company is planning to become more involved in development of genetic engineering solutions for medical technology. Because of the plan, genetic engineering specialists should be included in salary surveys and the resulting information considered in the design of the engineering salary program.

In a rapidly changing environment, organizations need to supplement normal sources of compensation information such as salary surveys and studies of expected salary changes in other organizations with information derived from the HR planning process. Exhibit 2-6 illustrates this concept. The most important information from the planning process is information about additions to staff, turnover statistics, and information about the future demand for talent from the external labor market.

## Information for Salary Development



**Exhibit 2-6. Information for Salary Development**

Ideally, compensation specialists need to be able to simulate the future consequences of their pay programs. Exhibit 2-7 illustrates in simple terms this kind of analysis. If the average increase is 3% rather than 5%, the consequences in terms of cost and turnover should be projected. The impact of change in economic conditions might be examined in a similar way.

### **Exhibit 2-7. Consequences of Salary Increase Alternatives\***

	8%	10%	12%	14%
Total cost				
Turnover				
Employee relations				
Productivity				
Compression problems				

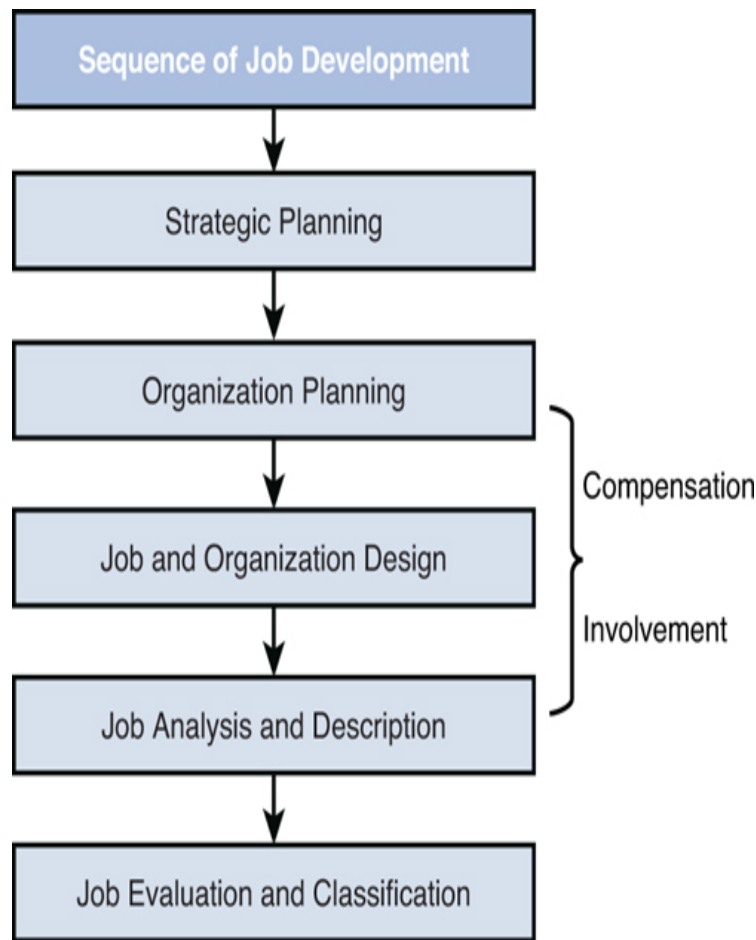
\* Numbers would be placed within each cell.

### Job Analysis and Classification

Analyzing, describing, and evaluating jobs is probably the most time-consuming of all compensation activities. Moreover, it is often done under time constraints that make a thorough and well-prepared analysis difficult. Many times, however, the last-minute requests are not the result of last-minute decisions. They often were approved months ago; it's just that the manager has an immediate and pressing need to hire and promote someone. Therefore, they need the compensation department to classify the job immediately to determine the appropriate salary level.

How does one deal with such crises? First, compensation specialists need to be involved in the HR planning process through participation in organization planning and effectiveness studies and, more important, in organization design decisions. If compensation specialists have assisted managers in organization design decisions, they will be in a much better position to accurately and quickly describe, evaluate, and market-price the jobs. They will not have to go over the rationale behind the creation of each job, and they will understand reporting relationships, skill, knowledge, abilities, and competency requirements. Exhibit 2-8 shows the sequence by which jobs are developed and where further

involvement by compensation specialists fits into the process.



**Exhibit 2-8. Sequence of Job Development**

### **Organization Planning and Design**

Organization planning is distinguished from job and organization design mainly by the detail of the analysis undertaken. Organization planning attempts to define job and organization needs for the future and, consequently, must be quite general in nature. Job and organization design, in contrast, deals with the here and now and requires decisions on specific work assignments and reporting relationships.

There is no right way to design an organization. The old organization norms, which suggested one supervisor for

every seven subordinates (span of control) and clear distinctions between the responsibilities of line and staff, are no longer adhered to strictly. Although there is no one right way, there are ways of organizing that are more effective than others depending on the stability of the environment in which the organization functions, the type of technology, and the talent profile of the organization. For example, if a firm (or a division within a firm) uses a process production technology, has a stable product environment, and has relatively little need for high individual initiative and creativity, it should have a traditional, mechanistic type of organization. A flexible and more complex organization requires the reverse. These are extremes in a whole continuum of options, but they are the types of issues the organization has to address. Exhibit 2-9 illustrates these considerations. The compensation function may be the most logical area in which to facilitate organization design activities because it is the repository of information on jobs and job relationships.

#### **Exhibit 2-9. Compensation Issues to Be Examined in a Talent Review**

- Competitiveness of salaries of key people
- Attitudes of key people toward the compensation program
- Administrative problems of the compensation program
- Ability and willingness to pay for performance
- Future compensation issues: compression, reclassification, and so on

By being involved in job and organization design activities and having a better connection to the planning process, compensation specialists can be more effective

and responsive in carrying out job analysis and classification responsibilities. Job analysis and classification is often a necessary activity to establish appropriate salary levels within an organization.

### **Program Administration**

Pay programs are required to motivate the organization's talent perform at superior levels, to attract and retain them, to be legally administered, and to be structured within the organization's ability to pay. There are various ways to measure the achievement of these goals, such as examining salary-related turnover, looking at the distribution of increases in relation to performance, and measuring direct compensation costs as a percentage of some indicator of organization success such as revenue or other key financial ratios (a subject to be discussed in [Chapter 11](#)). Although useful, where these measures fall short is that they do little to help proactively anticipate problems. Employees do not terminate the minute they perceive a problem. The talent leaves when they think there is no possibility for any corrective action for their concerns. When action is actually taken, it is often too late to modify a program or to address pay inequities with large salary adjustments.

The talent review portion of the HR planning process can also contribute information about attitudes toward program administration that will help compensation specialists anticipate problems. The talent review and assessment can generate a wealth of information. However, for the review process to serve this purpose, it must be structured to elicit relevant information. [Exhibit 2-9](#) outlines some of the issues related to compensation that you might address.

## Executive Compensation

Executive incentive plans should be tied to the planning activities of the business. As the needs of the business change, so also should the criteria for payments under the incentive plan. With regard to business plans, in one year the major concern may be market growth, in another year profit growth may be the primary focus, and in yet another year cost control may be the emphasis. Unfortunately, many executive incentive plans continue to pay out on the same financial results year after year, with *earnings before interest taxes depreciation and amortization* (EBITDA) being the most common measure of financial performance used in incentive plan design. The measures used are also those that are commonly used in financial analysis and are part of both internal and external financial reporting systems. The tendency is to apply measures that are conveniently available and conventionally used. Instead, the goals chosen for incentive rewards should emphasize the goals of the business as reflected in short- and long-range business plans, not just those traditionally used in financial analysis and reporting. By obtaining information from the planning process as described in this chapter and finding out what the organization's key success factors are from both the long-term and short-term perspective, organizations can develop executive incentive compensation triggering measures. Short-term, long-term, and value-enhancement measures should all be considered. Designing executive incentives only around short-term success measures can result in attempts to do earnings management under the accrual accounting structure. There needs to be more of an emphasis on long-term goals in executive incentive plans. Strategic measures that focus on sustained value creation should figure prominently in executive incentive compensation design. Chapter 4, "Incentive Compensation," explores the finance and accounting implications of incentive compensation program design.



### **What Can the Total Rewards Function Contribute to the Strategic and Operational Planning Efforts?**

The total rewards function not only receives benefits from planning activities described in this chapter but also provides valuable inputs to the planning process.

It can provide information in the form of an accurate and comprehensive system of job descriptions, job levels, and classifications. Effective organization planning and design relies on the job-classification system because job classifications provide the framework that management uses to establish job relationships within their operations. The job-classification system also provides a foundation for career planning and internal promotional opportunities by establishing a sequence of jobs by which internal talent mobility is facilitated. In addition, the classification system serves as the basis for HR planning, both from a qualitative and quantitative point of view.

The compensation function is usually the custodian of the job-classification system. So, developing the most appropriate job-classification system, maintaining it, and communicating it effectively is a key way in which the compensation function can contribute to the organization-wide planning effort.

The second area by which the compensation function can help planning is in the design, development, and administration of an effective performance management process. The mechanism to make decisions on deviation from business plans on a qualitative (and sometimes quantitatively) basis is the performance management process. The compensation function is often the custodian of this critical activity. An effectively designed performance management process should be able to facilitate constructive dialogue between management and the employees they manage.

The third area of contribution to the planning process is salary costing and budgeting. Employee compensation cost outlays represent a significant resource-allocation item in the financial structure of most organizations. In some organizations, such as service organizations, employee-related expenditures are the highest allocation item. Therefore, the compensation function activities to accurately cost programs and forecast expenditures are an organization-wide strategic imperative. This becomes crucial when one considers that employee expenditures are considered to be fixed expenditures in most cases. So, the compensation function needs to develop and maintain effective mechanisms for monitoring compensation expenses not only against budgets but also against other key relevant financial indicators of organizational success. Compensation specialists should implement cost monitoring systems that can serve an important role in business planning efforts.

This chapter stressed the importance of planning as we explored the connections between strategic business planning and operational financial planning. The chapter also looked at the connections between operational financial planning and HR planning. We then reviewed a detailed model for HR planning. The chapter then took a closer look at the relationships between financial and HR operational planning and the compensation function, ending with an exploration of the contributions the total compensation function can make to add value to the corporate-wide planning effort. The chapter concluded by reviewing how the compensation function can contribute to the organization-wide planning effort by taking on the task of providing timely and accurate financial plans and forecasting on total compensation expenditures. The next chapter explores this last point in more detail.

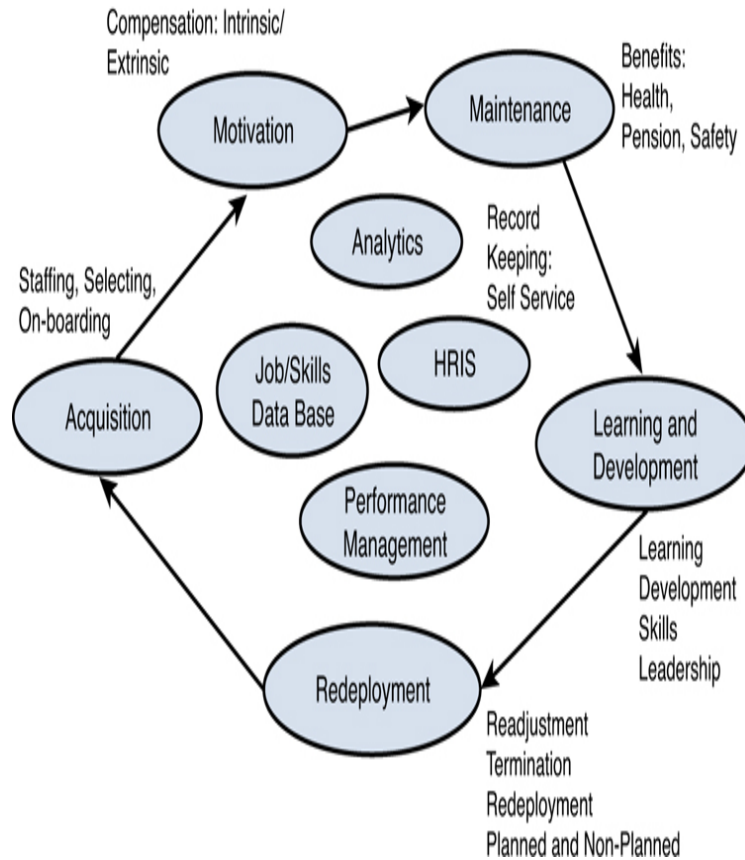
## **KEY CONCEPTS IN THIS CHAPTER**

- Talent management
- Organization planning and design
- Human resource planning
- Compensation planning
- Operational planning
- Demand planning
- Supply planning
- Forecasting demand
- External labor market
- Job analysis and classification
- Program administration

## **APPENDIX**

Exhibit 2-10 presents another strategic model for the HR planning process and the positioning of compensation and benefits planning within it.

# Human Asset Life Cycle Model



**Exhibit 2-10. Human Asset Life Cycle**

This model suggests that human capital investments can be considered capital expenditures and as such, an organizational asset. This is a recurring theme in this book.

If you then consider human resources as assets like all other assets, they also have life cycles. This model depicts a life cycle view of human resource assets.

Just like other assets, the human capital assets of an organization are acquired, motivated (specifically in the case of human resources), maintained, developed (for improved productivity) and redeployed to other effective uses when current effectiveness diminishes. The current

functional activities have been mapped into the changed paradigm in the model.

Notice that when human resources are considered assets from an accounting and finance point of view, these critical assets then are viewed differently in the longer term, similar to product life cycles.

Here follows a brief description of the components of the model.

Acquisition efforts are not just recruiting efforts. When a human asset is acquired, the organization insures through proper planning that the human asset has a defined life cycle within the organization.

Then activities are put in place through on-boarding efforts to insure that the human asset is optimally motivated for peak performance through effective reward programs (both intrinsic and extrinsic).

Next activities are put into place to insure the human asset is adequately maintained through benefit programs to provide for the human asset's life risk incidence needs, such as illness, disability, safety, and retirement.

Then the asset is developed through lifelong learning and development activities to achieve peak performance throughout the asset's life cycle.

Another changed perspective in this model is the concept of summarily removing human resources (by way layoffs and terminations) for short-term financial gain. In this life cycle model (which takes the asset life cycle perspective), human resources are not easily disposed off, but are assigned to other appropriate best uses with adequate deployment efforts, which includes retraining and internal placement. This is similar to a hard asset retooling effort. Such a view of things, some postulate,

will save organizations money over the long haul. Part II of this book revisits this point.

All of these life cycle phases of the human capital asset are supported in the HR department by certain core activities: an adequate job and skills database, a valid performance management system, an effective human resource information system, and a system of measurements with appropriate human resource analytics.

### **3. Projecting Base Compensation Costs**

#### **Aims and objectives of this chapter**

- Explain the importance of projecting base salary costs
- Explain the connections of financial planning and budgeting to compensation planning
- Explain the various components of base compensation flows
- Explain the methods of improving the accuracy of base salary projections
- Demonstrate the formula for the various components of base compensation
- Explain the cash flow impact of base compensation increase programs
- Explain the concepts of payroll level rise and cost to payroll

Total compensation costs are often the highest direct and indirect expense in any organization. However, an analysis of the various elements of the total compensation is not always accomplished in whole or in part with analytical thoroughness. But because it can be the highest line item expense, understanding and projecting the true costs is of strategic and operational importance. This chapter presents a framework for analyzing each component of the total base compensation equation. It also provides analytical techniques to plan and forecast these expenses.<sup>1</sup> The chapter also covers base salary projections. Other

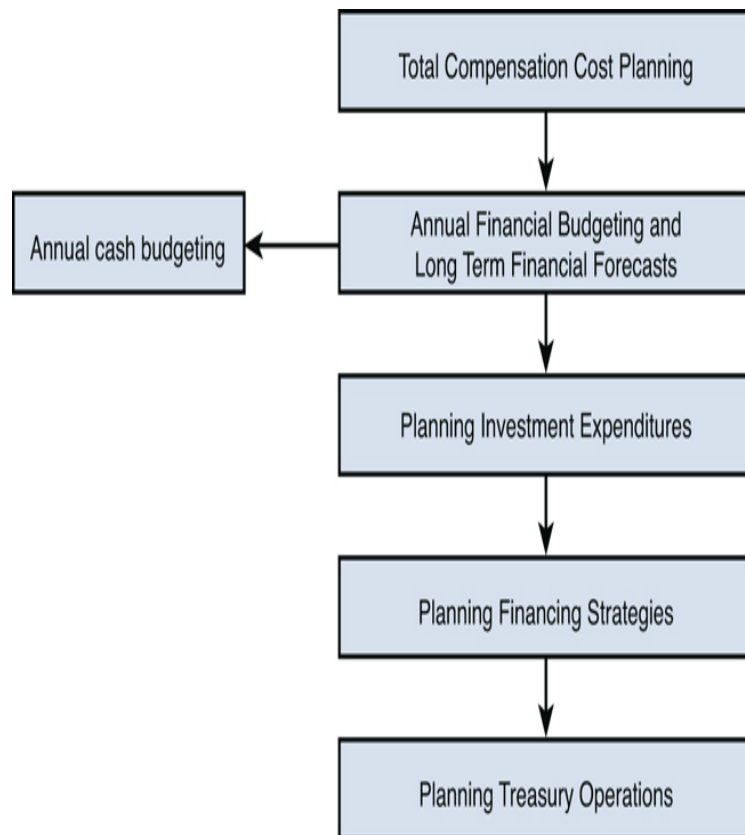
chapters, where appropriate, deal with projecting the other elements of the total compensation system.

<sup>1</sup> Adapted from an article written by Biswas, B.D., and Hestwood, T. in the *Compensation Review Journal* in 1979. Copyright currently held by Sage Publications. Author use accepted by Sage Publications.

You need to understand the various expense elements to accurately forecast compensation expenses. This understanding is important because these expenses are critical for long-term financial planning. Projecting these expenses is of strategic importance because accuracy here assists with the setting of the right “selling price” for a product or service, which then leads to determining the optimum financing and investing strategies. Furthermore, accuracy here leads to effective talent management strategies. Forecasting these expenses with accuracy also enables better annual financial budgeting and cash budgeting. The appendix, at the end of this chapter, provides a specific example of the direct relationship of salary planning to the determination of the annual cash requirements of a business.

Now, it is important to understand the connections between accurate compensation cost planning and financial planning. Exhibit 3-1 demonstrates these connections.





**Exhibit 3-1. The Important Connection between Compensation Expense Planning and Financial Planning**

Note here that if total compensation expenditures are indeed the most significant element of total expenditures, then being accurate with those projections will enhance the credibility and accuracy of the total financial planning system.

Before we start the planning exercise, it is again important to take a look at the various compensation and benefits cost elements. We do so in Exhibit 3-2.

**Exhibit 3-2. Elements of the Total Compensation Framework (continuing the discussion from Chapter 1)**

Major Category	Subelements
Base salary	The salary determined at the hiring point Annual increases—performance/merit, other types Performance/merit/other types Promotion increases Turnover effect Other charges, flows, and allowances
Benefits	Health programs Life insurance Disability insurance Retirement/Pension Expenses and investments Other benefit programs requiring monetary expenditures
Incentive compensation (cash incentive schemes)	Executive bonus Management bonus Other types of cash incentive programs
Expatriate compensation programs	Foreign service premiums Cost-differential allowances Hardship premiums Special area allowances Tax protection and equalization program

In the discussions about the projections of total compensation forecasting, expenditures normally paid via expense reimbursements or those directly paid by third-party administrators (TPAs) are excluded. These expenditures are as follows:

- Executive perquisites (the imputed value of which would be included as taxable income)

- Pension payments
- Medical insurance reimbursements
- Other insurance payments paid by TPAs and insurance companies
- Expatriate tax payments
- Company reimbursement to service providers on behalf of employees

The focus here is on all payments processed by the payroll department. Employee payments processed by payroll departments are subject to federal and state tax withholding requirements, whereas payments made by expense reimbursement are not subject to withholding taxes.

## **BASE SALARY COSTS**

An organization begins by comparing its salaries with those of its competitors. These competitors need to be both labor market competitors and product market competitors. From such an analysis, the organization makes a decision on the preferred market position. Having made the positioning decision, the organization must establish procedures for distributing increases among employees and then projecting those costs accurately. The specifics of the mechanics of the salary increase distribution will ultimately be a major determinant of the costs. The types of salary increases and the distribution methods, along with the net salary change flows (for example, new hires and terminations), help determine accurate program costs.

Organizations execute these actions in a variety of ways. One way to allocate increases is a salary or merit increase matrix. These are guidelines that assist in the

determination of individual increases based on performance and the employee's salary range position. Using these guidelines, organizations forecast the cost of the salary increase program. Yet another method used to distribute increases to employees is based on performance ratings and resulting in a specific yearly average amount and also the time between increases. This average can vary for different groups of employees. The cost is calculated by multiplying the annual increase percentage by the base salary for each employee group at the beginning of the year.

Nevertheless, existing costing procedures are normally deficient in one or more of the following areas:

- They do not account for employee turnover.
- They ignore or inaccurately predict the net changes in employee population.
- They overlook deviations from approved practices.

Employee turnover can have a significant impact on anticipated salary expenditures because of the differences in the salaries of employees leaving and those employees joining the organization. Turnover lowers costs because employees who terminate usually are compensated at higher levels than those who replace them. In fact, because of turnover in some companies, salary programs add zero dollars to total payroll.

However, the impact of turnover is generally more involved than that, because there is rarely the simple replacement of one employee by another employee. Employees are not always directly replaced by other employees for the same job. There is a constant change in the mix of various kinds of employees and jobs. The effect of turnover can best be determined by an analysis of the relationship of new hire and terminee salaries.

The cost effects of population changes can prove particularly difficult to forecast because they often vary substantially from year to year depending on business, financial, and economic conditions. This information can be gathered from an organization-wide human resource (HR) planning and forecasting system (as discussed in Chapter 2, “Business, Financial, and Human Resource Planning”). But where forecasting data is not available, or where the forecasting process is not synchronized with compensation planning, the information must be derived from historical trend data for employee demographic changes.

Irrespective of the spending controls established, deviations from expected levels of spending often occur. It occurs quite often when managers are slow to adjust their spending to reflect the program changes and new programs. Some companies actually encourage deviations from policy in special employment cases. There is a belief that supervisors should not be subjected to strict spending controls. If measurable deviations occur consistently, provisions should be made for anticipating the cost impact by reviewing the historical relationships between authorized and actual merit increases.

### **Improving the Accuracy of Base Salary Expenditure Projections**

The mathematical model described here captures the various elements of base or fixed compensation transitions and thereby suggests ways to improve the accuracy of base compensation forecasting. Exhibit 3-3 shows a suggested forecasting formula. It is assumed in the examples that follow that costs are to be projected for a 12-month period or an annual fiscal period.

$$\left( \frac{(\text{BMP}) \times \text{AAI} \times \text{PR}}{12} \pm \text{PC\&T} + \text{PRO} \times 78 = \text{CTP} \right)$$

Where: BMP = Beginning month payroll  
 AAI = Averaged annualized increase  
 PR = Participation rate  
 PC&T = Population change and turnover cost  
 PRO = Promotion cost  
 CTP = Cost to payroll

**Exhibit 3-3. Payroll Forecasting Formula**

Beginning month payroll (BMP) is the total base monthly payroll at the beginning of the program year. Most organizations have this information available in various HR and financial (payroll) electronic systems.

To demonstrate the forecasting methodology, let's consider an example. This example assumes that there are 100 employees with a payroll of \$500,000 a month.

The average annualized increase (AAI) combines the effect on payroll of the expected average time interval between increases and the average amount of the increase during a given year or fiscal year. The annualized increase calculation determines the full-year impact of increases granted throughout the year. It also takes into account the higher base salary of employees who receive more than one increase within a year. This is because the interval between increases is less than 12 months for employees who receive more than one increase during a 12-month period. In the example, we assume that the expected average increase is 7%, with an interval between increases of 9 months. In most companies these increases would be based on performance (commonly termed merit increases). Exhibit 3-4 explains how the annualized increase is obtained.

$$\frac{\text{Average amount of increase} \times 12 \text{ months}}{\text{Average monthly interval between increases}} = \text{Average annualized increase}$$

$$\frac{.07 \times 12}{9} = .093$$

A 7% increase granted with a nine month interval is annualized to 9.3%

**Exhibit 3-4. Determining the Annualized Increased Component**

When increases are granted at intervals that are not approved, the average will need to be adjusted. These deviations arise mainly in organizations that are decentralized with local autonomy. If there is historical evidence of a consistent deviation pattern in the increase interval, then an adjustment should be built into the calculations proactively.

In this case, the example assumes that an analysis of the data indicates a need for an adjustment in the expected interval between increases. You can obtain this information by analyzing the data on the historical relationship between the actual and approved interval between increases.

You might find, for example, that last year the actual average interval was 11.5 months but the approved interval was 12 months. This year, the approved program's average interval is 9 months. If the past relationship between the approved and actual interval is a valid guide for the future, you can set up a simple ratio equation and solve for the expected actual interval for the forecasting exercise.

Exhibit 3-5 presents this calculation. In the example, the expected interval is 8.63 months. This corrected interval can be inserted in place of 9 months in the annualizing formula to yield an AAI of 9.7% rather than 9.3%.

$$\frac{\text{Past year's approved interval}}{\text{Past year's actual interval}} = \frac{\text{Next year's approved interval}}{\text{Next year's actual interval}}$$

$$\frac{12}{11.5} = \frac{9}{\bar{x}}$$

$$\frac{11.5 \times 9}{12} = 8.63 \text{ months}$$

**Exhibit 3-5. Adjustment for Approved Versus Actual Interval**

Participation rate (PR) is defined as the ratio of actual salary actions (increases) granted to employees compared to all employees eligible to receive increases. Participation is significant because if not all the possible salary increases are awarded, a smaller portion of base payroll than expected is actually increased. If this situation occurs, an adjustment must be made that reduces the projected expenditure. Unless an organization sets a specific participation rate objective, this information has to be obtained from a historical comparison of what actually occurred at year end to the number of possible actions for the year. Consequently, if it is anticipated that only 90% of the employees are going to receive a salary action, the annual merit increase cost must be multiplied by .90 to eliminate the 10% not participating.

After the participation rate is considered, the resulting cost is divided by 12 to obtain a monthly cost. So far in the example, the calculation would read as follows:

$(\$500,000 \times .097 \times .90) \div 12 = \$4,041.67$  per month – Monthly payroll increase.

The effects of population change and turnover (PC&T) on salary expenses are considered together. In the example we are looking only at an increase in population.



However, with minor changes, the procedure can be made to account for declines in population, as well. For this analysis, it is assumed that population change information is derived from historical trends maintained in the human resource information system. The effects of turnover on costs also would be obtained from historical data.

To determine the effects of population change and turnover require that an organization record monthly the salaries of new hires and terminees. Preferably, this data should be collected for at least five years. Exhibit 3-6 illustrates the type of information that should be collected each month.

**Exhibit 3-6. Data for PC&T**

	Month	Year	N	Monthly Base Payroll
New hires			6	\$6,000.00
Terminations			4	4,500.00
			+2	\$ +1,500.00
Net monthly addition to payroll				

To determine the average monthly additional cost to payroll, all monthly changes to payroll are averaged. Therefore, if the monthly net addition to payroll is \$1,500, as shown in the calculation, that amount is added to the formula as the PC&T expense.

If population changes are not expected to follow historical patterns, there must be a way to separate turnover and growth. In the example shown in Exhibit 3-6, it is assumed that all new hires come in at the new-hire average salary of \$1,000 per month and that there were two more new hires than terminees (these hires are presumed to be for positions that are newly created).

Therefore, in this case, population growth accounts for a change in payroll of \$2,000 ( $\$1,000 \times 2$ ). But, turnover normally acts to reduce payroll. Because new-hire salaries are lower than those of terminees, there was a cost savings of \$125 per replacement hire (average new hire cost of \$1,000 versus average terminee cost of \$1,125, a savings of \$125 per replacement hire). This savings multiplied by the number of persons directly replaced (we assume four of the six new hires were replacing four who terminated) gives total monthly turnover savings of \$500. Thus, the two growth hires were brought in at a cost of \$2,000 ( $\$1,000 \times$  two brand new employees) and the four who were replaced came in at a lower salary (\$1,000 per month), but they replaced four employees whose salaries averaged \$1,125 per month, which gives a savings of \$125 per replacement hire for a total of \$500 for four employees. The \$2,000 per month additional hire cost is reduced by \$500 per month to result in a payroll increase of \$1,500 per month.

Promotion (PRO) expenses are determined by examining historical data to find the number of employees getting a promotion each month and the average promotional increase. Exhibit 3-7 shows if 2.1% of the population is promoted each month and the average increase of those being promoted is 10%, the monthly promotional cost is \$1,050.

### **Exhibit 3-7. Calculating Promotion Costs**

		Average proportion of employees promoted each month		Average promotional increase		Monthly promotional cost	
BMP	x		x		=		
\$500,000	x	.021	x	.10	=	\$1,050	

The factor of 78 shown in the costing formula is used to convert the monthly expense to an annual expense; 78 is the total number of times the monthly expense has to be incurred if the expense is being determined for a year. For instance, the salary-increase dollars paid in January will be paid 12 times, the salary-increase dollars paid in February, 11 times, and so forth. This phenomenon is described in more detail in the appendix to this chapter.

The various components of the costing formula can now be shown together. If you insert the figures discussed previously into the formula shown in Exhibit 3-3, it reads as follows:

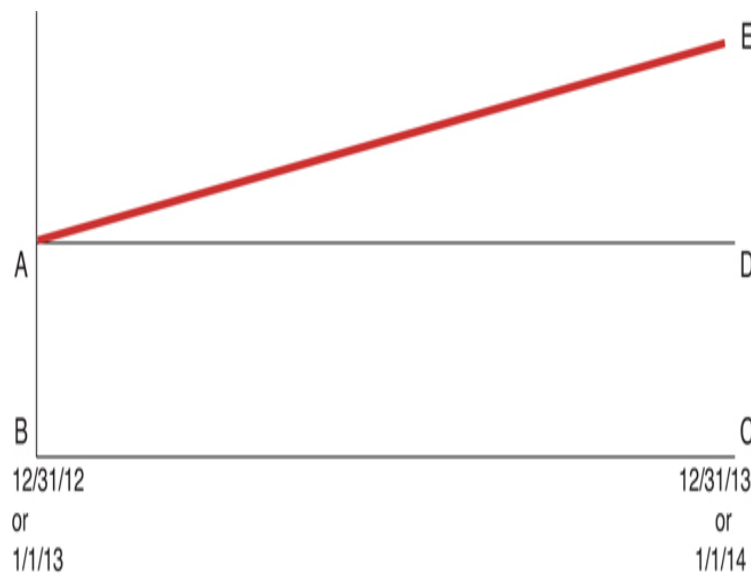
$$[(\$500,000 \times .097 \times .90) \div 12 + \$1,500 + \$1,050] \times 78 \\ = \$482,625$$

Therefore, an additional \$482,625.00 (CTP) will be spent on base salaries in the coming year. From an annual payroll of \$6,000,000 at the start of the year, the expense rises to \$6,482,625 at year end, an increase of 8.0% ( $\$482,625 \div \$6,000,000$ ) on an annual basis and 14.85% ( $\$6,188 \times 12 \div \$500,000$ ) on a monthly basis. The \$6,188 is calculated in this manner:  $[(\$500,000 \times .097 \times .90) \div 12] + \$1,500 + \$1,050 = \$6,188$

Another example demonstrates the calculations discussed so far. The costing technique described to project compensation expenses was introduced in the 1970s when the Nixon wage-price controls were in effect. At that time, the concepts of level rise and cost to payroll were introduced. In this cost analysis, the emphasis is on looking at cost increases from both a monthly and annualized basis. The ending monthly figure (as defined by the payroll level rise) indicates the beginning of the next year run rate. The annualized cost increase (as defined by the cost to payroll) indicates the increased annual base compensation expenditures for the current year.

Let's first take a look at these concepts graphically and then discuss them more fully.

Assume that Paresh Enterprises, Inc. (PEI) has a monthly base payroll of \$5,000,000 on 12/31/12. And let's assume that PEI has an anniversary salary-increase program; that is, employees are granted increases on the anniversary of the hire date. In addition, PEI plans a 5% of base average salary increase program for 2013. So, graphically the base compensation costs of PEI are as shown in Exhibit 3-8.



AB = Beginning monthly base payroll = \$5 m  
 DE = Increase in monthly base payroll = \$.250 m  
 ABCD = Annualized base payroll w/o salary increases = \$60 m  
 CE = Ending monthly base payroll = \$5.25 m  
 ADE = Annualized cost of base salary increase program = \$1.625 m  
 ABCE = Annualized total base salary expense for 2012 = \$61.625  
 And the calculations are:

AB = \$5m (given)  
 ABCD = \$5m x 12 = \$60m  
 DE = \$5m x .05 = \$.250m  
 CE = \$5m + \$.250m = \$5.250m  
 ADE = \$.250m ÷ 12 x 78\* = \$1.625m

**Exhibit 3-8. Base Compensation Costs for PEI**

\* Look for explanation of this factor in the appendix.

Here is the calculation in percentage terms:

$$\begin{aligned} & \frac{\text{Ending monthly base payroll} - \text{Beginning Monthly Base Payroll}}{\text{Beginning Monthly Base Payroll}} \\ &= \frac{\$5.250 \text{ m} - \$5.0 \text{ m}}{5.0 \text{ m}} = \frac{\$.250 \text{ m}}{\$5.0 \text{ m}} \\ &= 5\% \text{ or } \frac{\text{CE} - \text{AB}}{\text{AB}} \text{ (in the graph)} \end{aligned}$$

This figure is called level rise or the increase in the monthly base payroll level. This is a number that normally comes from an input provided to the compensation specialist by the budgeting people in the accounting department.

$$\begin{aligned} & \frac{\text{Annualized Cost of Base Salary Increase Program}}{\text{Annualized Cost of Base Payroll w/o Base Salary Increase Program}} \\ &= \frac{\$1.625 \text{ m}}{\$60 \text{ m}} \\ &= 2.708\% \text{ (this percentage for an anniversary base salary increase will always be 54\% of the level rise)} \end{aligned}$$

In the graph,  $\frac{\text{ADE}}{\text{ABCD}}$

We call this statistic the cost to payroll of the annualized salary increase program. Such a technique for base compensation cost planning enhances the accuracy of the projections of the fixed costs to be incurred by an organization. Such costing accuracy facilitates accuracy cost estimations.

Organizations, both big and small, have to manage their operations by developing accurate financial budgets

annually. A major expense that has to be planned by each manager is their employee expenses. And as you have seen, employee expenses can be the largest single line item expense for any organization. Note, as well, that base salary expenses form the major expense within the total compensation framework. Normally, the accounting and finance department provides to department managers budget guidelines for base salary increases that are not coordinated with the HR departments. There are many reasons for this lack of a connection. Common reasons include (1) the HR personnel's avoidance of anything to do with numbers and (2) the accounting department's reluctance to communicate with HR departments with respect to accounting and finance matters. However, one of the most important expense categories is people expenses, and therefore there needs to be accounting and finance cooperation on this activity. A financial planning model has been presented in this chapter, which, if put into practice, will greatly enhance fixed compensation estimation accuracy, understanding, and reporting.

## **KEY CONCEPTS IN THIS CHAPTER**

- Total compensation cost planning
- Payroll costing formula
- Average annualized increase
- Approved versus actual increase
- Participation rate
- Promotion costs
- Beginning monthly base payroll
- Payroll level rise

- Cost to payroll
- The 78 factor
- The cash flow impact
- Population change and turnover impact
- Ending monthly payroll

## **APPENDIX: CASH FLOW IMPACT OF SALARY INCREASES**

Companies usually distribute salary increases to employees on the annual service anniversary of the employee's hire date. The alternative is to distribute the annual salary increases on a specific date. The latter is called a focal increase. Note that there are significant cash flow issues with selecting the date on which increases are granted.

In a survey on compensation planning for 2008, Buck Consultants examined salary management practices among the 415 surveyed organizations (in particular, the timing of annual salary reviews). The Buck survey found that most organizations—over 80% (82.2%)—administer annual salary increases on a focal (or common) review date.<sup>2</sup> This means that in most organizations employees receive their annual salary increase on a common date, such as January 1, rather than on the annual anniversary of their hire date or when they were promoted into their current positions.

<sup>2</sup> Koss, Sharon "Which is Best? Anniversary vs. Focal (Common Date)" Performance Reviews, SPHR, CCP (2009): [www.kosshrexpert.com/Article-WhichisBest.pdf](http://www.kosshrexpert.com/Article-WhichisBest.pdf).

### The Cash Flow Impact Analyzed

Suppose that a company has 12 employees and that they each earn \$1,000 per month. Now suppose that one employee was hired each month of the year. In an anniversary salary increase program, each employee comes up for an increase at the beginning of each month, as illustrated in Exhibit 3-9.

#### Exhibit 3-9. Employee Salary Increase Dates

Employee 1	Increase date	-	1/1
Employee 2	Increase date	-	2/1
Employee 3	Increase date	-	3/1
Employee 4	Increase date	-	4/1
Employee 5	Increase date	-	5/1
Employee 6	Increase date	-	6/1
Employee 7	Increase date	-	7/1
Employee 8	Increase date	-	8/1
Employee 9	Increase date	-	9/1
Employee 10	Increase date	-	10/1
Employee 11	Increase date	-	11/1
Employee 12	Increase date	-	12/1

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\* This example is simplified to demonstrate the concepts.

Now suppose that the annual increase for each employee is 10%. The true cash flow impact of this 10% increase program is demonstrated in Exhibit 3-10.

#### Exhibit 3-10. The Cash Flow Impact<sup>3</sup>

<sup>3</sup> Thus, the 78 used in Exhibit 3-3.



Employee	Monthly Increase		Annual Cash Requirement	Cumulative Cash Requirement
1	\$100	× 12	\$1,200	\$1,200
2	\$100	× 11	\$1,100	\$2,300
3	\$100	× 10	\$1,000	\$3,300
4	\$100	× 9	\$900	\$4,200
5	\$100	× 8	\$800	\$5,000
6	\$100	× 7	\$700	\$5,700
7	\$100	× 6	\$600	\$6,300
8	\$100	× 5	\$500	\$6,800
9	\$100	× 4	\$400	\$7,200
10	\$100	× 3	\$300	\$7,500
11	\$100	× 2	\$200	\$7,700
12	\$100	× 1	\$100	\$7,800
<b>Totals</b>	<b>\$1,200</b>	<b>78<sup>3</sup></b>		<b>\$7,800</b>

Therefore, an anniversary salary increase generates a cash flow requirement of \$7,800 in this hypothetical example, whereas if all employees were granted their annual increases on January 1 the cash flow requirement would be  $\$1,200 \times 12 = \$14,400$ . If all employees were granted increases on a focal date of July 1, the cash flow requirement would be  $\$1,200 \times 5 = \$7,200$ . And if all employees were granted increases on September 1, the cash flow requirement would be  $\$1,200 \times 4 = \$4,800$ .

Note that this is cash flow analysis and not accrued expense analysis. Also note that this type of accounting analysis conducted by a compensation department will add real value to the accounting department's efforts to do required cash budgeting and planning. Cash management is a critical accounting activity that keeps

many a chief financial officer under continuous stress and anxiety. The HR and compensation professionals will certainly “come to the table” when they support the business with this critical cash budgeting and planning activity. The activity becomes all the more important when one considers that in any organization of any size, the distribution of annual salary increases to employees can be one of the highest cash outflow activities.

## **4. Incentive Compensation**

### **Aims and objectives of this chapter**

- Explain the accounting issues involved in incentive compensation programs
- State the different types of cash incentive compensation plans currently in use
- Explore the prevalence of incentive compensation plans
- Discuss the various key incentive compensation metrics
- Explain the need to use sustaining financial value creation metrics
- Discuss the free cash flow measure as an incentive compensation metric
- Discuss the economic value added measure as an incentive compensation metric
- Discuss the residual income measure as an incentive compensation metric
- Discuss the use of a balance scorecard system as an incentive compensation triggering mechanism

## **AN INTRODUCTION TO INCENTIVE COMPENSATION PROGRAMS**

One important element of the total compensation system is the short-term annual incentive compensation program. Most organizations have some form of this element of the total compensation system. The structure of short-term incentives can take many forms. This chapter presents a detailed analysis of incentive compensation programs. The focus is on, as it is throughout this book, the accounting and finance implications of incentive compensation.

The chapter discusses the following:

- The accounting for annual incentive compensation plans
- Key incentive compensation program metrics
- Free cash flow as an incentive plan metric
- Economic value added as an incentive plan metric
- Residual income as an incentive plan metric
- The balance scorecard and incentive compensation

Cash incentive plans are also called cash bonus plans. Cash incentive compensation can fall into the following categories:

- Annual plans covering all employees or a large percentage of employees of the company
- Long-term cash incentive plans that are provided mostly to senior executives
- Cash profit-sharing plans

- Incentive plans for specific employee groups (such as engineers, scientists, and other key employees)
- Annual bonus plans specially designed for senior executives
- Nonqualified deferred compensation plans tied into an annual incentive plan
- Other types of cash incentive/bonus plans
- Sign-on bonus
- Referral bonus
- Spot bonus
- Retention bonus

Note that these cash plans can be either annual plans, triggered by an annual metric, or they can cover multiyear periods if the plans are designed to be triggered by multiyear financial performance.

The prevalence of annual cash incentive plans clearly demonstrates that a majority of companies, both public and private, offer such plans to employees. A term *pay at risk* has been introduced to indicate that companies are increasingly asking employees to share in the risk/reward playing field of a business venture.

Companies are now reducing or controlling the fixed component of pay (the base pay) and increasing the incentive component. The idea is that if a company achieves its financial goals the employees who made that happen should be rewarded accordingly. Such a motivational philosophy clearly applies to senior executives, but more and more companies are including all levels of employees within this conceptual structure. There is a great appeal for the pay-at-risk approach in an

era of expense-reductions, financial control, and austerity. So, there is an increasing incidence of these plans. Note, as well, that by reducing or controlling the “fixed” component of pay and increasing the short-term component, companies can reduce fixed expenses. Compensation expenditures are contingent on increasing financial results.

In a paper written for the *Coastal Business Journal*, authors Mike Schraeder and J. Bret Becton provide an overview of recent trends in incentive pay programs. The paper suggests the following with regard to incentive compensation programs:

- Increased use of incentives for employee groups, teams, and project teams.
- More use of both qualitative and quantitative measures in incentive compensation programs.
- Increased use of incentive compensation programs in entrepreneurial firms.
- Increased use of incentive compensation programs in service industries has also been observed.<sup>1</sup>

<sup>1</sup> Schraeder, M., and Becton J.B., “An Overview of Recent Trends on Incentive Pay Programs,” *The Coastal Business Journal*, Vol. 2, No. 1, Fall 2003.

The authors suggest that an incentive program plays an important role in motivating staff to achieve organizational goals.

The authors further suggest that the process used to develop the incentive program is often as important as the specific elements of the program. This is in keeping with motivation theories that suggest employees consider the programs fair when they know how pay outcomes are determined. Employees perceive that the

process used in determining amounts to be paid is more important than the amount of pay received. The more the employees participate in program development, the more they are satisfied with the entire incentive program. The process is as important as the outcome.

In addition, short-term incentive plans are becoming more and more important as an element of the total compensation structure. Short-term plans help strengthen the connection between the execution of a business strategy and payouts received from the plan. Incentive plans are also being customized to reinforce mission-critical functions. This means it becomes possible to align incentives with sales and functions that are critical to the successful execution of business strategies.

You can read an excellent analysis of the prevalence of short-term cash bonus plans in a report produced by the professional association WorldatWork. This report comprehensively analyzes the various types of bonus plans used to incent to achievement of various types of strategic and operational business objectives.<sup>2</sup> The report focuses on bonuses granted to generate specific types of employee behavior outcomes.

<sup>2</sup> “Bonus Programs and Practices,” a research report by WorldatWork, April 2011, Scottsdale, AZ.

## ACCOUNTING FOR ANNUAL CASH INCENTIVE PLANS

The accounting for short-term incentive plans is fairly straightforward. All expenditures for these plans are expensed in the period in which they are incurred. This is in keeping with the *matching principle* of accounting. These expenses are regarded as period expenses and carried to the income statement in the year they are incurred. The same principle applies to cash wages. The logic for this holds that most annual incentive plans are built around performance triggers that cover the current accounting or fiscal year. Therefore, these expenses should be “matched” against the revenues earned during the same period—the matching principle.

Usually, though, the annual payouts are made in the year following the year covered by the incentive plan. The payouts are normally made within the first three months of the upcoming year. The reason for this is that the accounting transactions for the completed year has to be closed, audited, and reported before incentive payouts can be finalized. For example, if the incentive plan measurement period is the calendar year 2013, the incentive payouts will be made in the first quarter of 2014. So, for 12/31/13 financial reporting, the expense for incentives will be recognized in 2013.

Another accounting issue dealing with incentive plans is the need to accrue these expenditures on a proactive basis. This means as the bonus is earned during the year the requisite amount needs to be accrued as a payable and also recorded as an expense. The key consideration here is the determination of when the participant earns the incentive out. Some plans have monthly, quarterly, or semi-annual measurement periods. If the formal plan document specifically stipulates the measurement period to be other than annual, the accounting system needs to accrue the liability and recognize an expense before



publishing interim financial reports. Exhibit 4-1 shows this process in tabular form.

**Exhibit 4-1. Incentive Plan Measurement and  
Accounting Period Recognition**

Incentive Plan Measurement	Accounting Period Recognition
Monthly	Monthly
Quarterly	Quarterly
Yearly	Yearly

Estimated incentive payouts need to be accrued during the year the incentive is being earned. Suppose, for instance, that the current year is 2013. During the course of 2013, the accounting department needs to work with the *human resource* (HR) department and estimate incentive payouts per the plan provisions. This estimation needs to be based on the actual results to date of the financial and operational measures used in the incentive plans. These measures or objectives should be those that are stipulated in the plan. Based on these estimates, the journal entries listed in Exhibit 4-2 need to be made.

**Exhibit 4-2. Journal Entries Illustrated**

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Incentive expense for department "a"	XXXXXX
Accrued incentive liability	XXXXXX

The calculation and journal entry needs to be made whenever performance on the financial or the other operational incentive compensation metrics matches or exceeds the planned levels in the incentive plans, for all categories of employees.

When the incentives are actually paid out, the accrual accounts should be cleared out in the manner shown in

### Exhibit 4-3.

#### Exhibit 4-3. Journal Entry Illustrated

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Accrued incentive liability	XXXXXX
Federal Income Tax Payable	XXXXXX
Social Security Tax Payable	XXXXXX
Medicare Tax Payable	XXXXXX
Federal Unemployment Tax Payable	XXXXXX
State Tax Payable	XXXXXX
State Unemployment Tax Payable	XXXXXX
Cash	XXXXXX

Note that estimating incentives could be a subjective exercise. This is because estimates are made by making a guess about the financial and operational performance in the future months. This way, companies might wait for some months to pass in the year before any accruals of the incentives are recorded. This will allow for a better estimation of the eventual payouts.

Also, if the incentive plan has a provision for reduced payouts when targets are not achieved (usually up to a minimum threshold), the estimate of future payouts should account for this possible occurrence.

Nevertheless, at the end of the year, when the actual performance of the financial and operational measures that were used in the incentive plans are known, the incentive compensation accrual should be adjusted as final.

Another noteworthy accounting issue with respect to annual incentive compensation accounting is termed the *circular effective*. Accountants, when determining projected year-end net income (for interim reports), make an estimate of incentive compensation to be paid out. Based on the final results on the performance against plans for the incentive compensation performance metrics, however, the estimates made by the accountant for the annual incentive compensation to be paid might need to be revised at year end, thus affecting year-end net income. So, during-year incentive compensation estimates might be one of the causes of the deviation of year-end net income from the earlier-in-the-year projections. If the projected versus actual net income deviations are large enough, the accounting department might come under scrutiny for the inaccuracy in estimating incentive compensation payouts. These deviations are a further reason for the practice of earnings management.

Although the accounting treatment of these annual cash incentive plans is straightforward, accounting-related and finance-related issues need to be discussed, as we do throughout the remainder of this chapter.

## **KEY INCENTIVE COMPENSATION METRICS**

Although the development of key incentive compensation indicators is not a strictly accounting and finance issue, the selection and use of specific indicators does indirectly have finance and accounting implications. Key indicator or triggering metric determination is the most important design and implementation issue with respect to incentive plans.

Key indicators can be financial and nonfinancial, but financial indicators are usually given the highest weight in plan design. For executive incentive plans in public companies, the selection of these indicators requires

board compensation committee and the entire board's approval.

The following financial metrics are commonly used in incentive plans:

- *Return on equity* (ROE)
- *Return on assets* (ROA)
- *Earnings per share* (EPS)
- *Net income* (NI)
- *Earnings before taxes* (EBT)
- *Earnings before interest and taxes* (EBIT)
- *Earnings before interest, taxes, depreciation, and amortization* (EBITDA)
- *Total shareholder return* (TSR)
- Gross sales
- Gross margin
- Expenses to budget
- Economic value added
- Intrinsic value (discounted free cash flow)

For private companies, the financial measure used might differ. An October 2007 research report by WorldatWork and Vivient Consulting<sup>3</sup> found the prevalence of financial metrics to be as shown in Exhibit 4-4.

<sup>3</sup> "Private Company Incentive Pay Practices," a research report by WorldatWork and Vivient Consulting, October 2007.

**Exhibit 4-4. Financial Metrics for Private Companies**

Sales	49% <sup>*</sup>
Operating Income	44%
Net Income/EPS	34%
Economic profit	6%

\*% of respondents

In another report from the premier compensation consulting firm Towers Watson, the incidence of financial metrics was reported. In this report, the change in the use of key metrics over a five-year period was demonstrated. Exhibit 4-5 shows the results of that report.

**Exhibit 4-5. Prevalence of Financial Performance Measures<sup>4</sup>**

<sup>4</sup> Data from Towers Watson; Executive Compensation Bulletin; Smith, Max, and Stradley, Ben; February 25, 2010; p. 4; reprinted with permission.

	2010 Survey	2005 Survey
Sales/revenues	34%	31%
Earnings per share (EPS)	26%	29%
Cash flow	26%	19%
Operating income/operating profit	25%	28%
Earnings before interest and taxes (EBIT or EBITDA)	25%	19%
Net income/earnings/profit	24%	24%
Cost/expense control/reduction	17%	—
Return on investment/return on invested capital (ROI/ROIC)	8%	7%
Return on equity (ROE)	7%	9%
Operating measures (for example, operating margin)	7%	12%
Pretax income	5%	7%
Working capital	4%	—
Economic profit/economic value added (EP/EVA)	4%	3%
Gross margin	4%	—
Return on assets/return on net assets (ROA/RONA)	3%	4%
Total shareholder return	3%	—
Net operating profit after tax (NOPAT)	2%	

To more accurately assess an executive's performance, compensation plan designers should focus on organizational metrics that most closely resemble the company's operating fundamentals. Two such metrics

are operating cash flow and EBITDA. Some incentive plan designers use these metrics to trigger incentive compensation plan payments because these metrics are also among the metrics used by business valuation specialists to value companies. Operating cash flow and EBITDA are regarded as better measures of the operating performance of a business.

Operating cash flow, rather than net income, can generally give plan designers a clearer picture of the company's sustainability. Moreover, operating cash flow takes into account a company's working capital (receivables, payables, and inventory) while eliminating noncash charges associated with depreciation. EBITDA is similar to operating cash flow; however, it does not take into account working capital or the firm's capital structure. In some cases, from an operational point of view the capital structure may be an important consideration, especially when companies are strategically attempting to deleverage. The control of excessive interest expense can also be a primary operational concern.

It can be safely concluded that financial metrics are generally used in defining the parameters for short-term incentive compensation or variable pay. They are also used for long-term incentives for companies in all stages of growth. Others are also currently advocating the need to include nonfinancial measures as incentive plan payment-triggering metrics.

Of all the financial metrics mentioned so far, two specific metrics, Economic Value Added (EVA) and Discounted Free Cash Flow, are effective measures for evaluating the performance of managers and other key employees vis-à-vis shareholder interests. These measures clearly emphasize sustaining value creation. However, these measures are not as widely used as financial metrics.

Therefore, these measures need to be explored as valid incentive compensation metrics. So, the next sections discuss these two measures and comment on the validity of their use as incentive plan triggers.

These two metrics are effective as measures to assess long-term value creation for a business. So, using them to evaluate management and key employee performance (and therefore incentive compensation) is highly desirable. However, these metrics are seldom used. Instead, the use of short-term performance metrics is more common (for example, EBIT, NI, and EBIDTA). These measures currently being used are earnings-based measures. Arguably, managers and other key employees of corporations are hired to improve the sustainable value of a business and so they should be compensated on value creation and not just on short-term earnings measures. The true financial measure of sustaining value creation for a firm is the free cash flow generated. The sustaining value of this measure is the intrinsic value. Economic value added is also regarded as a valid value-creation measure. Incentive plans designed around these value measures can prove very effective for all concerned stakeholders.

Managers and shareholders alike need to know how alternative actions being contemplated are likely to affect stock prices. Intrinsic value as a measure clearly demonstrates the connections between managerial decisions and action and the firm's value. Therefore, using an intrinsic value measure to trigger managerial compensation makes a lot of sense.

The value measures also consider the cost of capital, as measured by the weighted average cost of capital. So, the cost of capital needs to be integrated into incentive plan design. Management will then be motivated to take all



necessary actions to ensure that the company's return of invested capital exceeds the cost of that capital.

Let's now look at designing plans around these value measures.

## **FREE CASH FLOW AS AN INCENTIVE PLAN METRIC**

The value of a company is a function of the future cash flows it generates. Therefore, *free cash flow* (FCF) is an integral part of the analysis of the value enhancement for a firm. This is normally defined as after-tax operating profit minus the amount of new investment in working capital and fixed assets necessary for sustaining and maintaining the growth of the business. Managers make the business sustainable by increasing free cash flow. Therefore, an appropriate measure of managerial and key employee performance and thus incentive payouts is the increase in FCF from period to period and over the long run.

Calculating the FCF requires certain sequential calculations.<sup>5</sup>

<sup>5</sup> Ehrhardt, M.C., and Brigham, E.F., *Financial Management: Theory and Practice*, 13e, 2011, South-Western Language Learning, pp. 59–70.

First, the net operating profit has to be determined by multiplying EBIT by one minus the company's tax rate. Second, operating current liabilities should be subtracted from operating current assets, which will result in *net operating working capital* (NOWC). Third, the NOWC needs to be added to operating long-term assets to arrive at total net operating capital. Then, the year-to-year change in total net operating capital is calculated by subtracting this measure from one year to the next. This results in net investment in operating capital. Finally, the total net operating capital for the current year is subtracted from the NOPAT to derive FCF for the year.

Sometimes, from operating cash flow (NOPAT + depreciation), the gross investment in operating capital (net investment in operating capital + depreciation and net investment) in working capital is subtracted to derive FCF.

To state the FCF measure in value-creation terms, we need to calculate the present value of the FCF over a fixed time period by applying a discounting factor using the *weighted average cost of capital* (WACC) for that company, as shown in Exhibit 4-6. The result of this formula is also referred to as the intrinsic value of a firm.

$$\text{Value of Firm} = \sum_{t=1}^{t=\infty} \frac{\text{FCF}_t}{(1 + \text{WACC})^t}$$

where,  
 $\text{FCF}_t$  = the firm's free cash flow in year  $t$

WACC = weighted average cost of capital

**Exhibit 4-6. Intrinsic Value Calculation**

The year-to-year change in this measure should be calculated and used in designing an incentive plan. Targets should be set for incentive payouts. Then, performance achieved against targets should establish the actual incentive payments.

## **ECONOMIC VALUE ADDED AS AN INCENTIVE PLAN METRIC**

Managers are the agents of the owners: the agency model. The owner's interest is to maximize the wealth that they have invested in the business. The board of directors, whom the owners elect to take care of their interests, hire professional managers to take care of the interests of all stakeholders.

The challenge for the board of directors is to align the managers' interests with those of the shareholders. Managers whose interests are not aligned with those of the shareholders will tend toward behavior that suits their interests, which might not necessarily be those of the shareholders. This is where the temptation to manage earnings arise. Management might channel investments that bring the most value to themselves personally through benefits such as perks and short-term profitability incentive payments. Management is tempted to do earnings management instead of making investments that create the most value for shareholders.

Therefore, it is in the interests of both the parties to align shareholder interests with those of managers. This can best be achieved by tying management compensation directly to a measure that indicates organizational value creation. EVA directly measures the value created by a company. It is a metric that considers both operating and capital costs.

EVA treats the opportunity cost of capital as a real cost that needs to be deducted from revenues to arrive at a more relevant "bottom line." A firm that is earning profits but is not covering its basic opportunity cost can use the capital in other areas. Therefore, many companies alter the management compensation paradigm and tie manager compensation to the EVA metric.

“Economic value added (EVA) is the spread between RoA and the cost of capital multiplied by the capital invested in the firm. It therefore measures the dollar value of the firm’s return in excess of its opportunity cost.”<sup>6</sup>

<sup>6</sup> Bodie, Z., Kane, A., and Marcus, A., *Essentials of Investments*, 8e, 2010, McGraw Hill Irwin, New York, p. 452.

Clearly the EVA metric is an important measure to assess the maximization of shareholder wealth. Therefore, management (who are appointed nominees of the board of the directors and custodians of the interests of shareholders) should also be evaluated on their performance and rewarded based on EVA. In addition, EVA as a measure is not as global as the price of a stock. EVA measures can be developed for managers down the corporate ladder. EVA measures can be developed for a division, a business unit, a factory, or a store (for a retailer). Before we look at the connection of EVA to incentive plans, let’s first review the calculations involved in developing the EVA measure.

The basic equation can be stated in various forms:

- $$\text{EVA} = \text{Net income} + \text{Interest charges} - \text{Capital charge}$$

where

$$\begin{aligned} \text{Capital charge} = & (\text{Notes payable} + \text{Current maturities of} \\ & \text{long-term debt} + \text{Long-term debt} + \text{Stockholders' equity}) \\ & \times \text{Cost of capital}^7 \end{aligned}$$

<sup>7</sup> Harrison, Walter T., and Horngren, Charles T., *Financial Accounting*, 7e, 2008, Pearson Prentice-Hall, Upper Saddle River, NJ, p. 707.

The cost of capital is the weighted average of the returns sought by stock investors and lenders.

- EVA can also be calculated by first calculating net operating profit after taxes, which is earnings before interest and taxes minus the effective tax rate. From this

number, the total net operating capital multiplied by the weighted average cost of capital is subtracted to derive EVA.

- To derive economic value added or EVA, you can simply take the after-tax operating profit and remove a charge for the cost of the capital employed to deliver that profit. Specifically

Net sales – Operating expenses = Operating profit (or EBIT)

EBIT – Taxes = Net operating profit after tax (or NOPAT)

NOPAT – Capital charge (Invested capital × WACC) = EVA

Where the weighted average cost of capital is a firm's cost of capital for each category of capital proportionately weighted. All capital, common stock, preferred stock, bonds, and any other long-term debt are included in a WACC calculation.

After calculating the EVA for incentive compensation purposes, a formula needs to be set up to capture the year-to-year or interperiod change in the EVA measure. Such a model is described in “Using EVA to Align Management Incentives with Shareholders’ Interests.”<sup>8</sup> The author, Heather Balsley, identifies the following EVA-based incentive formula:

<sup>8</sup> Balsley, H., “Using EVA to Align Management Incentives with Shareholder Interests,” December 2005, student paper, International Financial Management, Harvard Business School, pp. 1–2.

Current year incentive = Target bonus +  $y\%$  (Change in EVA less expected EVA improvement)

This is a unique incentive setup, in that the author is suggesting that the incentive participant should be paid his or her target incentive (a percentage of base salary) plus a percentage of the change in EVA that the participant helped generate, which is above the EVA improvement that was expected.

Setting up an incentive formula based on EVA improvement is quite appropriate. But another way to set up the scheme is as follows:

- 1.** Set a numeric EVA improvement target at the start of the fiscal plan year. For a multiyear target, set up a cumulative interperiod EVA improvement target.
- 2.** At year-end, calculate the plan to actual percentage. For a multiyear plan, calculate plan versus actual and do the calculations on the cumulative interperiod EVA improvement target.
- 3.** If 100% of planned improvement is actually achieved, 100% of target bonus can be paid out. Then a sliding scale should be developed for the achieved versus the planned improvement percentage. There should be a minimum threshold and a maximum ceiling.

Exhibit 4-7 shows a payout matrix.

**Exhibit 4-7. Payout Matrix**

Percentage of Actual versus plan EVA improvement	Actual incentive Payout % Applied to target Incentive payout %
80%	80%
100%	100%
150%	150%

Fundamentally, EVA is a robust incentive compensation measure because it takes into account all the variables managers are responsible for: sales, operating expenses, and capital changes that offset the value added.

## **RESIDUAL INCOME AS AN INCENTIVE COMPENSATION PLAN METRIC**

In both theory (the published literature) and actual current practice, *residual income* (RI) is sometimes used as an incentive compensation triggering metric. In general, RI is considered to be the net operating income that any economic unit earns above the minimum required return on the unit's operating assets. It is also defined as earnings before interest less a capital charge on total capital (debt and equity).<sup>9</sup>

<sup>9</sup> Commonly, RI is calculated by subtracting from net operating income average operating assets multiplied by the minimum required rate of return.

Note that the residual income measure is similar in line with EVA and that some consider EVA an adoption of RI. Minor technical differences exist between EVA and RI. In the most practical sense, EVA is based on making some adjustments to the RI calculation. These are minor differences; for example, EVA could make an adjustment for research and development and treat R&D as an asset as opposed to the normal practice of expensing period R&D outlays. Ultimately, RI is basically the projected net operating income minus the dollar cost of capital. And, in essence, EVA projects what the company's NOPAT will be after subtracting the cost of capital. So, RI and EVA are fairly similar measures of business value creation.

In a research study conducted by James S. Wallace and published in the *Journal of Accounting and Economics*,<sup>10</sup> the author empirically established that RI is an effective incentive compensation metric. The study used data from 40 firms and analyzed the effectiveness of the decision making of managers who are under an RI

incentive compensation system. The study considered (1) investing decisions (asset dispositions will increase and new investment will decrease), (2) financing decisions (share repurchases and dividend payouts will increase), and (3) operating decisions (total asset turnover will increase). The author concluded that those firms that used RI as an incentive compensation metric; “(i) increased their disposition of assets and decreased their new investment, (ii) increased their payouts to shareholders through share repurchases, and (iii) more intensively utilized their assets.”<sup>11</sup>

<sup>10</sup> Wallace, James S., “Adopting Residual Income-Based Compensation Plans: Do you get what you pay for?” Graduate School of Management, University of California, Irvine, October 1, 1996 pp. 275–300.

<sup>11</sup> Ibid pp. 275–300.

## **THE BALANCED SCORECARD AND INCENTIVE COMPENSATION**

Much has been written about the balanced scorecard form of evaluating corporate performance and tying the results to incentive compensation. This section reviews this concept.

A case can be made for tying incentive compensation, for all employees and (more important) executives, to balanced scorecard performance measures. However, all the evidence suggests that an organization should do this only after it has been using the balanced scorecard methodology for performance evaluation for some time. This period could be a year or more. The organization should feel confident that the balanced scorecard system is part of the corporate culture. And the organization as a whole should believe that the performance measures being used make sense. And, of course, these measures should be clearly understood by all those whose performance is being evaluated using the balanced scorecard measures (because evidence suggests



employees' often perceive that senior management might manipulate these measures). Furthermore, the data required to make the balanced scorecard methodology effective needs to be validated for relevancy of the performance measures and accuracy. In essence, compensation being a powerful psychological tool, an organization needs to be quite certain that it selects the right metrics for the balance score card and that the data being used to create a link is quite good.

As mentioned previously, many believe that a balanced scorecard methodology is an ideal tool for tying incentive compensation to organizational performance. This is because the balanced scorecard system facilitates clear communication of departmental, divisional, and corporate objectives and expectations, which flow directly from the organization-wide objectives and strategies. The balanced scorecard system's uniqueness lies in the fact that data from financial and nonfinancial drivers can be incorporated into the balanced scorecard system. So, the balanced scorecard superiority, it is believed, is the fact that *all* relevant organizational success measures (not just financial) can be used in an effort to improve overall performance, which ultimately will lead to improvement in financial performance.<sup>12</sup>

<sup>12</sup> Atkinson, A.A., Kaplan, R.S., Matsumura, E.M., and Young, S.M; *Management Accounting: Information for Decision-Making and Strategy Execution*, 6e, 2012, Pearson, Upper Saddle River, NJ.

Before we look at a specific example of tying in incentive compensation to the balanced scorecard system, let's briefly analyze the balanced scorecard system itself.

A balanced scorecard system is an integrated set of performance standards that directly flow from the organization's overall strategy. In this system, the company translates overall organizational strategy in terms that can be understood by all levels of employees. In a balanced scorecard system, performance measures

usually fall into four categories: financial, customer, processes, and learning and growth. Within each of these categories, the organization needs to define the strategic objectives, the metrics that will be used for performance evaluation, the targets for the chosen metrics, and both the strategic and operational actions required.

Fundamentally, the assumption is that financial measures are lagging measures. The leading measures are customer satisfaction and employee skills based on continual learning and growth. So, if an organization's employee base is skilled through learning and growth, they then will do what is necessary to satisfy customers. Satisfied customers will buy more from the organization, which will then lead to better financial performance (and hence the reason for the balanced scorecard). Internal processes are what the employees use to satisfy customers. The employees need to be trained to be skilled in the efficient use of internal processes. So, with continuous training, the employees will be motivated to improve the internal processes. Improved internal business processes used by trained and skilled employees is what increases customer satisfaction. The internal processes need to be improved before the final result is improved in financial performance. Continuous improvement is emphasized.

Financial measures are not sufficient in of themselves (but most incentive plans today are mainly centered on financial measures). They need to be integrated with nonfinancial measures in a well-integrated balanced scorecard system. Nonfinancial dimensions are often crucial to improving customer satisfaction. And improved customer satisfaction leads to improved financial performance.

Exhibit 4-8 lists performance metrics typically found in a balanced scorecard system.

**Exhibit 4-8. Balance Scorecard Performance Metrics**

<b>Customer Satisfaction Measures</b>
Customer satisfaction
Customer complaints
Returned products as a percentage of sales
Percentage of repeat customers from previous period
<b>Internal Business Process Measures</b>
Length of time taken to introduce new products
Time taken to answer customer calls (for example, answered within 30 seconds)
Response time for customer inquiries
Percent of on-time deliveries against all deliveries

Time to resolve customer raised problems, issues and complaints
Number of defect free units as a percent of all units
Delivery cycle times
Time to fill customer orders
Wait times for customer problem resolution
Throughput time
Manufacturing cycle efficiency
Percent of customer complaints settled the first time a contact is made
<b>Employee Learning and Growth</b>
Employee satisfaction measures
Voluntary employee turnover
Hours of training per employee
Suggestions per employee
Percentage of new hires based on employee referrals
Percentage of employees rating work environment as good to very good
<b>Financial</b>
Return on equity
Return on capital employed
Revenue growth
Discounted free cash flow generated

Companies should select performance measures carefully, selecting only those that fit the company's culture and unique characteristics. First and foremost, the measures selected should be clearly connected to the company's strategies and objectives. Second, the performance measures should be understandable to all constituents in a clear and concise manner. And finally, an organization should not use too many performance measures in its balanced scorecard.

From these, organization-wide measures, there should be a drill down of measures all the way to the individual

level. This drill down exercise is not a trivial task. It will take concerted effort to develop connected balanced scorecard measures all the way down to the individual level. And it will take some time to develop this system for the entire organization and then follow up with a disciplined performance evaluation system built around the balanced scorecard measures. The system needs to be ingrained into the corporate culture, and that takes time. This is why before an organization uses balanced scorecard measures in incentive compensation plans it should first institutionalize the practice of using balance scorecard measures all the way from strategic objectives down to the individual level. And this balanced scorecard operating system should be in use for a while before tying the system to incentive compensation programs.

Each individual should have his or her own personal scorecard. These measures should be those that the individuals themselves can influence and affect. And the individual measures should be connected to the organization's overall scorecard. The individual needs to perceive as clearly as possible the "the line of sight." This means that the individual has to perceive that his or her individual efforts can indeed influence the results on the scorecard. They need to know that when their efforts produce positive results on the scorecard measures their individual performance evaluations will reflect such on the scorecard measures. In essence, they expect to receive positive recognition from their superiors for their efforts and actions.

If a balanced scorecard is constructed correctly, the performance measures should be linked on a cause and effect basis. For example, a high-end custom home builder might have a marketing strategy that involves enhancing the customer experience. The company believes that this will result in more sales. This high end custom home builder wants to offer more customized

options to enhance the customer experience. In this case, the balanced scorecard process starts at the bottom. To execute the “more options” strategy, the internal processes involved in offering more options and in reducing the time to incorporate an option need to be improved. Along with improving the processes, employee skills in custom building need to be improved through additional training. So, when employee skill and competency enhancement has been addressed, the internal processes to build highly customized luxury homes and the time to build will also have been addressed. Then, customer satisfaction with custom building will improve. Customer satisfaction can be measured through customer satisfaction surveys. And now we can say that because of increasing customer satisfaction the number of expensive highly customized luxury homes sold will increase, and when the number of these custom homes sold increases, the financial numbers will show improvement. Such an integrated process is an example of how a balanced scorecard system works.

## **BALANCED SCORECARD AND COMPENSATION**

As mentioned previously, before an organization considers using the balance scorecard measurement system as the incentive compensation triggering mechanism, the balanced scorecard system has to have been firmly in place as the performance management process for the organization for some time. The target-setting mechanism has to be firmly in place, as well. If these conditions have been met, the incentive compensation plan built around a balanced scorecard can be designed as follows:

- A target incentive compensation payout percentage must be established using salary surveys for each position in the organization. If it is too cumbersome to develop a target for every position, a target can be

developed around job groupings, pay-grade levels, or salary bands.

- The target incentive percentage will be paid if the balanced scorecard measurement target is achieved.
- An incentive compensation payout range can be established (for example, 80% to 150%—80% being the minimum and 150% being the maximum payout levels). If the individual achieves a composite 80% of the balanced scorecard measures assigned, the individual receives 80% of the target incentive. And if he or she achieves 150% of the balanced scorecard measures, that individual receives 150% of the target incentive. Then, between 80% and 100% and between 100% and 150% proration can be done to derive the actual incentive payout. In other words, 80% is the minimum; no incentive will be paid out for performance below 80%. And 150% is the maximum; no incentive will be paid above 150% of the target incentive. The 150% is the ceiling. This ceiling is established to dissuade the establishment of easily accomplished performance measures.

Exhibit 4-9 shows the mechanics.

#### **Exhibit 4-9. Mechanics of a Balanced Scorecard System**

Performance measure 1	@ Achievement 100% = 20% of base compensation paid out as a bonus
	@ Achievement 80% = 16% of base compensation paid out as a bonus
	@ Achievement 150% = 30% of base compensation paid out as a bonus
	@ Below 80% achievement = No payout
	Above 150% achievement = the 30% maximum of base compensation paid out as a bonus
	An example: If achievement is 110%, payout will be $1.10 \times 20\% = 22\%$ of base compensation.

When designing these plans, and in the light of financial reasonableness and adequacy, organizations sometimes establish an overall financial budget amount for the incentive program. If all individual payouts added exceed the budgeted amount, then even after the initial individual bonus tabulations have been made a downward recalibration calculation of the individual bonus amounts is made to keep the program within budget.

Note that, as mentioned earlier, tying the balanced scorecard to the organization's incentive compensation system is an involved and time-consuming process. To start this journey without the combined corporate will and without the wholehearted support of senior management risks failure.

The incentive compensation portion of the total compensation system is growing in significance. As economic uncertainties have plagued organizations over the past few years, many organizations have established incentive compensation programs. Incentive program payouts happen only when success targets are met. In a



way, this puts employee pay at risk. Such a pay philosophy is finding acceptance because incentive compensation is directly connected to the organization's ability to pay. All employee groups, in both service and manufacturing organizations, are adopting these plans.

Incentive compensation is an important element of the total compensation structure. Therefore, it is important that incentive compensation is paid to managers in keeping with the interests of shareholders. Shareholders are keen on companies that increase their financial values period after period over a long term. Shrewd investors look for companies that have sustained value creation. Investors try to avoid companies that are fraught with volatility. Therefore, it is equally important to base executive and manager incentive compensation payouts on value-creation measures such as EVA, intrinsic value, RI. In addition, consideration needs to be given to a balanced scorecard system of organization performance evaluation. In summary, incentive compensation programs make a lot of sense from the finance and accounting point of view.

## **KEY CONCEPTS IN THIS CHAPTER**

- Economic value added
- Residual income
- Free cash flow
- Incentive compensation metrics
- Balanced scorecard and incentive compensation
- Prevalence of incentive compensation programs
- Financial measures used in incentive compensation
- Incentive compensation accounting

- Intrinsic value determination
- Balanced scorecard performance metrics
- Tying the performance measures to incentive compensation payouts
- Types of incentive plans
- Incentive plan circular effect
- Sustaining financial value metrics

## 5. Share-Based Compensation Plans

### **Aims and objectives of this chapter**

- Explain all accounting and finance issues in share-based compensation
- Explain stock award plans
- Discuss the evolution of SFAS 123(R)
- Explain the accounting for restricted stock awards
- Discuss stock option expensing
- Discuss the debate on stock option expensing
- Explain the accounting for stock options
- Discuss stock plans with contingencies
- Explain tax implications of stock plans
- Discuss the APIC pool and deferred tax assets as they relate to stock option plans
- Explain the international tax implications of share-based employee compensation plans
- Discuss the differences between IFRS and GAAP in employee stock option accounting
- Discuss stock purchase plans
- Discuss stock appreciation rights
- Demonstrate the accounting for stock appreciation rights

A current common compensation practice is to include a share-based equity compensation plan as part of the total compensation package. The practice has been prevalent as part of an executive or senior management compensation programs, but now many companies around the world are including a share-based component in their total compensation package.

High-tech companies use these plans for all categories of employees. And if not for all employees, these companies use share-based plans to attract and retain key technical employees. Technical employees are the source of intellectual capital that high-tech companies need to succeed. Share-based plans are also almost always used to compensate outside board of directors.

Companies use share-based plans as a major component of the total compensation package because these plans motivate plan participants to act in the best interest of all shareholders.

The fact that the use of share-based plans is increasing is evidenced by the growth of professional organizations such as Global Equity Organization<sup>1</sup> and National Center for Employee Ownership.<sup>2</sup>

<sup>1</sup> [www.globalequity.org](http://www.globalequity.org).

<sup>2</sup> [www.nceo.org](http://www.nceo.org).

Share-based compensation plans have many dimensions covering eligibility, amounts of the grant, competitive practices, ownership culture, legal, tax, accounting, dilution (overhang), under-water options, and repricing of options. This chapter analyzes the accounting and finance issues that affect share-based compensation plans.

Share-based plans can consist of outright grants of shares, stock options, stock purchase plans, stock

appreciation rights, or even cash payments tied to the market price of shares (phantom stock plans). Although the structure of these plans varies, the goal is the same: to compensate employees based on performance incentives. The accounting goals are also common across all plans: to establish a fair value of the compensation and to spread the calculated compensation value over the term of the receiving employee's service period.

Stock option expenses can be quite significant. After all, CEOs often hold stock options or stock grants with a value that is between 30 to 50 times their cash compensation. In addition, it has become common practice to distribute stock options and stock grants to a large percentage of the employee population, thus increasing stock option expenses.

## **STOCK AWARD PLANS**

Ever since the *Federal Accounting Standards Board* (FASB) issued its FAS 123 regulation, which now requires expensing of stock plans, companies have been adopting stock award plans. Award plans are grants of shares of stock subject to certain conditions. The conditions are normally called restrictions, and that is why these award programs are called restricted stock awards.

The restrictions are usually tied to continued employment for some pre-determined period. An employment restriction may state that if the employee terminates voluntarily or is terminated by the firm before the predetermined period ends, the shares awarded can be forfeited. The employee cannot sell the shares during the restriction period. The restrictions are designed to motivate the employee to stay with the company for a certain period of time or even motivate the employee to achieve certain preset performance goals.

On the grant date, the shares are transferred to employees subject to an agreement that the employee cannot sell, transfer, or pledge the shares until vesting occurs, which means until the employee earns these shares by way of removing the restrictions imposed. The shares can be forfeited if the restrictions are not satisfied. The company might retain the physical possession of the shares during the restriction period. The employee can be given all the rights of a shareholder subject to the restrictions and forfeiture requirements.

Advantages of restricted stock plans include the following:

- Restricted stock does not become worthless. No matter what happens to the market price of the underlining shares, the restricted stock retains some value.
- With restricted stock, dilution of current shareholder, interests is less of an issue as compared to stock options. In restricted stock plans, the number of shares granted is not as large as that granted in stock option plans. The reason for the lower number is that at the end of the vesting period the shares granted will have some value whereas under stock option plans the shares awarded might not have any value. In other words, the stock option values might be “under water” if the market price of a stock goes below the exercise price.
- Restricted stock plans align employee incentives better with the company’s objectives. Often, the holder of restricted stock is also a shareholder, resulting in a better alignment with the long-term objectives of the company.

The compensation expense amount connected with a restricted stock is the market price of regular stock being traded on the date the restricted stock was granted. This amount is accrued as a compensation expense over the service period for which participants receive the shares,

usually from the time the restricted stock is granted until the time the restrictions lapse or the restrictions are lifted. Once the restrictions are lifted, paid-in capital in restricted stock is replaced by common stock and paid-in capital in excess of par. The compensation expense is calculated on the date the grant is made, and the value is based on the market price of the stock on that date. Market-price changes that happen after the grant date do not affect the restricted stock valuation.

For restricted stock plans, most companies base vesting on continued employment for a period of three to five years. Some companies might base vesting on some performance criteria, such as revenue, net income, or operating cash flows. Or the criteria can be a combination of various financial metrics. If the stock is a dividend-yielding stock, the participant collects the dividends, but those dividends can be forfeited if the participant terminates employment before the stipulated vesting date.<sup>3</sup>

<sup>3</sup> Kieso, D.E., Weygandt, J.J., Warfield, T.D., *Intermediate Accounting*, 13e., Wiley, 2010.

### **Accounting for Restricted Stock Awards**

Let's assume that on January 1, 2013, Zentec Corporation granted a restricted stock award of 80,000 shares with a term of four years, expiring on December 31, 2016, to four of its executives at 20,000 shares each. Shares have a current market price of \$20 per share. The service period is four years. Vesting for the four executives occurs if they stay with the company for the entire four-year term. The par value of the shares granted is \$5 per share for the restricted stock grant.

Zentec makes the journal entry shown in Exhibit 5-1 on the date of the grant.

#### **Exhibit 5-1. Journal Entry 1**

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Deferred compensation or unearned compensation (80,000 shares at \$20)	1,600,000
Common stock (80,000 at \$5)	400,000
Paid-in Capital—excess of par	1,200,000

The credit entry of common stock and paid-in capital in excess of par indicates that stock has been issued. The debit entry of unearned compensation or deferred compensation is entered as a contra-equity account in the equity section of the balance sheet. This amount indicates that the company will recognize a compensation expense for each of the four years. Unearned compensation is a cost of service that has not been performed as yet. Therefore, it is not an asset.

At the end of each year 2013, 2014, 2015, 2016 (on December 31 of each year), Zentec will enter a compensation expense for that year. For example, for 2013 the entry is as shown in Exhibit 5-2.

#### **Exhibit 5-2. Journal Entry 2**

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Compensation expense	400,000
Deferred compensation	400,000

Note: \$100,000 for each executive; \$400,000 for 4 executives

If any of the four executives leave before the four-year period ends, he or she will forfeit rights to the shares and Zentec will reverse the accounting entries already recorded. For example, suppose that one executive leaves on April 3, 2015. No expense has been recognized for 2015 as yet. The reversing entry is as shown in Exhibit 5-3.

#### **Exhibit 5-3. Journal Entry 2**



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Common stock ( $20,000 \times \$5$ )	100,000
Paid-in capital in excess of par [ $(\$20 - \$5) \times 20,000$ ]	300,000
Compensation expense	200,000
Deferred compensation	200,000

Note: \$400,000 applies to one executive for the entire grant

Zentec reverses the compensation expense of \$200,000 recorded through 2013. Also, it debits common stock and paid-in capital in excess of par, in recognition of the forfeiture. Zentec also credits unearned compensation for the next 2 years, because of the termination of the one executive.

In the restricted stock plan, vesting did not occur at all for the executives so nothing was earned out. Therefore, reversal entries need to be made. One executive left before the continued employment requirement was met. Therefore, that executive's stock grant was forfeited.

Restricted stock plans have many advantages, not the least of which is the relative simplicity of the accounting just demonstrated. So because of the accounting, simplicity, and lower-per-unit grants, restricted stock has fast become a very attractive equity compensation element.

## STOCK OPTION PLANS

In stock award programs, grants of stock are made, whereas in stock option programs, an option to purchase a stock is granted to participating employees. Over the past 40 years, stock option programs have become an integral part of the total compensation package for senior managers, executives, and key employees.<sup>4</sup> Although used first in the United States, companies across the globe stock now use option plans.

<sup>4</sup> A survey published in AICPA's Accounting Trends and Techniques, 2007, reported that of 600 companies, 590 companies stated that they had stock option plans.

The accounting objective for stock option plans is to recognize an expense for these plans over the employment period of the employee who was awarded options under a stock option plan.

Options have been a controversial feature of the total compensation strategy. This is because stock options have made many CEOs exceptionally wealthy. Stock options have been legendary in the high-technology industry. There have also been various cases of malpractice with option-price backdating and grant amounts that defied logic. These factors have led to a great deal of scrutiny from various governmental agencies and resulted in these plans being immersed in tax and legal issues. (Note that this chapter focuses solely on the accounting issues related to stock option plans.)

Fundamentally, stock options give employees the option to purchase stock at (1) a specified exercise price (normally the market price on the date of the grant), (2) a predetermined period of time for vesting the option granted and for exercising the option, and (3) with a specified time for the contract period (option term).

## **The Stock Option Expensing Debate**

The debate has been about what monetary value should be assigned to these options for expensing purposes. So, the controversy has been around how to measure the value of these options. Note that this form of compensation is noncash compensation.

In the past, options were valued (and not reported on the income statement, but rather were explained in footnotes to the financial statements) at their intrinsic value. That means, let's say, an option was granted at an exercise price of \$10, but the market price on the date of the grant was \$15. So, the option had an intrinsic value of \$5. But, usually, options were granted at an exercise price that was the same as the market price on the date of the grant. Therefore, the option actually had a zero intrinsic value and as such there was no expense to be recognized. Before the stock option expensing regulation (FAS 123(R)) was promulgated, zero intrinsic valuation was assumed for expensing purposes even though the real value of these options could have been in the millions of dollars. This led a lot of people to start questioning the logic of recognizing zero expense when stock options were an integral part of an executives' compensation and indeed had value. In the absence of expense recognition, executives were raking in large sums of money when they exercised and sold their options. Although there is no cash impact for the company when it comes to the valuation of stock option plans, there is an implied expense involved. Because of the noncash nature of this implied expense, stock option expensing has been a matter of much debate.

Prior to 1993, stock options were being valued under the intrinsic value method under APB opinion 25. The FASB had been wavering all over on what standards for option expensing would be appropriate (the "right" way to determine the fair value of stock options). In 1993, the

FASB issued a standard that would have required a fair value measurement process, but these standards were met with a lot of criticism from the public. FASB then agreed under pressure to encourage rather than require the use of fair value valuation.

Public pressure encouraged FASB to consider fair value valuation methods in the first place. The *Securities and Exchange Commission* (SEC) and the U.S. Congress urged the FASB to consider issuing standards that would use a fair value valuation method. These bodies became concerned at the lack of clear accounting for these high-payout compensation arrangements. In 1992, a bill was introduced in Congress that sought to require companies to report a compensation expense for stock options based on the fair value of the stock options. Responding to the public outcry, the FASB issued the new 1993 Exposure Draft. But because there were huge counterarguments put forth by the parties who did not want any expensing of options, the two schools of thought clearly diverged, leaving FASB with an unenviable dilemma. Supporters of the FASB Exposure Draft held to their views that these programs do have a value that needs to be recognized as a compensation expense. Supporters for fair value expensing came mostly from the academic community. The faction opposing expensing included executives (mainly from the high-tech industry), auditors, and members of Congress and of the SEC. Congress and the SEC were, in the beginning, in support of the Exposure Draft but changed their minds with the political winds and in the end opposed it.

After 2002 came a period of voluntary expensing. Many companies, on their own initiative, started using the fair value valuation methodology in their accounting for these stock options. However, public pressure continued against the excesses of executive compensation. A

renewed interest surfaced for fair value expensing versus intrinsic value expensing.

The ongoing pressure on FASB to use fair value measurements grew again. Warren Buffet issued statements in favor of fair value expensing. More and more companies started using fair value expensing. (Note that the International Accounting Standards Board used fair value expensing.) However, vigorous opposition continued from the high-tech industry. High-tech companies were really concerned about the sudden erosion of their profitability position if fair value expensing were to be implemented. The inevitable happened when the FASB issued FAS 123 (finally revised in 2004). FAS 123 requires fair value valuation and associated expensing and completely does away with the intrinsic value methodology.

Note here that the valuation of stock options has nothing to do with cash flows. The only issue is expense recognition.

Finally, with the issuance of fair value expensing standards there has been a decrease in the incidence of stock option plans (because they were indeed expensive when fair value measurements were applied and these expenses are used to offset revenue).

In many cases, stock option plans have been replaced by restricted stock plans and cash-based plans.

## **STOCK OPTION EXPENSING**

Now we will analyze how stock options are expensed and accounted for based on the FAS 123 standard.

The accounting for stock options is similar to that of restricted stock. Compensation is measured at fair value and then expensed over the employment period of the

employee. But the valuation of stock options requires the use of a mathematical equation.<sup>5</sup> This mathematical equation takes into consideration the following:

<sup>5</sup> The mathematical equation can take two forms: the Black-Scholes model and a Lattice model.

- The exercise price of the option. The exercise price is the price at which the employee can buy the option shares from the employer. Normally, the exercise price is the market price on the date the grant is made.
- Expected term of the option-exercise period.
- Current market price of the stock.
- Expected dividends.
- Expected risk-free rate of return during the term of the option.
- Expected volatility of the stock.

The mathematical model normally used for the determination of the fair value for stock options is the Black-Scholes option-pricing model. (Note that an alternative model—a lattice model, which is based on the on a binomial probability distribution—can also be used).

SFAS 123(R) called for the use of equations that would allow flexibility in modeling the ways in which employees might exercise options and also the employee-termination trends after the options vest.<sup>6</sup> Option pricing theory is often discussed in most accounting texts. This chapter's appendix provides you the theoretical framework.

<sup>6</sup> "Share-Based Payment," Statement of Financial Accounting Standards No. 123 (revised 2004), (Norwalk, CT: FASB 2004), par. A27–A29.

Compensation expense calculated using the option pricing equation is expensed over the duration of employment for the employee. Also, employees receiving options are not allowed to exercise their options before the expiry of specific periods of time. These time periods are called exercise periods. And even after the expiration of the exercise time period the options can still be exercised before the expiration of the contract period. Compensation expense is spread out over a vesting period—the time period over which the options are earned out. So, from the date on which the options were granted until the first date on which the plan allows an employee to earn the option is called the vesting period. Exhibit 5-4 further explains these time periods.

#### Exhibit 5-4. Stock Option Grant Timeline\*

<i>Five-year option</i>					
<i>Three-year vesting</i>					
<i>Ten-year contract term</i>					
1/3rd of grant 1st vesting date	2/3rd of grant 2nd vesting date	3/3rd of grant 3rd vesting date			
↓	↓	↓	↓	↓	(can continue exercising unexercised option]
Grant date	t <sub>1</sub>	t <sub>2</sub>	t <sub>3</sub>	t <sub>4</sub>	t <sub>5</sub>
					t <sub>10</sub>
Exercise date 1/5 of option grant	Exercise date 2/5 of option grant	Exercise date 3/5 of option grant	Exercise date 4/5 of option grant	Exercise date 5/5 of option grant	

\* Note that in this example we have purposely separated vesting and exercising sequence. In reality, these two sequences would in most cases be the same.

This timeline example is for an option granted as a five-year grant. One-fifth of the number of options granted would be eligible for exercise on the annual anniversary date of the grant. Other plan provisions would indicate that if the employee did not exercise the options granted by the end of the fifth year, the employee would get another five more years to exercise, because these options, according to the plan, have a ten-year contractual duration. At the end of ten years, the option expires and the shares are forfeited.

You need to understand the following key terms related to the accounting of stock options and FAS 123(R):

- **Grant date:** The date from which the employee starts benefiting from or being adversely affected by changes in the price of the stock.
- **Measurement date:** The date at which the fair value determination is made. If it is an equity award, the measurement date is equal to the grant date. If it is a contingent award, like a restricted stock award, the measurement date is equal to the settlement date.
- **Service inception date:** The date on which the service period begins.
- **Tranche:** The lowest common denominator of an award. Tranches separate a grant into the components in which shares or units are actually earned.

In addition, there are two basic ways by which expense amortization occurs when it comes to stock options:

- **Graded amortization:** The grants are broken down into tranches such that a single tranche is viewed as an



independent grant. Expenses within the tranche are straight-lined.

- **Straight-line:** Expenses are evenly distributed across a grant based on the total vesting period and total number of shares expected to vest.

## THE ACCOUNTING FOR STOCK OPTIONS

To demonstrate the process for accounting for stock options, we look at two case examples. First, we continue with the Zentec Corporation example for all Zentec's executives. The second example introduces a different company: UMB Corporation. This case demonstrates expensing for an option where the exercise price differs from the market price on the date of the account.

### Example 1

On January 1, 2013, Zentec Corporation granted options to their executives totaling 1,000,000 of the company's \$5 par value shares with a four-year vesting and exercise period. The first vesting date is January 1, 2014. The exercise price is the market price on the date of the grant, which in the continuing example is \$20. The fair value of the option was calculated to be \$25 (using a mathematical model).

Journal entries were as follows:

January 1, 2013 no entry

Total compensation expense:

\$25 estimated fair value per option as estimated using the Black-Scholes model  $\times$  1,000,000 options granted = \$25,000,000 total compensation. This is a four-year grant, so expense per year is  $\$25,000,000 / 4 = \$6,250,000$  per year recorded on December 31, 2013, 2014, 2015, and 2016.

In each year, the expense that will flow to the income statement is:

Compensation expense	6,250,000
Paid-in capital stock	6,250,000

The next few paragraphs cover situations that affect the accounting for stock options and therefore the compensation expense.

#### **Forfeitures**

Options are quite often forfeited before they vest. This is because of employee terminations and other reasons resulting in contract term violations. The fair value estimate needs to be adjusted for these incidents. If a forfeiture rate of 2% is expected because of historical trends, \$25,000,000 would be adjusted to 98% or \$24,500,000. The annual compensation would now change from \$6,250,000 to \$6,125,000. This forfeiture adjustment to the fair value-based compensation expense must be made on the original date of the calculation. If the forfeiture estimate needs to be changed during the four-year option term of the option, adjustments need to be made at that later date.

In the original example, on January 1, 2015, the forfeiture rate estimate, based on new evidence, is changed to 95% from 98%, and then the compensation expense for the four-year period needs to be \$23,750,000 (or \$5,937,500 per year). For 2013 and 2014, however, the compensation expense has been booked at \$6,125,000 (or \$12,250,000 for two years). However, it should have been booked at \$5,937,500 per year and for two years \$11,875,000. So, now only an additional \$11,500,000 needs to be booked for the two remaining years, or \$5,750,000 per year.

Calculation:

Booked for the first two years = 12,750,000

The four-year amount needs to be adjusted to =  
23,750,000

So, for the next two years, the amount that needs to be booked =  $\$23,750,000 - \$12,750,000 = \$11,000,000$  (or \$5,500,000 for each of the next two years). Of course, if estimates are changed mid-year, to be technically correct the proration of expenses should be done by the number of months in the year that the change affects.

#### **Options Exercised**

Let's assume that three quarters of these options (750,000 options) that were granted in the example were exercised by 2017 when the stock price reached \$100 a share. (Wouldn't the employees love this scenario?) But the market price given here is not relevant when it comes to the stock option valuation. Fluctuations in the market price of the stock do not affect stock option valuations.

Exhibit 5-5 shows the required journal entries.

### **Exhibit 5-5. Journal Entry 3**

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Cash (\$750,000 × \$20 exercise price)	15,000,000
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Cash = 750,000 shares, 3/4 of 1,000,000 × \$20 per share exercise price or 750,000 × \$20 = \$15,000,000

Paid-in capital – Stock Options	18,750,000
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Paid-in capital – Stock options –

3/4th of \$25,000,000 (\$25 fair value × 1,000,000 Shares) = \$18,750,000

Common Stock at par (750,000 × \$5 par value)	3,750,000
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Common Stock = 750,000 at \$5 per share par value = \$3,750,000

Paid-in capital in excess of par	30,000,000
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(plugged-in number)

Paid-in capital in excess of par = 15,000,000 + 18,750,000 =

\$33,750,000 – \$3,750,000 = \$30,000,000.

We plug in this number.

#### Options Expire

Sometimes employees let the options expire without exercising them. In this example, if we assume that one quarter of the options that remained were allowed to expire, the required journal entries would be as shown here.

Paid-in capital – Stock options	6, 250,000
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Paid-in capital – Options expired	6,250,000
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In this example, we have ignored the forfeitures.

## Example 2

To further demonstrate the accounting entries, here is another example. To reinforce the accounting aspects of stock option expensing, we again look at the accounting entries needed for the two most common occurrences after grant: option exercise and option expiration.

The top ten managers of UMB Corporation were granted 20,000 stock options each of the company's \$5 par value common stock by the board of directors. The board granted these options effective January 1, 2013. These are options that vest over a five-year period, and the contractual term of the plan is seven years. So, the managers have seven years to exercise these options. The stipulated option exercise price is \$30 per share, and the current market price for the shares is \$40 per share. Therefore, these options are being granted at a discount from the market price (*discounted stock options*).

These options as of the date of the grant are in the money. In other words, the options have value on the grant date. These options cannot be distributed under a qualified *incentive stock option plan* (ISO), which has tax advantages compared to standard nonqualified stock option grants. As of January 1, 2013, they are in the money, but upon vesting they might not be in the money. It depends on the market price on the vesting dates. Also, whether the executive holds on to the stock or sells them will dictate the value that the executive will derive.

In this example, let's also assume that the option-pricing model (Black-Scholes) UMB Corporation utilizes values these options at a fair value of \$35 per share, or a total compensation expense of \$7,000,000 (10 managers  $\times$  20,000 shares each  $\times$  \$35 a share) or \$1,400,000 per year ( $\$7,000,000 \div$  Five-year vesting period). Note that the market price of the shares on the date of grant does not affect option expensing.

At the date of the grant, January 1, 2013, no accounting entries are made. We assume also that the service period for these managers is the same as the five-year vesting period.

Entries on December 31, 2013:

Compensation expense	1,400,000
Paid-in capital – Stock options (\$7,000,000/5)	1,400,000

UMB Corporation is allocating these expenses evenly over the five years. So at the end of each year (2013 [shown above], 2014, 2015, 2016, 2017), \$1,400,000 compensation expense will be recorded. After five years, \$7,000,000 will have been expensed.

#### Options Exercised

If on July 1, 2018, UMB Corporation's managers exercise 100,000 shares of the 200,000 (10 managers × 20,000 shares each) granted (50% of the options; five and a half years after the grant date), the journal entries would be as follows:

July 1, 2018

Cash (100,000 × \$30 a share exercise price)	3,000,000
Paid-in capital – Stock options (50% × \$7,000,000)	3,500,000
Common stock (100,000 × \$5 a share)	500,000
Paid-in capital in excess of par	6,000,000

#### Options Expire

If UMB Corporation's managers do not exercise the remaining 50% of the original 200,000 shares granted and the seven-year contract term expires, the accounting entries are as follows:

January 1, 2019

Paid-in capital – Stock options	3,500,000
Paid-in capital – Expired stock options	3,500,000

Note that forfeiture rules should be applied if necessary, as demonstrated in Example 1. Forfeiture rules are applied if there were service requirements that were not fulfilled by the executive or a performance targets were not achieved.

### **Stock Plan with Contingencies**

Some stock plans have a contingency based on a performance condition or a market condition. These conditions need to be satisfied per the plan provisions before a participating employee can benefit from the stock awarded. These conditions or contingencies can be a stipulated performance measure on any financial metric, such as, target revenue, earnings per share, sales growth, net income, operating cash, and so on. Or a condition can be established based on stock performance. The stipulation could be set indicating that the stock option or award will not be earned by the participant unless the growth in the company's market stock price exceeds a hurdle based on a stock market index. (For example, the company's stock price has to exceed the growth in the Dow Jones Industrial Index by over 25%.)

There are two triggers for expensing of options or awards for the company when there are contingencies set: the probability of removing the condition or the contingency, and whether the condition or contingency was indeed removed.

The compensation expense estimates take into consideration the likelihood of forfeiture, in case the contingencies and conditions are not met, and also the likelihood of exceeding the performance targets.

Let's assume in the Zentec Corporation example that a performance target was established by stating the stock options or awards will be earned only if revenues grow

above a 25% year-to-year growth rate. If it is determined probable that the 25% revenue growth target will be achieved, compensation expense recognition will occur, and it will be the same as in the previous example (1,000,000 shares  $\times$  the fair value estimate of \$25 per share, resulting in a compensation expense of \$25,000,000 over the four-year term). If after two years it is determined that that 25% revenue target will not be achieved, the compensation expense estimate must be changed to zero. An accounting reversal needs to be made. The \$12,500,000 amount already expensed will have to be reversed.

If the probability at the beginning of the option award four-year term is that the performance target is not going to be met, no expense needs to be recognized at the beginning of the term. Suppose, however, that in two years the probability is changed and it is determined that the performance target will be met. In that case, at that time compensation expense recognition needs to occur. However, we now know that the compensation expense estimate for the four-year period needed to be \$25,000,000. So, at the end of the second year, the journal entries need to be as shown here:

For 2012 and 2013

Compensation expense (\$25,000,000 $\times$ .5)	12,500,000
Paid-in capital – Stock options	12,500,000

For 2014 and 2015 each year

Compensation expense	6,250,000
Paid-in capital – Stock options	6,250,000



## TAX IMPLICATIONS OF STOCK PLANS

In the United States, the tax implications of stock option expensing are governed by two regulations: FAS 123(R) and SFAS 109. These are the accounting standards dealing with treatment of stock compensation for the purposes of calculating tax expense or the income tax provision.

For tax purposes, plans can qualify as an *incentive stock option* (ISO), under the tax code, or the plan could be designated as a nonqualified plan. Qualified plans are called incentive stock options, and nonqualified plans are designated as nonqualified stock option plans.

For a stock option plan to be designated as a qualified plan under the tax code, the exercise price of the option needs to be the same as the market price on the date of the grant. For such plans, no taxes need to be paid until the shares are sold, and the company granting those options does not get a tax deduction for those expenses.

For nonqualified stock option plans, taxes need to be paid at the time of exercise. At the same time, the company gets a tax deduction. The deduction is calculated based on the difference between the exercise price and the market price on the date of exercise. This creates a temporary difference between accounting income and taxable income. For accounting income, the expense is deducted in the current period, but the tax deduction is taken when the options are exercised. This creates a *deferred tax asset* (DTA). A DTA is an expectation that at a later date a tax deduction can be taken for the share-based award that was granted. The DTA is therefore an estimated tax benefit. This applies to stock option grants and also grants under restricted stock awards. For incentive stock option grants and a 423 Plan (a stock purchase plan), there is no “temporary

difference” recognized, and no DTA needs to be recorded.

Before we analyze the tax issues in detail using our continuing example of Zentec Corporation, let’s look at a simpler example that should explain the concepts being discussed. A nonqualified stock option grant of 1,000 shares is made at a fair value of \$10 per share. The corporate tax rate is 40%, which results in a DTA of \$4,000. Both the compensation expense (\$10,000) and the DTA (\$4,000) are recognized over the service period. This effectively reduces the cost of the option granted to \$6,000.

Another important point to note here is that under FAS 123(R) there is a concept called the *additional paid-in capital pool* (the APIC pool). This account differs from the generic APIC account that is used for other specific purposes. Under FAS 123(R), when a tax deduction exceeds the compensation expense, the excess increases a temporary APIC pool. And, when the tax deduction is less than the compensation expense, the existing APIC pool is used to offset the difference. If the amount needed exceeds the remaining APIC pool, it becomes an additional tax expense.

Now let’s look at the tax effects from our continuing Zentec Corporation example.

Assuming a 30% income tax rate, the following journal entries need to be made:

For the Zentec Corporation example for 2013, 2014, 2015, 2016 – calculation for each year:

Compensation expense	6,250,000	
Paid-in capital – Stock options		6,250,000
Deferred tax asset (30% of \$6,250,000)	1,875,000	
Income tax expense		1,875,000
After tax impact on earnings $6,250,000 - 1,875,000 = 4,375,000$		
for each year.		

Assume for the Zentec Corporation example that three quarters of the options granted ( $1,000,000 \times .75 = 750,000$ ) at the beginning of 2013 were exercised on December 31, 2018. Assume also that the market price of the stock is \$50 a share on December 31, 2018. Note the exercise price for the Zentec Corporation example is \$20 a share. In this case, the tax benefit will exceed the DTA.

Income tax payable	6,750,000	
[( $\$50 - \$20$ ) $\times$ 750,000 $\times$ .30]		
Deferred tax asset (4 years $\times$ \$1,875,000 $\times$ .75)		5,625,000
Paid-in capital – Tax effect of stock options <sup>7</sup>		1,125,000

Note that this was a four-year grant.<sup>7</sup>

<sup>7</sup> SFAS 109 (par. 36 c).

Now assume that the market price of the stock is \$25 a share on December 31, 2019. Note the exercise price for the Zentec Corporation example is \$20 a share. In this case, the tax benefit will be less than the DTA.

Income tax payable [( $\$25 - 20$ ) $\times$ 750,000 $\times$ 30%]	1,125,000	
Income tax expense or paid-in capital – Tax effect of stock options	4,500,000	
DTA (Four years $\times$ 1,875,000 $\times$ .75)		5,625,000

If the actual tax benefit is greater than the estimated tax benefit, this leads to an *excess*. More benefit comes to the company and this amount is posted to APIC.

If the actual tax benefit is less than the estimated tax benefit, a *shortfall* occurs, which provides fewer benefits to the company than originally projected. So, the company must either increase tax expense (income statement) or decrease APIC (balance sheet) to account for the shortfall. Most companies will want to decrease APIC. However, the company is permitted to decrease the APIC pool only to the extent that it exists. This creates a possible tax expense, which creates an offset against the existing APIC pool.

Here are two further examples that illustrate the concepts being discussed:

**Example 1: Estimated DTA is greater than the actual tax benefit**

NQ granted for 5,000 shares, price = \$5

SFAS(R) expense = \$4 per share  $\times$  5,000 shares = \$20,000

DTA = 40%  $\times$  \$20,000 = \$8,000

Shares exercised when market value = \$10

Tax deduction = 5,000 shares  $\times$  \$5 gain per share = \$25,000

Actual tax benefit = \$25,000  $\times$  40% = \$10,000

Estimated tax benefit = \$8,000

Excess = \$2,000 (APIC)

**Example 2: Expected DTA is less than the actual tax benefit**

NQ granted for 5,000 shares, price = \$3.00

Expense = \$4.00 per share × 5000 shares = \$20,000

DTA = 40% × \$20,000 = \$8,000

Shares exercised when market value = \$5

Tax deduction = 5,000 shares × \$2 gain per share =  
\$10,000

Actual tax benefit = \$10,000 × 40% = \$4,000

Estimated tax benefit = \$8,000

Shortfall = \$4,000

In summary, when one is reconciling the estimated to actual tax benefit, two conditions can exist. The first exists when the estimated amount is equal to the DTA. Here we book the DTA as an expense. So, the booked amount will be the FAS 123(R) expense times the corporate tax rate. The other condition is when there is an excess or shortfall. The recognition for this condition is made at the taxable event. The actual tax benefit is calculated using the applicable corporate tax rate. The excess or shortfall is reconciled with the APIC pool. Excesses increase the APIC pool and shortfalls are offset against the existing APIC pool. If the amount needed exceeds remaining APIC pool, an additional expense is recorded.

## **INTERNATIONAL TAX IMPLICATIONS OF SHARE-BASED EMPLOYEE COMPENSATION PLANS**

With the growth in the globalization of business, there has been an increase in the prevalence of global employee compensation programs. Compensation programs now have to be designed for employees on worldwide basis. Therefore, we are also witnessing a growing trend in cross-border employee stock option plans. These plans must then comply with the tax laws and regulations in a wide variety of tax jurisdictions.

### **Stock Options**

The basic tax principle affecting stock option plans is the same principle that exists for any other compensation program: The employee should be taxed when the compensation is received. In the case of options, this event occurs when the option is granted.

However, international tax policy, rules, and practice are not uniform when it comes to the policy of taxed when granted. Tax liability may arise at varying points of time, depending on the specific tax jurisdiction. The variation in practice may be guided by a particular government's desire to tax compensation at the earliest point in time.

The taxing jurisdiction becomes a major determining factor for tax liabilities in the international arena. And the tax jurisdiction mainly depends on the country of employment. Cash compensation is normally taxed by the country in which the employee is employed.

However, tax treaties often dictate that capital gain income should be taxed in the country in which the employee resides. So, conflicting practice can hinder effective decision making. An employee may be granted an equity award in one country, vest that award in another country, exercise that award in yet another country, and finally sell that award in a fourth country.

Employer withholdings and even individual tax implications can differ in each jurisdiction in which the company operates and distributes shares under various employee stock-based compensation plans.

With regard to share-based employee stock plans, corporate taxpayers want to focus on the following:

- Ensure that sufficient income is earned and taxed in each tax jurisdiction so that the company can utilize all available tax credits.
- Decide whether to have maximum compliance and adhere to reporting and withholding requirements in most if not all tax jurisdictions.
- Conduct an annual review of plans for compliance with local tax laws and rules.
- Determine whether granting awards in a particular country constitutes a public offering, which might require various detailed prospectus filings.

The other international tax issues with regard to international taxation of employee share plans for U.S. multinational corporations include the following:

- U.S. multinationals must expense stock awards even if those grants are made to their non-U.S. employees working abroad.
- If the foreign operation is a branch operation of the U.S. parent, generally any income tax deduction may be taken by the parent and can also possibly be claimed as a local deduction. If the foreign operation is not a “pass-through” operation, only the local jurisdiction gets the deduction if it is allowed in that jurisdiction.

- That entity that has the most likelihood of claiming a deduction can record a DTA based on the applicable effective tax rate. And then the entity that actually claims the deduction calculates any shortfall or excess against the DTA accrued. The timing of when the ultimate tax deduction can be taken varies by local jurisdiction.

- Very few tax jurisdictions allow a tax deduction without that jurisdiction's local entity bearing the actual cost related to the employee stock plan. So, a tax deduction strategy has to be developed. A common approach for companies is to establish intercompany chargebacks. The steps in executing global intercompany stock chargebacks are as follows:

- 1.** The parent company delivers stock to the employee.
- 2.** The employee pays the exercise price to the parent company.
- 3.** The employee provides services to the foreign operation.
- 4.** The foreign operation reimburses the parent company for the spread (the current market price minus exercise price) pursuant to a reimbursement agreement.

Other requirements might exist, too, such as documentation of a contractual obligation prior to the grant date before chargeback practices can be implemented.



## **IFRS Versus GAAP: Differences in Employee Stock Plan Accounting**

This section examines the differences between U.S. *Generally Accepted Accounting Principles* (GAAP) and *International Financial Reporting Standards* (IFRS) with regard to employee stock option plans. This is important because of the impending convergence between U.S. GAAP and IFRS.

### **In Income Tax Accounting**

U.S. GAAP dictates that a DTA for a stock option should be based on the options fair value (FAS 123(R)) on the date the option is granted. A DTA is still recorded irrespective of whether the option is “out of the money.” No adjustments are made to the fair value of the underlining stock prior to the exercise or expiration date. Under IFRS, the DTA is based on the tax deduction available based on the current market price of the underlying share at each reporting date. Therefore, DTA is recognized only when the option is “in the money.” Under IFRS, in most tax jurisdictions the tax deduction is based on the *intrinsic value* of the stock option at exercise. This is the excess of the stock value over of the stock option exercise price. So, where exercise price equals fair value, no DTA is recognized under IFRS at the time of the grant. Tax benefits are recognized only if the fair value exceeds the exercise price. This happens as the stock price rises. Often, the tax benefit recognition trails the recorded compensation expense.

Under IFRS, because of remeasurement each reporting period caused by fair value fluctuations, the effective tax rate is subject to change. This results in volatility in the effective tax rate and the deferred accounts over the life of the stock options. This is because of the stock price changes at each recording period. And under IFRS, these changes are reported in the operating section of the statement of cash flows.

Under IFRS, the tax effect of any excess in the estimated tax deduction over the recorded compensation expense is recorded in the equity section of the balance sheet and also as a DTA. Under U.S. GAAP, only excess tax benefit recognized at the time the exercise is credited to equity in the APIC account. IFRS does not apply the U.S. GAAP concept of an APIC pool, which enables tax benefit shortfalls to be offset against aggregated prior windfalls.

The difference in the calculation of the DTA under U.S. GAAP and IFRS is demonstrated in the following example.

Let's assume that on January 1, 2013, ABC Corporation grants 5,000 options with a grant date fair value of \$20. The awards vest after five years of service. The exercise price is \$33. And the share price at the end of the first year, 2013, is \$35. The company's tax rate is 30%.

The DTA under U.S. GAAP is as follows:

$$5,000 \text{ options} \times \$20 \times 1/5 \text{ vesting} \times 30\% = \$6,000$$

Under IFRS, the company calculates the DTA based on the current market share price as the reporting date of December 31, 2013:

$$5,000 \text{ options} \times (\$35 - \$33) \times 1/5 \text{ vesting} \times 30\% = \$600$$

Under IFRS, the tax benefit is considerably lower than under U.S. GAAP.

#### **In Valuation and Expense Recognition**

Although both IFRS and U.S. GAAP require compensation expense determination using value pricing models, the accounting for tiered options differs. IFRS requires each vesting tranche of an option to be valued using different fair values, whereas U.S. GAAP allows aggregate estimation or each tranche can be valued separately.

The amortization of the expenses under IFRS needs to be commenced on the grant date. Under U.S. GAAP, amortization can be straight-line or accelerated for awards that vest after the required service period.

#### **For Payroll Tax Accounting**

Under U.S. GAAP, a company recognizes a payroll tax liability for employee stock plans when the liability arises (that is, when the options are exercised). Under IFRS, companies can recognize an accrued payroll tax liability when the options vest. Under IFRS, Social Security taxes related to employee share plans are accrued at each reporting date. This can require payroll process changes and thus create a lot more administrative work.

### **EMPLOYEE SHARE PURCHASE PLANS**

*Employee share purchase plans* (ESPPs) or 423 Plans generally permit employees to purchase stock at a discount or favorable terms through payroll deductions. The primary objective of these plans is to encourage employee ownership of companies. Also, these plans allow employees to purchase shares without incurring brokerage fees. Some companies, to encourage employee participation, match or partially match employee purchases.

A qualified 423 ESPP allows employees under U.S. tax law to purchase stock at a discount from fair market value without any taxes owed on the discount at the time

of purchase. In some cases, a holding period is required for the purchased stock to receive favorable long-term capital gains tax treatment on a portion of your gains when the shares are sold.

A nonqualified ESPP usually is structured like qualified 423 Plan, but without the preferred tax treatment for employees.

ESPPs can be considered compensation expenses unless three conditions are satisfied:

- All employees have to be eligible to participate. No restrictions can be placed on employee participation.
- The discount provided has to be small, less than 5%. If the amount is 5% or less, no compensation needs to be recorded. Many plans have had discount percentages of 15% or more. These plans are considered compensation for tax purposes.
- The plan cannot have an option feature.

Plans that are considered compensatory should record the compensation expense over the employment service life of participating employees.

If all employees can participate and employees have no more than one month after the price is fixed to enroll and the discount is no greater than 5%, the accounting for these plans is straightforward. The company just records the sale of shares as the employee buys the shares.

If the discount is more than 5%, the plan is considered compensation, and an expense has to be recorded. Suppose, for instance, that an employee purchases shares under the plan for \$4,250 (15% discount) rather

than the current market price of \$5,000. The \$750 discount is recorded as a compensation expense:

Cash (discounted price)	4,250	
Compensation expense ( $\$5,000 \times 15\%$ )	750	
Common stock (at market value)		5,000

## **STOCK APPRECIATION RIGHTS**

*Stock appreciation rights* (SARs) allow employees who are granted stock options to receive a cash or stock payment upon the exercise of the option. The payment of stock or cash is based on the difference between a predetermined price (usually the market price on the date of the grant) and the market price on the date of exercise. This overcomes a major disadvantage of stock option plans where the employees are required to buy the shares at the exercise price. Upon exercising his or her options, the employee has to come up with the cash. If the employee received a large grant, the cash outlay can be quite onerous. Note that the payment can be made either in cash or shares. The participant has the choice. The granting of SARs mitigates the cash-outlay disadvantage.

If an employer decides to settle the SAR with stock, the transaction becomes an equity transaction. If the employee elects to receive a cash settlement or has the option to elect a cash settlement, the award is then considered a liability transaction. This definition is based on the definition of liabilities under SFAS No. 6. Because a cash-settled SAR requires the transfer of an asset (cash), it is considered a liability. And if a SAR award requires the transfer of stock (equity), it is considered an equity transaction.

### **SARs Payable in Shares**

When a SAR is considered an equity exchange (because the employer can settle the claim in stock rather than cash), the fair value of the SAR is estimated on the grant date. The compensation expense is accrued over the employment period of the employee. The fair value of the SAR is the same as that of a stock option, developed using an appropriate pricing model. The same fair value determination method is used and the compensation expense is accrued over the service life. No adjustments are made based on future changes in the stock price.

### **SARs Payable in Cash**

For cash-settled SARs, which is a liability as stated previously, a fair value estimation is done, and a compensation expense is taken over the service period in the same way as done for options and other share-based plans. Because these plans are considered a liability, however, the fair value must be reestimated over time to continually readjust the fair value and corresponding compensation expense until it is paid.

The period's expense is that portion of the total compensation expense earned to date by SAR participants based on the fraction of the employment term that has elapsed. This amount is reduced by any already expensed amounts for past periods.

Suppose, for instance, that the fair value of the SAR at the end of a period is \$10. The total compensation would be \$10 million if one million SARs were to vest. Let's assume that one million SARs were granted on January 1, 2013, and that these are five-year grants. So, the compensation expense for each year is \$2,000,000 if SARs are considered to be equity. This is because the company can settle in shares at exercise. The SARs can also be considered to be a liability because there can be

an election made to settle in cash. The journal entries for both these transactions are shown here.

**Journal entries for SARs that are considered equity transactions**

*For the years, 2013, 2014, 2015, 2016, 2017*

Compensation expense (\$10,000,00/5 years)	2,000,000	
Paid-in capital – SAR plan		2,000,000

**Journal entries for SARs considered a liability**

January 1, 2013 – no entries made.

*December 31, 2013*

Compensation expense	2,200,000	
(\$11 fair value estimate on 12/31/13) × (1,000,000 × 1/5)		
Liability – SAR plan		2,200,000

*December 31, 2014*

Compensation expense	1,800,000	
[( \$10 (fair value estimate on 12/31/14) × (1,000,000 × 2/5) – 2,200,000]		
Liability – SAR plan		1,800,000

*December 31, 2015*

Compensation expense	800,000	
[( \$8 (fair value estimate on 12/31/15) × (1,000,000 × 3/5) – 4,000,000]		
Liability – SAR plan		800,000

*December 31, 2016*

Compensation expense	4,800,000	
[( \$12 (fair value estimate 12/31/16) × (1,000,000 × 4/5) – 4,800,000]		
Liability – SAR plan		4,800,000

*December 31, 2017*

Liability – SAR plan	5,600,000	
Compensation expense		5,600,000
[( \$4 (fair value estimate on 12/31/17) × (1,000,000 × 5/5) – 9,600,000]		

The variability occurs in this example because of the changing market price of the stock.

*December 31, 2018*

Compensation expense [(\$7 (fair value estimate 12/31/18) × 1,000,000) – 9,600,000 + 5,600,000]	3,000,000
Liability – SAR plan	3,000,000

We continue to adjust both the expense and liability until the SARs are exercised or they expire. Let's assume that in this example the SARs are exercised on September 14, 2019, when the fair value is \$6.00 and the earn-out is in cash.

Liability – SAR plan	1,000,000
Compensation expense [(\$6.00 (fair value estimate on 12/31/18) × 1,000,000) – \$7,000,000 (\$12,600,000 – \$5,600,000)]	1,000,000
Liability – SAR plan (\$7,000,000 - \$1,000,000)	6,000,000
Cash	6,000,000

Exhibit 5-6 demonstrates the numbers for each year.

**Exhibit 5-6. Demonstrating the Numbers with a T-account**

<i>Liability – SAR Plan</i>			
		2.2	2013
		1.8	2014
		.8	2015
		4.8	2016
2017	5.6	3.0	2018
2019	1.0		
2019	6.0		



## **All SARS Exercised on September 14, 2019**

As you have seen in this chapter, share-based compensation has been gaining in popularity across the world. But this is an area rife with accounting, finance, and tax issues. It is a fairly technical topic. And it is imperative that compensation and benefits professional (and HR professionals) have an in-depth understanding of the accounting and finance principles behind share-based compensation. Relying exclusively on consultants is not a very good idea.

## **KEY CONCEPTS IN THIS CHAPTER**

- Restricted stock plans
- SFAS 123(R)
- Stock option expensing
- Stock plans with contingencies
- Tax implications of stock plans
- Deferred tax assets
- APIC pool
- Stock purchase plans
- Stock appreciation rights
- Incentive stock plans
- Nonqualified stock plans
- Accounting for stock options
- Option pricing theory

- International tax implications of share-based employee compensation plans
- IFRS versus U.S. GAAP with respect to share-based compensation

## **APPENDIX: STOCK OPTIONS AND EARNINGS PER SHARE**

An important accounting issue with regard to employee share plans is their effect on the key accounting indicator of business success: *earnings per share ratio*.

Stakeholders use many financial indicators to evaluate the success or failure of companies. No one indicator can be claimed to be the most important. Many believe that the *earnings per share* (EPS) indicator comes closest to being the most important. Because of the importance of EPS, we need to analyze how employee share-based compensation plans can affect the calculation of the EPS.

There are two ways in which the EPS indicator is presented in financial statements.

First, the basic earnings per share calculation:

$$\text{Earnings per share} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Weighted} - \text{Number of Shares Outstanding}}$$

To calculate the weighted average number of shares, companies must weigh the shares by the fraction of the period they are outstanding. A weighted average is used because the number of outstanding shares can fluctuate during a reporting period.

But there is second aspect to the EPS calculation. This involves complex capital structures. Companies with “complex capital structures”—those with a potential common stock impact—must also report diluted EPS.

Potentially, common stock options when exercised can increase the number of common shares, which will result in decreasing the EPS; therefore, it constitutes a complex capital structure.

Both the basic EPS and diluted EPS reflect the current earning power of a company's common stock. But diluted EPS measures how the exercise of stock options would affect EPS in the event that all options were exercised.

Employee share-based plans like stock options are in a category of instruments that may become common stock once they are exercised. They will then dilute (reduce) earnings and are therefore called potential common shares. A company is said to have a complex capital structure if there are potential common shares involved from exercising stock options or from earning out stock awards.

For stock options, an assumption is made that the options have been exercised. Another assumption is also made that the options were exercised at the beginning of the reporting period or when the options were issued, whichever is later.

The treasury stock method is now used, which assumes that the cash proceeds from selling the new shares at the exercise price is used to buy back as many shares as possible at the stock's average market price during the reporting year.

In the treasury stock method, an assumption is made that the options will be exercised; then, the numerator of the EPS equation increases. However, this cannot be the only assumption that is being made. If the options were exercised, that would generate cash for the company. The cash can be used in wide variety of different ways. As a matter of fact, each and every company might have a different way to use the cash, depending on their needs

and desires. However, this use of cash will certainly also have an effect on the numerator (that is, net income). Under GAAP, a uniform application is applied to the EPS calculation, in the interest of intercompany comparability. So in GAAP, an assumption is made that the funds received upon exercise will be used by companies to buy back the stock of their companies at the average market price during the reporting period. Consequently, the weighted average number of shares in the denominator are increased by the difference in the number of shares exercised versus the number of shares the company buys back.

This is called the treasury stock method, based on the assumption that treasury shares are being purchased with the cash generated by the exercising of options. This treasury method, under GAAP, is an effort to create intercompany comparability.

But, two scenarios can exist when the treasury stock method is applied. If the exercise price of the option is lower than the average market price, the shares are added to the denominator (dilution occurs). If the exercise price of the option is higher than the market price of the stock, this effect reduces the number of shares in the denominator. In this case, the options are antidilutive.

Now, let's look at the calculations assuming that there are 2,000 options granted at an average market price of \$40 per share at a point in time. The treasury method would consider that there are only 1,000 incremental shares outstanding.

Proceeds 2000 options @ \$20 a share	40,000
Shares issued upon exercise	2,000
Treasury shares ( $\$40,000 / \$40$ )	1,000
Incremental shares	1,000

Or

$$\frac{\text{Market price} - \text{Option price} \times \text{Number of options}}{\text{Number of shares}} =$$

$$\frac{\$40 - \$20 \times 2000}{\$40} = 1000 \text{ shares}$$

The impact of employee share plans on EPS depends on the plan type. For purposes of diluted EPS, accounting needs to be maintained as to when the options are being exercised so that the flow through of the effect on the numerator of the EPS equation can be updated at the EPS calculation point.

### **Effect of Restricted Stock**

Awards of restricted stock are treated like options for EPS purposes. In most cases, unvested awards are excluded from basic EPS and are included in diluted EPS. Once vested, these awards are included in basic EPS—even if the shares haven't actually been issued.

For purposes of computing diluted EPS, restricted stock are also considered outstanding at the beginning of a reporting period, even though they are contingent on an employee's continued service. However, performance-based awards that are contingent on earnings or stock price targets are not included in diluted EPS unless those targets are being met as of the end of the reporting period.

## 6. International and Expatriate Compensation

### Aims and objectives of this chapter

- Explain theoretical and structural concepts in international and expatriate compensation systems
- Explain the balance sheet system for expatriate compensation.
- Discuss the allowance structure within the balance sheet system
- Review the concepts underlying the expatriate income tax system
- Explain the methodologies used to calculate the cost-differential allowance
- Examine the issues surrounding the global payroll system
- Discuss the main challenges in establishing international employee pension plans
- Set overall framework for the design of global stock option plans

International and expatriate compensation is one of the most technically involved aspects of *human resource* (HR) management. The technical issues involved with design, development, implementation, and administration of such systems require expertise of accounting, finance, statistics, law, and taxes. These technical issues are interwoven into the various facts of international and expatriate compensation programs.

This chapter discusses international and expatriate compensation, with the technical issues as the focus. But, first we review the theoretical and structural basis for the programs. Our discussions, true to the purpose of this book, will stay focused on the technical accounting, finance, and statistical issues.

The topics in international and expatriate compensation that have a significant finance, accounting, and statistical content are as follows:

- Expatriate taxes
- Cost-differential allowance calculations (has more of a statistical focus)
- Costing expatriate assignments
- International and expatriate payroll and payment processing
- International pensions
- Global stock option plans

In this chapter, we go through these topics in some detail, from a theoretical and structural point of view as well as from an accounting, finance, and statistics angle. Before we do so, some theoretical and structural issues need to be dealt with.

## **THE BACKGROUND TO INTERNATIONAL AND EXPATRIATE COMPENSATION**

When we talk about the overseas staff of a company doing business outside of the country in which their headquarters is located, the composition of the staff can be quite diverse. This company could have

- Headquarters country nationals working in another country, sent from the headquarters country to work there. The employee can be on a temporary or a permanent assignment in the foreign country. Let's say that the home country is Country A and a Country A employee is being sent to work in Country B. This type of staff is normally called headquarters staff or home-country employees.
- A company could hire an employee from Country C and send that employee to a different foreign country to work. This type of employee will normally be called a *third-country national* (TCN).
- The company that is setting up operations in a foreign country can hire local nationals in that country. So, if a company is setting up operations in Country B, and if they hire employees who are nationals of Country B (and most certainly they will), these staff members will be called local staff.

These distinctions are critical to the flow of expenses through the accounting system. Clearly, defining the intent of the assignment within the context of the definitions provided here will reduce foreign assignment complications.

Before we go further, it is important to state that in international compensation, the word *expatriate* refers to employees who are being sent to a different country only for a temporary period of time (and temporary, by its very nature, indicates that it is short term; one to five years). In HR management, the concept of a permanent expatriate is a misnomer. In current practice, this word is often misused, creating confusion and increased expenses.

In expatriate compensation, those employees being sent on an assignment by the company are provided



additional (additional to base) allowances, premiums, and payments. All these payments are designed to mitigate the discomforts of uprooting home-country roots and family life temporarily. If an expatriate being paid like an expatriate continues to stay in a foreign location indefinitely, the costs of that assignment will rise, creating a very expensive proposition.

Now let's set the stage for a detailed analysis of the topics to be discussed. Most companies today do business in countries outside of their home base country or outside the country in which their headquarters is located (that is, outside their country or origin).

The main objective of a global compensation program is the attraction and retention of employees who are qualified for foreign assignments. Then there is the facilitation of the transfer between foreign affiliates, between foreign affiliates and the parent company, and between the parent company and the foreign affiliate. Companies attempt to establish and maintain a consistent and reasonable relationship between the compensation of employees of all affiliates, both at home and abroad. They also have to be concerned with the maintenance of a compensation program that is reasonable in relation to the practices of competitors. This has to be accomplished at optimal costs.

To achieve the objectives stated, additional compensation is provided to employees being sent by the company to work in a different country. The major elements of the additional compensation are as follows:

- Providing an incentive to leave the home country for a foreign assignment.
- The ability to maintain a standard of living that the employee and his/her family are used to in their home country or permanent resident location.

- Consideration is given to career and family requirements that, because of the temporary nature of the assignment, need to be maintained in the home-country location. The idea is that the employee and his or her family will return to the home country when the assignment is completed. The compensation structure is designed to facilitate reentry into the home country at the end of the assignment.

To fulfill these objectives, the determination of individual and organizational pay and benefits on a global basis can become extremely complex. There are many dimensions to consider. The complexities are based on the varying compensation structures from country to country. Salary levels and benefit provisions differ among countries. Complicating the situation further are the issues surrounding multiple currencies and multiple tax laws, processes, and procedures.

Currently, the systems being used in practice are as follows:

- **Balance sheet:** The balance sheet system is the most prevalent system in use and is discussed in some detail in the next section.

- **Lump sum:** This system uses the home country's system for determining base salary. In addition to the base salary, the expatriate is offered a lump sum of money to apply toward the foreign-service expenditures. In this system, it is up to the expatriate to use the lump sum to meet various expenses without intruding on the individual expatriates' specific expenses.

- **Cafeteria:** Similar to the lump-sum method, but instead of offering a single sum of money for the foreign assignment, the expatriate is offered a selection of options to choose from. The expatriate can choose which option he or she wants. Options might include a

company car, children's education expenses paid by the company, relocation expenses for household goods, or a country club membership. Limits are imposed on the expenses for each option.

- **Negotiation:** In this plan, each expatriate employee's package is negotiated on a one-to-one basis. Companies want to keep things simple. The terms negotiated should be mutually agreeable.

- **Regional:** Similar terms and conditions offered to expatriates assigned to particular regions. Regional terms and conditions vary from region to region.

- **Global pay system:** Standardized worldwide terms and conditions are used. No variation exists in the terms and conditions. This system does not allow for much flexibility. Worldwide pay systems, such as job evaluation and performance evaluation, are in use.

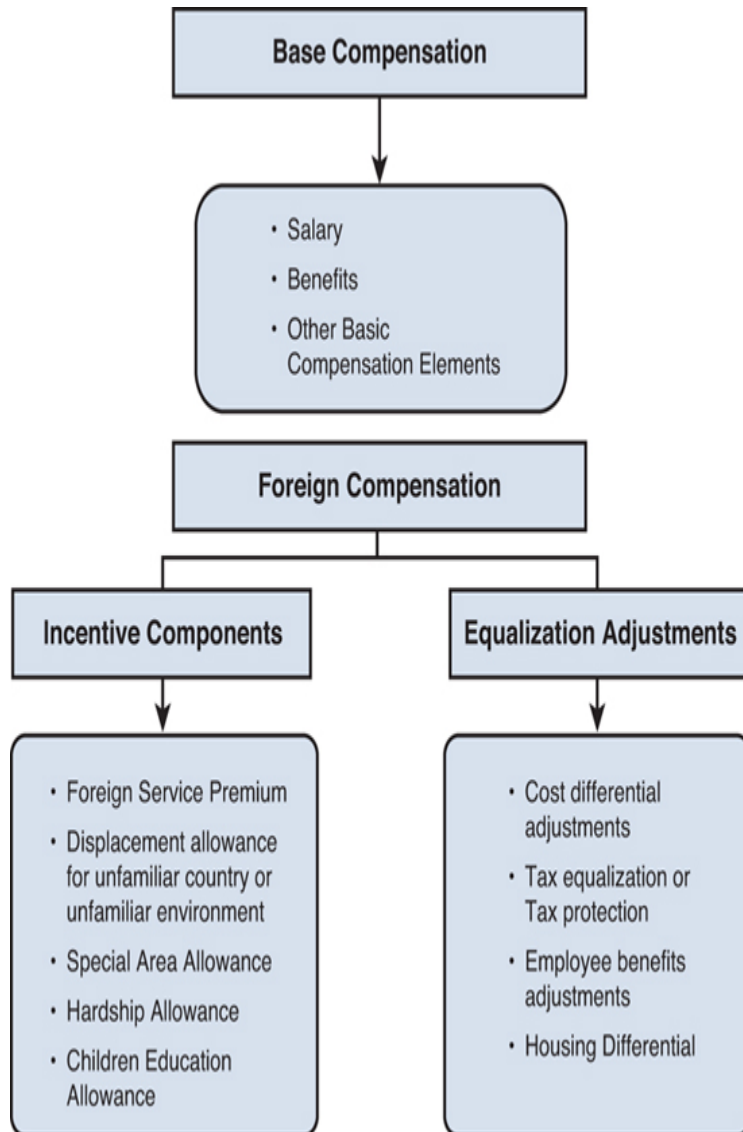
- **Localization:** In this method, the expatriate is essentially paid under the same terms and conditions that exist for local nationals who occupy the same job or position as the expatriate will occupy. This is an appropriate system if the expatriate is being permanently transferred to that location and very little probability of mobility exists for this particular expatriate.

These systems have been widely used in expatriate compensation program planning and administration for many years.

U.S.-based companies use the balance sheet system extensively. There are a very large number of U.S. expatriates working abroad, and because U.S.-based companies prefer to use the balance sheet system, it can be inferred that this system is the most common system.

## THE BALANCE SHEET SYSTEM

The balance sheet system is an effort to ensure that the expatriate employee is “made whole.” That is at a minimum, the expatriate should be no worse off or even better off for accepting an overseas assignment with respect to his or her compensation and benefit terms (see Exhibits 6-1 and 6-2).

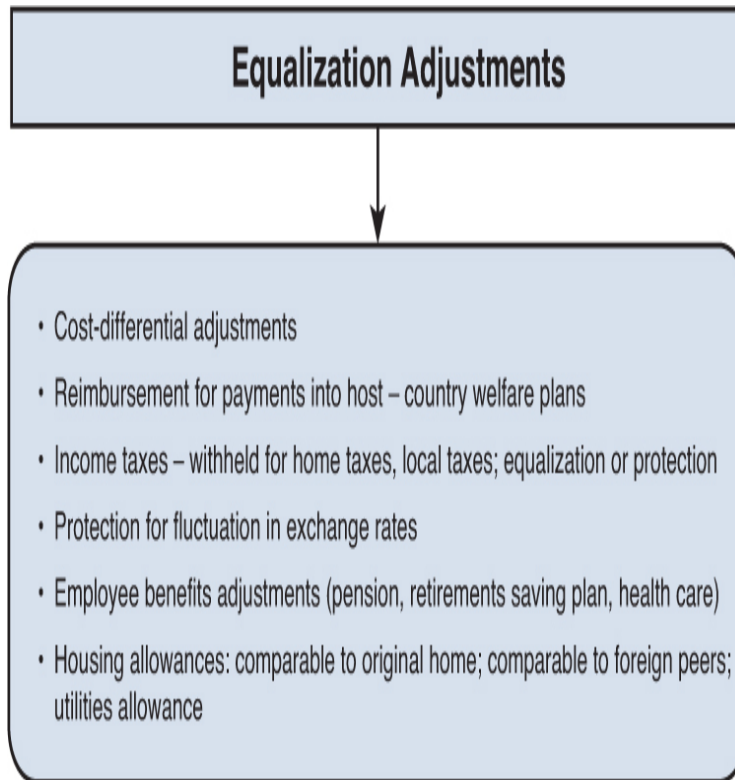


**Exhibit 6-1. The Total Compensation Structure  
for Expatriate Compensation**

## Incentive Components



- Overseas / foreign service premium
- Compensation for life adjustments (displacement allowances: unfamiliar country, uncomfortable / harsh / dangerous environment)
- Relocation / travel expenses; house – hunting expenses; shipment and storage of household goods; furnishings for foreign housing; home sale protection or rental assistance; automobile shipping or sale protection
- Settling – in allowance
- Temporary living expenses
- Education allowance (self, children, spouse); language and cultural training allowance
- Spousal / husband support: education, income replacement, employments services and career planning
- Perquisites, e.g. club memberships, home leave, R&R leave, company car and driver
- Tax preparation assistance
- Financial advice
- Expatriation counseling
- Home – country career support and counseling
- Repatriation assistance planning



**Exhibit 6-2. A comprehensive list of the possible components is shown.**

The balance sheet approach consists of making a balance sheet for the assignment before the assignment begins.

This is the approach followed by most U.S. multinationals and is used mostly for senior and middle-level management expatriate employees. The main reason for such an approach is that firms seek to standardize the process. Policies are developed that delineate what is covered and what is not.

We now turn our attention to the incentive and allowance payments normally provided under a balance sheet system.

### **The Allowance Structure**

Not every company provides all these components of expatriate compensation. But what follows is a description of all the possible components:

- An overseas or foreign service premium is provided to encourage the employee to take on the foreign assignment. The employee is being asked by the company to take the assignment on behalf of the company. This allowance is provided to encourage the employee to accept the assignment.

An allowance may be provided for lifestyle adjustments. These take the form of a displacement allowance. The displacement allowance is provided for living in an unfamiliar country or in uncomfortable, harsh, and dangerous environments. This allowance is also called a mobility incentive allowance.

- Relocation and travel expenses, house-hunting expenses, shipment and storage of household goods expenses, expenses for acquiring furnishings for the foreign house, temporary rental assistance, and automobile shipping or sale expenses are all reimbursements made by the employing company to the expatriate employee.

The employee and the family would also be reimbursed for temporary living expenses while going to the foreign location and then upon returning to their home base after the assignment is completed.

- The company pays a housing allowance to the expatriate employee. The housing allowance is provided to cover the expenses to acquire a house that is comparable to the house the employee and his family had in their home country. Also, the house needs to be comparable to the employee's peers in the foreign location. The allowance may also include a utilities allowance.

- An education allowance may also be provided. The education allowance can be for the accompanying spouse and/or children. The education allowance would also

include expense reimbursement for language and cultural training for all family members. Other perquisites (for example, club memberships, home leave, R&R leave, company car and driver) are also normally provided.

- Miscellaneous other services are also paid for by the company. These services include tax-preparation assistance, financial advice, expatriation counseling, home-country career support and counseling, and repatriation assistance planning.
- Settling-in allowance is paid to compensate for costs of small items when the expatriate and his/her family relocate, at the beginning and at the end of an assignment. This payment can be made as a fixed payment or as a percentage of home-country gross pay and as a percentage of home-country net pay.

In addition to allowance and incentives, employees being sent to a different country are usually compensated with equalization payments. These payments are designed to ensure that the expatriate employee neither gains nor loses monetarily from the overseas assignment:

- The first equalization payment that is normally provided is a cost-differential adjustment or allowance. This is not a *cost-of-living adjustment* (COLA). It is a cost-differential allowance. The cost-differential allowance is based on a consulting company's table. The cost-differential index is applied to a spendable income amount to derive the cost-differential allowance. The calculation of this amount can be quite involved, so we look at its computational details later in the chapter.
- Another equalization payment is the reimbursement for the payments for host or assignment country government-mandated health and welfare plans.



- Yet another equalization payment that has accounting implications is income taxes. These are amounts withheld for home-country taxes and local taxes. The tax obligations are then equalized through either of two methods: tax protection or tax equalization. This topic is further explored later in this chapter.
- Then there are payments for protection against the fluctuation in exchange rates between the two countries (the home country and the assignment country).
- Finally, there is the complex issue of a pension benefit equalization arrangement. This topic is also discussed later.

Looking at the list of compensation payments, you can understand that these amounts can easily add up, creating a large financial burden for the employer. Therefore, it is a very important exercise to budget these expenses carefully before the assignment starts. The budgeting exercise is one of the more important accounting tasks that needs to be undertaken by the HR department. We look at the budgeting exercise in a later section of this chapter.

Note here that the payments and expenses listed and described earlier are not all used in every cross-country assignment. The payments and allowances should be provided only to employees who are being sent by the company for a fixed duration and not for those being hired on a regular or long-term basis. The cross-border transfer is undertaken because there is a specific skill shortage in the country to which the employee is being sent. The employee could also be sent abroad for a fixed duration for training purposes. Payments and allowances are not provided for short-term (less than a year) assignments. Nor are they provided for extended business trips.

Finally, a foreign national employee could be hired or and sent by an employer for regular employment to a different country (direct or regular hires). Those employees are hired for the foreign country operation from a different country on a regular long-term basis. These hires might be provided some temporary payments and allowances for a short while, but they should not be provided all the expatriate allowances and payments described so far.

### **The Balance Sheet System Explained**

A sound expatriate compensation system uses the balance sheet approach. The balance sheet structure is built on the principle that the employee (and his family) being assigned to the foreign assignment should neither gain nor lose financially from the assignment. It also allows planners to design a system that is financially sound from the point of view of managing the expenses within the operational budget guidelines.

The process begins with the employee's existing compensation in the home country (salary, benefits, and other monetary and nonmonetary remuneration regularly received). Then the two components of (1) the incentives provided to attract and retain employees for the foreign assignment and (2) the equalization components that ensure the expatriate does not suffer from the foreign-country differences in salary and benefits, are added to establish the desired total compensation package for the foreign assignment, as shown in Exhibit 6-3.

### **Exhibit 6-3. Example of a Compensation Package for an Expatriate Relocation from New Jersey to Paris, First Year in US Dollars**

<b>Basic Compensation</b>	
Salary	\$100,000.00
Bonuses	20,000.00
Stock options	0.00
Miscellaneous salary adjustments	0.00
Employer pension contribution	20,000.00
<b>Total Basic Compensation</b>	<b>\$140,000.00</b>
<b>Allowances</b>	
Cost differential	\$35,000.00
Housing allowance	\$35,000.00
Automobile	4,500.00
Moving expenses reimbursement	10,000.00
Home leave	15,000.00
Children (two) / Spouse education allowance	25,000.00
Cultural / Language training allowance	5,000.00
Expatriate premium	12,000.00
Hardship premium	0.00
Danger premium	0.00
Home management / maintenance	0.00
Club memberships / fees	5000.00
Tax services provided	0.00
Other allowances	0.00

Mobility premium	0.00
Relocation allowance, first year only	5,000.00
Other earned income	0.00
Loan bonus interest	0.00
Nontaxable assignments costs	0.00
Other adjustments to salary / allowance detail	0.00
<b>Total Allowances</b>	<b>\$ 151,500.00</b>
<b>Total Cost</b>	
<b>Actual Tax Liabilities</b>	
US Federal	\$3,713.00
US FICA	8,034.00
New Jersey	552.00
France Income tax	101,150.00
France social insurance tax	0.00
<b>Total Actual Tax</b>	<b>\$113,449.00</b>
<b>Less Hypothetical tax</b>	
US Federal	(\$23,834.00)
US FICA	(5,580.00)
New Jersey	(3,374.00)
<b>Total Hypothetical Tax</b>	<b>(\$32,788.00)</b>
<b>Other Employer Taxes</b>	
Employer's social insurance, US	\$8,034.00
Employer's social insurance, France	0.00
Other corporate taxes	0.00
<b>Total Other Employer Taxes</b>	<b>\$8,034.00</b>
<b>Tax Cost to Company</b>	<b>\$88,695.00</b>
<b>Total Cost</b>	<b>\$380,195.00</b>

From this example, an employee who was earning \$140,000 at the home location will be earning \$380,195

in the foreign location. This is an escalation factor of almost 3. It can get expensive!

Multinational employers also need to address these additional questions when designing global compensation programs:

- Under which country compensation and benefit programs should the employees be covered?
- How will potential gaps in pension and health be covered?
- Is the benefit coverage adequate for all employees?
- Is the benefit package equitable when compared with the benefits of peers in the country of assignment?
- Can coverage under employees' home-country social programs be maintained as the employee moves around?

During the recent past, with the threats of global economic crisis looming large, companies have had more difficulty ensuring that expatriate employees are paid fair salaries. The achievement of this objective has been made more difficult by rapid currency and inflationary fluctuations. These conditions have created the need to constantly review expatriate salaries. Fluctuating currencies and a wide variety of inflationary patterns across different countries can create differences in the amount of salary received and thus impact the expatriate employee's purchasing power (positively or negatively) within very short time periods. One way to approach this challenge is to convert a spendable percentage (typically 60%) of the expatriate's salary into the host-country currency on a monthly basis. The other way is to provide direct reimbursements for benefits such as accommodation, transportation, and the education of children.

The spendable percentage leads to a spendable income. This is the amount that the expatriate's counterpart in the same location at the same salary level and family size spends for goods and services in their home country. This is the portion of base salary that is typically spent on goods and services on a daily basis. This amount varies by family size and income level.

A concluding point with respect to the balance sheet system is the issue of stated and paid amounts. In many cases, the pay terms and conditions are stated in a certain currency, but actual payment occurs with another currency. Sometimes total payment is split into two payrolls: one payment coming from the home-country payroll, and another portion being paid by the host-country payroll system. Therefore, it is critical that the pay method be clearly understood and accepted by all parties involved. Actual practice with regard to the quotation and delivery of pay varies.

Some companies quote net assignment cash pay to the expatriate. Others deliver home gross pay plus allowances with a guarantee of net pay. Yet others quote gross assignment pay, and in a small percentage of companies the approach varies from country to country.

## **EXPATRIATE TAXES**

Now let's look at the tax accounting issues affecting expatriate employment. Two structural policy formulations exist: tax equalization and tax protection.

## **Tax Protection**

If additional taxes result from the foreign assignment, the employee is “protected” from those additional taxes. And if the taxes are lower than what the employee paid at home, the expatriate employee can take that benefit as a windfall. This might happen if the employee goes from a high-tax country to a low-tax country or a no-tax country. So, employees might pay less in tax than what they were paying but never more than what they paid in their home country. Tax protection is not a common policy.

## **Tax Equalization**

In this policy, expatriates are “equalized” so that they pay the same amount of tax as they paid in their home country before their departure to the foreign assignment. They pay no more or no less in taxes from what they would have paid if they were still in their home-country assignment. If there are additional taxes as a result of the foreign assignment the employing company pays. At the same time, the company also benefits if the foreign assignment taxes are less than what the employee had to pay at home. It is believed that this policy is fair to everyone concerned because the employee’s obligation remains the same as they were before the foreign assignment—that is the same amount of tax as if they were still in their home-country assignment.

### **Tax Equalization Explained**

Tax equalization is applied when employees are transferred to a country outside of their home country. Again, the basic concept of the policy is that an individual employee will pay no more or no less taxes than he or she would have paid if they had not been sent on the expatriate assignment.

A tax equalization policy must initially take into account what income will be covered. An expatriate policy

normally indicates whether (in addition to salary and bonuses) stock option exercises, restricted stock earnings, interest, dividends, capital gains, and the spouse's income will be equalized.

Personal exemptions and deductions are taken into account, even if they differ from home-country deductions. This can get tricky. Suppose while at home an expatriate was taking a mortgage and other principal residence-allowable deductions. Because of the expatriation, the employee sold his home. So would the tax equalization policy take into account the fact that the expatriate's home-country taxes were significantly reduced before the assignment because of the principal residence deductions and now they are not going to be able to take these deductions? Because of this contingency, most companies require employees to maintain their home-country principal residence and rent it out during their expatriate assignment. The company might also pay property-management fees to facilitate renting of the home. But the question still remains if the employee does sell the house whether the tax equalization policy calculates home-country tax obligation with or without the principal residence deductions. The expatriate tax policy for most companies would clearly address these and other issues. Therefore, the tax equalization policy can be lengthy, because it must attempt to account for every contingency that could be encountered in the foreign assignment.

At the planning stages of an assignment, a tax specialist, whether internal or external, computes the amount of tax an individual would have paid had he or she not been sent on the expatriate foreign assignment. This is a hypothetical calculation, and as such it is commonly referred to as the hypothetical tax or hypo tax.



Let's take an example of a married couple, where the husband is the employee and is an engineer. The couple has no children, and they currently live and work in San Francisco. Let's say they rent an apartment in downtown San Francisco at a cost of \$3,000 a month. The engineer's current compensation is \$150,000, and the employer has asked him to relocate to Abu Dhabi on January 1, 2014. Note that according to the expatriate policy the spouse's income is being excluded from the hypothetical calculation. For this example, we are assuming that the spouse is a working professional and is not planning to accompany her husband because she does not want to give up her job. Also note that the company will use the standard tax deduction for one individual and calculate the hypothetical tax based on a filing status of a single tax payer. The specific path chosen for this situation is simply because of the facts for this expatriate employee. The employee is being sent on a single-status assignment because of the spouse's employment situation. The hypothetical tax would be as shown in Exhibit 6-4.

#### **Exhibit 6-4. Hypothetical Tax Calculation**

<b>United States</b>	
Federal income tax	\$32,957
State income tax	10,714
Social Security tax	4,486
Social Security tax	2,035
<b>Total</b>	<b>\$50,192</b>

The \$50,192 will be deducted from the employee's gross compensation, and the employee will receive a net compensation of \$99,208 plus allowances such as housing, cost-differential allowance, home leave, and so

on based on the terms of the overseas assignment. The employer now is responsible for paying all U.S. and foreign income and social taxes on behalf of the employee. In this case, the employer might gain because the U.S. taxes on \$99,208 will be lower and because there are no Abu Dhabi taxes. The matter is slightly more complex than stated so far. This is because the employee's actual tax obligation will be based on a married filing jointly status. So, the company most likely will pay a tax consultant to prepare and file the couple's actual taxes. When the tax consultant calculates the actual married filing jointly obligation, the consultant will do resolution calculation as shown here.

Married filing jointly obligation minus tax obligation on single status income of \$99,208 equals additional (if any) employee required payment. In this case, the company might actually pay the taxing authorities the married filing jointly obligation and require the employee to reimburse the company if there is any difference.

#### **Tax Protection Explained**

Only a few differences exist between tax protection and tax equalization policies.

The first difference is that if the actual tax burden of the expatriate employee on a worldwide basis is less than the tax obligation the expatriate employee had in his or her home country before the assignment started, the employee can retain that benefit.

The second difference is that under tax protection, no hypothetical tax withholding is taken from the expatriate employee's pay.

The third difference is that unlike tax equalization the expatriate employees will themselves pay both their

home-country tax obligations and the country-of-assignment tax obligations.

After the expatriate employee tax obligations are paid, the company makes a tax protection calculation. If the tax obligation both to their home countries and their destination country paid directly by the employees is more than what they would have paid before the assignment started in their home country, the employing company reimburses the employee directly for that amount. This might create a tax windfall for the employee.

For various reasons, tax protection policies are not very common. The major reason is that the expatriate employees would not want to pay the tax obligations directly and have a major impact on their personal cash flow situations.

#### **Tax Gross-Up**

As indicated under a tax protection policy, the company reimburses the employee the difference between what they pay in taxes during the foreign assignment and what they would have paid had they not gone abroad.

However, that amount now becomes income to the employee, which then becomes taxable income to the employee. We then have a tax-on-tax situation. This is where the tax gross-up calculations come in.

The gross-up calculation will become an iterative calculation to determine the amount needed to be paid to the employee so that in effect the expatriate employee will receive the tax protection payment on a tax-free basis. The gross-up calculation is not limited to the tax protection payment; it also applies to all other tax payments the company makes on behalf of the expatriate employee while he or she is on the foreign assignment.

### **The Actual Tax Calculation**

When the expatriate's actual tax return has to be prepared and filed, the company will engage a tax consultant or a tax specialist to complete and file the return on behalf of the employee. When the expatriate is sent to a country where there is a local country tax obligation, the company will usually engage a tax consulting company with multicountry operations so that both the home country and the local tax obligations are properly calculated and proper tax credits are taken. (Often there are tax agreements between countries stipulating tax credits.)

### **The Applicable Tax Provisions**

Next we provide a summary of the tax provisions that apply to U.S. citizens and permanent residents living and working in a foreign country.

A U.S. expatriate policy applies to a citizen or resident of the United States who lives outside the United States for more than one year. U.S. citizens or permanent residents on business trips lasting up to one year or more must also consider the U.S. and foreign tax consequences related to that long-duration business trip.

U.S. citizens and residents must report 100% of their worldwide income on their U.S. individual income tax return, regardless of where they live and regardless of where the income is paid. Therefore, U.S. expatriates must continue to file U.S. tax returns and in many cases owe U.S. tax during their foreign assignments. U.S. expatriates take advantage of two special tax provisions to reduce their federal income tax liability while on a foreign assignment. These provisions are: foreign tax credit and exclusions from income.

### **Foreign Tax Credit**

The foreign tax credit can reduce U.S. federal and the state individual income tax. The foreign tax credit is designed to help reduce the double taxation of income. So, if the expatriate has a foreign tax obligation for income earned in that foreign country, the amount paid to that foreign tax jurisdiction offsets the U.S. income subject to U.S. tax. This is called the foreign tax credit.

### **Exclusions from Income**

A U.S. citizen or resident who establishes a tax residence in a foreign country and who meets either the bona fide residence test or the physical presence test may elect to exclude two items from gross income:

- Foreign earned income exclusion in 2011 is up to \$92,900. This is a straight exclusion of foreign source income in the determination of taxable income.

And

- For the foreign housing exclusion, the current IRS regulation states,<sup>1</sup>

<sup>1</sup> From the IRS Web site, we quote this section from the IRS regulation for clarity of understanding.

The housing exclusion applies only to amounts considered paid for with employer-provided amounts, which includes any amounts paid to you or paid or incurred on your behalf by your employer that are taxable foreign earned income to you for the year (without regard to the foreign earned income exclusion). The housing deduction applies only to amounts paid for with self-employment earnings.

Your housing amount is the total of your housing expenses for the year minus the base housing amount. The computation of the base housing amount (line 32 of Form 2555) is tied to the maximum foreign earned

income exclusion. The amount is 16% of the maximum exclusion amount (computed on a daily basis), multiplied by the number of days in your qualifying period that fall within your tax year.

Housing expenses include your reasonable expenses actually paid or incurred for housing in a foreign country for you and (if they lived with you) for your spouse and dependents. Consider only housing expenses for the part of the year that you qualify for the foreign earned income exclusion. Housing expenses do not include expenses that are lavish or extravagant under the circumstances, the cost of buying property, purchased furniture or accessories, and improvements and other expenses that increase the value or appreciably prolong the life of your property. You also cannot include in housing expenses the value of meals or lodging that you exclude from gross income (under the rules for the exclusion of meals and lodging), or that you deduct as moving expenses.

Also, for purposes of determining the foreign housing exclusion or deduction, your housing expenses eligible to be considered in calculating the housing cost amount may not exceed a certain limit. The limit on housing expenses is generally 30% of the maximum foreign earned income exclusion, but it may vary depending upon the location in which you incur housing expenses. The limit on housing expenses is computed using the company's worksheet.

Additionally, foreign housing expenses may not exceed your total foreign earned income for the taxable year. Your foreign housing deduction cannot be more than your foreign earned income less the total of your (1) foreign earned income exclusion, plus (2) your housing exclusion.

## **Other U.S. Tax Issues**

In addition to the special tax provisions that apply to U.S. expatriates, an expatriate is still subject to the normal U.S. tax laws with respect to all other items of income, expenses, and credits. Other common federal tax issues that arise due to a foreign assignment include the following:

- Treatment of employer-provided allowances and reimbursements
- Moving expenses
- Rental of principal residence
- Sale of principal residence
- Exchange gains and losses
- Short-term versus long-term assignments
- Social Security taxes

This review has provided an overview of the tax calculation structures of U.S. citizens living and working abroad. The actual specifics of each taxpayer will vary based on each individual's tax filing status, exemptions, and standard or itemized deductions. Other implications on an individual tax obligation will be determined by that individual expatriate's investments and many other tax factors.

## **THE COST-DIFFERENTIAL ALLOWANCE**

Of the many allowances that expatriate employees are provided while on a foreign assignment, the allowance that requires the most technical understanding is the cost-differential allowance.

In practice, the cost-differential allowance is called by various names: goods and services differential, commodities and services allowance, cost-of-living index, and COLA (cost-of-living allowance). The last two designations are not quite correct, as you will understand from this discussion. The meaning of all these terms is the additional money needed to maintain a similar standard of living as was enjoyed by expatriates and their families in the home location. This difference may arise because of cost differences and living-pattern changes between the home and the foreign locations. This is not a cost-of-living allowance. It is a cost-differential allowance. The cost-of-living allowance is based on a time period-to-time period index. The time-to-time index is one of the measures that are normally used to calculate the inflation rate in macroeconomics. The cost-differential allowance is based on a place-to-place index. The basic idea is that the expatriate and his or her family enjoyed a certain market basket of goods and services in his or her home-country location. This market basket of goods and services cost the expatriate employees a certain percentage of their income (called spendable income). Under the balance sheet philosophy of compensation, the company wants the expatriate employee to neither gain nor lose from accepting the company-initiated assignment. So, the company relies on a place-to-place price-differential index for the same market basket of goods and services that the expatriate employee was using while in his or her home location. Then the company applies that index to a spendable income, which results in a cost-differential allowance amount. The cost-differential allowance is then paid to the employee on a regular basis. With this allowance, the employee and his or her family can buy and enjoy the same market basket of goods and services in the foreign location. So, they neither gain nor lose vis-à-vis their home-country standard of living.



Of course, all these calculations are based on average prices. Because there is no “average expatriate employee,” the cost-differential allowance in reality can be either sufficient or not for any particular expatriate employee.

Let’s look at the cost-differential allowance calculation methodologies.

Various data services companies (Organization Resources’ Council, AIRINC, and INCOMP) research and compute the place-to-place indices. In addition to the consulting companies, the U.S. State Department also calculates and publishes cost-differential indices covering various cities around the world. The State Department does these computations for the use of its various foreign stations to adequately compensate foreign-service employees.

The consulting companies normally conduct a consumer income and expenditure survey every few years. These surveys result in a series of data tables (that is, spendable income in different cities around the world sorted by base salary levels). The spendable income is a number that includes all costs for food at home, food away from home, tobacco and alcohol, clothing, medical expenses, transportation (excluding car-purchase payments), recreation, personal care, household furnishings and operation, domestic services, and miscellaneous expenses. This data is collected from expatriates or their sponsor (if located in the foreign jurisdiction).

The surveys indicate that for a given income level, the percentage spent by a standard family for goods and services may vary depending on the local conditions.

The consulting companies in this manner calculate the spendable income and spendable income percentages for a variety of cities around the world. The collected data

also determines the spending situation (availability and ease of purchase) in that particular city. In some cities, most goods and services are readily available, and in others they are not. The survey delineates the ease of purchase in each of the cities surveyed. In London, it is possible to buy nearly anything at a comparatively reasonable price. So, the percentage of income spent locally for goods and services is relatively high in London and in similar cities having well-established and well-stocked markets. In remote areas, however, the availability of clothing, medical care, recreation, and so on is quite limited. The expatriate employees will tend to defer these purchases until they go on home leave. Therefore, they spend a higher percentage of income in the United States, and they spend a smaller amount in the foreign location.

The consulting companies, after establishing the spendable income levels for various cities, then assign them to one of three categories: maximum loading, standard loading, and minimum loading. The designation depends on the availability of goods and services and the estimated required expenditures in that city.

From the results of the consumer income and expenditure survey, the consulting companies report spendable income levels separated into the three different loading levels. In other words, they average out the data from the survey into the three categories (maximum, standard, minimum). After that, further sorting of the data occurs. The spendable income level is then reported by family size. Finally, the data is reported to clients, by loading factors, by six family sizes, and by income level.

Cost-differential indices assume the home country has an index of 100. All foreign-assignment locations are

measured relative to this base. An index above 100 indicates that the cost of living in the foreign-assignment country is higher than the cost of living in the home country. If the index is below 100, the cost of living in the foreign location country is lower. If the foreign-assignment location city has an index of 110, this means the relative cost of living in that city is 10% more expensive than the home location. In contrast, an index of 95 implies that the host city is 5% cheaper than the home location.

Then, the calculated index is multiplied into the spendable income level for a particular city and by the indicated loading factor assigned to that foreign location.

If the spendable income is \$60,000 a year and the index is 110, the allowance is computed as  $0.1 \times \$60,000 = \$6,000$ . The expatriate employee will be given an allowance of \$6,000 a year to cover the additional costs for goods and services in that foreign location.<sup>2</sup>

<sup>2</sup> [www.expatica.com/hr/story/cost-of-living-allowances-basics-16245.html](http://www.expatica.com/hr/story/cost-of-living-allowances-basics-16245.html).

Exhibit 6-5 gives an example of the survey data presentation.

#### **Exhibit 6-5. Survey data presentation**

Monthly Base Salary	\$	HW	HW+1	HW+2	HW+3	HW+3 Over
\$7,500 - \$7,600	2632	2968	3325	3710	4123	4571

The consulting companies report the collected data in the format shown.

So, let's say the cost-differential index for this location is 111.25 and the expatriate employee is on an HW +2 family assignment and the expatriate employee's monthly base salary is \$7,545. In that case, the

employee's monthly cost-differential allowance is \$3,710  
 $\times .1125 = \$417.37$ .

### **Currency Fluctuations**

Expatriate employees are also faced with the challenge of managing multiple currencies. Currency fluctuation can have an impact on the buying power of the expatriate's income. The expatriate faces two challenges: transferring money from home base to the foreign assignment location and paying required bills across countries. Remember that the expatriate employee invariably needs to pay bills in the home country, to continue a lifestyle that will allow the expatriate to return home after the assignment without having to start all over again.

To mitigate the currency-fluctuation issues, companies usually take the following actions:

- **Split-payment arrangements:** Many companies pay the employee a certain percentage of income in the host country itself (and in the host country's currency). The rest of the income is paid in the home-country currency. This way the expatriate has appropriate currency funds in both home and host countries without experiencing currency fluctuations. In actuality, the corporate practice in this regard varies. Surveys indicate that the practice is distributed among (1) payment in home country, (2) host-country currency, (3) depends on the home and host location, (4) paying everything in a reference currency and (5) paying part of the salary in a reference currency.

In companies that engage in split-payment policies, the split formula becomes important. Surveys indicate that actual practice involves (1) paying a savings part in home-country currency, (2) leaving the choice up to the expatriate, and (3) paying a certain percentage of the host-country salary in the host-country currency.

Companies also employ a policy to adjust the expatriate's salary to mitigate the effects of currency fluctuations.

Practice among companies here is also varied. Company policy in this regard includes (1) no adjustments for currency fluctuations during assignment, (2) making an adjustment every year, (3) making adjustments every six months, (4) making an adjustment when the currency devaluates by more than a certain percentage, and (5) making adjustments on a case-by-case basis.

• **Adjust the cost-differential allowance for currency fluctuations:** We have explained in the cost-differential section of this chapter how the cost-differential allowance is calculated. We have shown that the various consulting companies establish spendable income levels by family size and income levels in various countries. We have also shown that the spendable income levels are modified by a goods and services loading factor. Now we show that the cost differential can be further adjusted for currency fluctuations. To demonstrate this adjustment calculation, let's use an example of an expatriate with a spouse and two children moving from New York to Mumbai, India.

The company expatriating this employee will complete the calculation shown in Exhibit 6-6.

#### **Exhibit 6-6. Currency Adjustments to the Cost-Differential Allowance**

Date of Adjustment	Annual Spendable Income \$	Cost-differential Index	Exchange Rate \$ 1 = Rupees	Annual Spendable Income Adjusted for Cost-differential Index (\$)	Annual Spendable Income Adjusted for Currency Fluctuation (Rupees)
June 2011	108,000	108.0	48.5	116,640	5,657,040
June 2012	108,000	108.5	49.6	117,180	5,812,128

Using this calculation, the company ensures that the expatriate and his/her family moving from New York to Mumbai is kept whole for (1) purchasing power and (2) a cost-differential allowance that is stable in the host location (Mumbai) for a currency fluctuation.

## GLOBAL PAYROLL SYSTEMS

The laws that regulate HR labor practices and payroll procedures vary from country to country. There are specific requirements to comply with, pay-frequency timings, pay and work rules, and tax. For example, in Italy, taxes must be paid at the country, regional, and local levels and need to be submitted by the deadlines as established by the law. It does not matter how many employees are employed; compliance with the laws is mandatory. In addition, different data privacy and cross-border data-transfer laws further complicate the implementation.

Payroll is not only affected by local laws but also by languages, currencies, and time zones. A U.K. company based in China cannot provide its Chinese employees with pay notices in English or pay them in British pound sterling. Chinese employees must be paid on time, in the local currency, and documented in Chinese.

Cultural differences exist, as well. In different countries, employees are accustomed to different payment methods. For example, although employees in many countries expect direct deposit, those in the Netherlands might prefer paper verification, whereas employees in the Middle East might prefer electronic verification. In Russia, Mexico, and Brazil, paper pay notices are customary.

In other cases, past practices create precedents that cannot easily be changed. For example, German Works Councils maintain great influence over the payroll process and other aspects of labor and personnel practices on job sites. And the Works Council has to be consulted on any and every HR and payroll policy and practice issue.

Global payroll systems will need to cover different country-of-origin expatriate employees and local national employees. In large global construction projects, like those undertaken in the Middle East, employees are sourced from as many as 30 countries. The payroll system has to work with the specific tax-related compensation policies from all these separate employment entities. It also has to cope with the movement of salaries and tax distributions across the world in different currencies. There are also country-specific payroll regulations that need to be adhered to. Accounts with reputable international banks need to be managed to make rapid, mistake-free funds transfers and payments.

In many European countries, vacation and sick leave must be tracked as part of the payroll process. In France, failure to do so will likely mean that upon termination the labor courts will rule that no vacation has been taken, and a full payout to compensate may be required. In Italy, it is necessary to accrue a mandatory severance

payment each month, which can create challenges in payroll accounting. In many countries, the additional 13th- and 14th-month holiday payments or bonuses have to be paid at certain times within the year. In the Netherlands, it is necessary to account for mandatory medical insurance contributions through the payroll process.

Payroll processes also have to contend with other forms of compensation, such as stock-based compensation schemes, stock options, and stock grants. These programs require coordination between the parent and local entity to ensure that grants/exercises are correctly captured for reporting purposes and that any taxation related to the compensation is correctly withheld and within required time frames. Sometimes employees will want their salaries adjusted to take into account these country-specific transactions, which means finance and HR professionals should be clear on the payroll processes. Proper payroll accounting and processing becomes crucial in the effort to reduce employee complaints and disputes. Operational logistics that span many locations, cultures, currencies, languages, and laws can add levels of complication. Fortunately, these can be addressed and streamlined.

Therefore, global HR and payroll professionals need to be skilled enough to understand and manage the many vagaries of an international payroll system.

With payroll processes so complex and country specific, U.S.-based companies first turn to their U.S. payroll provider for advice and assistance. Some of these providers can offer services in certain countries, but not all countries. Many of these providers are not willing to provide such services unless the number of employees is large enough for them to make the financial commitment to provide the services.



Other companies attempt to manage global payroll in-house. This will require that the staff in both IT and payroll departments need to be experts who understand the complexities associated with all the company's various locations. Hiring the right skilled staff might prove very difficult. When implemented completely in-house, solutions can lead to an increased risk of error. In-house solutions and implementations can lead to employee dissatisfaction and possible legal problems.

More commonly attempted is a local solution, where payroll is managed with different vendors in each country. Although this method helps address concerns surrounding local cultures, languages, currencies, and regulations, it can prove costly and difficult to manage. In this solution, local employees are tasked with managing the individual vendors. Because payroll systems are maintained within each country, consolidations are time-consuming, with information generated by the various local payroll systems not being consistent in many ways. This makes consolidated payroll and accounting reporting an onerous task.

The most effective alternative then becomes using a consolidated global payroll platform. A global software-based payroll platform can reduce costs, automate reporting, facilitate compliance, and improve financial control. However, it can also be intimidating. The answer lies in selecting the right technology and the right vendor.

For companies where the *return on investment* (ROI) in these complex software-based platforms is not justifiable, the viable option is outsourcing to a reputable third-party administrator. Whether acquired for in-house use or for use by a third-party administrator, the global software platform should have modules that include payroll accounting, social insurance, travel-

expenses administration, incentive compensation, posting to accounting ledgers and journals, entity funding mechanisms, statutory (compulsory) benefits, and tax withholding and reporting requirements. Note that these provisions will vary widely from one country to another. The chosen software must also assist the company to track complicated leave formulas and understand local employment requirements and expectations. They must also be able to file health and welfare documentation.

In addition to an adequate software platform, the international payroll provider who uses the chosen software platform should be able to advise and assist with all the mandatory activities that go along with supporting international and local payrolls, including the following:

- **Entity setup:** The payroll provider should be able to advise which entity type is best for the specific company and assist with the setup of the entity.
- **Registration of tax and social programs:** Once the appropriate entity has been identified and the registration setup completed, there could be follow-on registrations required to support a locally compliant payroll.
- **Benefits:** The provider should be able to advise on structuring mandatory benefits and health and welfare programs. The provider should also advise as to the best way to accrue and account for leaves and vacations in accordance with the country's rules and regulations, commensurate with the company's accounting procedures and processes.

## **INTERNATIONAL PENSIONS**

As you have seen in this chapter, the expatriation of employees abroad is a fairly complex matter. The assignment comes entangled with accounting, finance, legal, tax, and HR issues. You have seen that many issues need to be resolved:

- Which Social Security system will the expatriate remain in?
- Where will the Social Security contributions be made?
- Where, when, and how the tax obligations of the expatriate will be dispensed.

The answers to these questions depend on specific terms and intentions of the assignment.

But still remaining is the very important question as to the status of the employee with respect to the company's pension benefits. There are legal and tax concerns attached to the issue.

Under these circumstances, organizations have various paths that they can take with respect to the expatriate's pension benefits. (We are assuming here that the employee was participating in the company's defined-benefit pension plan before the expatriate assignment commenced.) Note that we devote an entire chapter on pension accounting. Here we are simply talking about ensuring the protection of the expatriate's pension rights while on a foreign assignment.

Companies have four options:

- Keep the expatriate in the home country's defined benefit pension plan.

- Switch and enroll the expatriate into the host-country pension scheme while he or she is on the foreign assignment.
- Established a top-up pension arrangement that is run in conjunction with the home-country or host-country pension plan.
- Set up a completely separate offshore pension plan. The participants of this plan will be expatriates. The assumption here is that the organization setting up such a plan has a cadre of internationally mobile expatriates who will continue on an expatriate career path for long periods. Companies setting up such a plan are those that deal with expatriates who are regarded as permanent transferees who are unwilling to move to their home-country pension plans.

A PricewaterhouseCoopers survey in 1999 found that 85% of permanent expatriates join the host-country pension plan. And 90% of fixed period expatriates remain in the home-country pension plan. Top-up offshore plans are rare.<sup>3</sup>

<sup>3</sup> *Investment & Pensions Europe Magazine*, December 1999, [www.ipe.com/magazine/](http://www.ipe.com/magazine/).

Companies setting up top-up offshore plans should be aware of the following issues:<sup>4</sup>

<sup>4</sup> Internationally Mobile Employees and Pensions, Swiss Life Network from Employee Benefits.co.uk., [www.employeebenefits.co.uk](http://www.employeebenefits.co.uk).

- Compliance with home-country and host-country employment laws and regulations.
- Coordination of benefits between home and host plans that the expatriate has participated and will participate in. These terms can be vesting requirements, integration of defined pension formulas, and government-sponsored

Social Security plans (offsets) the expatriate has contributed to.

- Government-dictated pension guarantees triggers in case of plan dissolution. Unfunded top-up plans usually do not provide the participant any guarantees.
- Currency fluctuations.
- Impact of benefit taxation and the deductibility of employer contributions.

All of these complex issues make a top-up offshore unfunded pension plan for permanent expatriates and third-country nationals highly infeasible.

## **GLOBAL STOCK OPTION PLANS**

The worldwide business community is recognizing the advantages of sharing equity with employees. Rewarding employees with stock options or other equity-based compensation is a common practice in the United States. Emulating this practice, multinational corporations are increasingly extending these plans to employees in other countries. Companies that want to expand these programs to other countries must understand that they face unfamiliar securities, tax, and accounting laws.<sup>5</sup>

<sup>5</sup> Landua, S.E., and Benedict, B.A., "Going Global with U.S. Employee Stock Plans," Pillsbury Winthrop Shaw Pittman LLP Advisory, Executive Compensation and Benefits, May 2011.

There are various forms of stock-based compensation programs: stock options, restricted stock, restricted stock units, stock appreciation rights, performance shares, and stock purchase plans. The type of award offered and the way the stock plan is designed are two primary factors that affect legal compliance issues in different countries.

Local tax laws dictate the form of equity compensation to be used in a country. For example, restricted stock

awards have become popular in the United States. In other countries, restricted stock awards are not as common. In countries where such awards are taxed at the time of grant, there can be an unfavorable tax outcome. Restricted stock units may be a better choice under those circumstances. Other foreign tax laws may also result in awards being taxed prior to the employee's receipt of all or a portion of the award. It is important to understand the international tax implications for all aspects of proposed stock-based plan awards.

Tax rules in some countries provide tax advantages for certain qualifying stock-based arrangements. These arrangements are subject to restrictions as to eligibility, holding requirements, and grant limitations. The tax benefits offered will ultimately have to be judged based on other mitigating factors.

The country-specific securities laws are another complicating factor in the selection of the appropriate stock-based compensation program. Stock registration and the publication of prospectus may apply when stock-based plans are implemented. This might require that the proposed plan be customized to qualify for an exemption. In the absence of an exemption, publishing the required prospectus can be time-consuming and cost prohibitive.

Implementing equity-based incentive plans in countries with strict exchange-control regulations can be especially challenging and will often require customizing a plan for use in the country. In addition, employment law considerations might apply, and these might include (1) taking steps to reduce the risk that equity compensation will be regarded as a part of contractually promised compensation and (2) understanding the impact of awards on employees' compensation with respect to

governmental requirements and other employee benefit programs.

Another issue is the enforceability of the award agreement provisions. Two areas to highlight in this regard are restrictive covenants (such as noncompetition and nonsolicitation clauses) and recoupment (or clawback) provisions.

Plan administrative practices need to be considered prior to the issuing of awards in each jurisdiction. And these practices are (1) tax-withholding requirements, (2) filing and reporting obligations, (3) payroll and accounting information flow, and (4) data-privacy compliance.

Cross-border equity grants give rise to special administrative issues. For example, plans having a sell-to-cover feature for tax withholding (where a portion of the shares issued are sold to cover the employer's withholding obligation) in foreign jurisdictions can be complicated by fluctuating currency exchange rates and sales restrictions under local securities laws.

Other considerations are the proper allocation of equity plan expenses and the availability of corresponding deductions between the parent issuing company and the local subsidiary employer. Chargeback agreements are often used to deal with expense allocation, exchange control, and stamp-duty matters.

The mobility of today's workforce across international boundaries raises further issues for the design and administration of stock-based compensation plans. As individuals transfer from one tax regime to another, they may be at risk of incurring double taxation or other adverse consequences. Implementing effective monitoring procedures, whether managed internally or in coordination with third-party service providers, can help companies meet these challenges. It is important to

keep up-to-date on developments in the relevant laws in each jurisdiction in which awards are or may be granted. Regular compliance reviews are an important responsibility of global equity plan sponsors.

Companies also face nonlegal challenges when expanding their equity-based compensation plans to employees overseas. Finding appropriate compensation surveys to benchmark per person award grants can be difficult. Reliable surveys with comparison data on which to base these decisions are not readily available. Compensation comparisons across jurisdictions are complicated by fluctuating exchange rates and disparate wage and cost-of-living rates.

Cultural factors should also be considered. Employees in countries where equity-based compensation is rare may be uncomfortable or suspicious of noncash remuneration. A clear communication program is key to successful introduction of a plan granting unfamiliar types of awards or having complicated design features. Note also that translation of some plan-related documents may be required.

## **KEY CONCEPTS IN THIS CHAPTER**

- Expatriate compensation systems
- The balance sheet system
- Foreign service premium
- Housing allowance
- Education allowance
- Cost-differential allowance
- Expatriate taxes



- Tax equalization
- Tax protection
- Tax gross-up calculation
- Foreign Tax Credit
- Spendable income
- Global payroll systems
- International pensions
- Global stock option plans

## **7. Sales Compensation Accounting**

### **Aims and objectives of this chapter**

- Review various accounting and finance issues that affect the design of sales compensation and sales/commission programs
- Describe general accounting practices as they relate to sales compensation programs
- Explore the design implications, using a hypothetical base and sales commission program
- Examine the various components of a sales compensation program
- Review the accounting control and audit triggers for a sales compensation program
- Identify the various sales compensation allowances paid to a typical salesperson
- Review IRS rules and regulations that relate to sales compensation allowances
- Examine commission accounting processes using commission accounting software

Sales compensation is another important component of a total compensation system. There are many financial and accounting dimensions to the design, implementation, and administration of sales compensation plans. The design dimension that has significant financial and accounting implication is the concept of sales commissions. Commission accounting is also an important consideration. This chapter analyzes all these accounting and finance dimensions as they affect

commission program design, implementation, and administration.

## **GENERAL ACCOUNTING PRACTICES**

Sales compensation plans are specifically designed to compensate sales personnel. Sales compensation is paid to sales professionals to generate revenue for the company. Sales compensation, especially sales commission plans, is therefore directly tied to the fluctuations in sales revenue. That is, as more revenues are generated, the more sales commission is earned by sales professionals, (and vice versa). So, the variable portion of sales compensation directly correlates with sales revenue. So variable sales compensation can be considered a direct cost (that is, one directly traced to a specific cost object). It can be considered a part of absorption costing.

In cost accounting, the cost designations are as follows:

- Direct costs
- Indirect costs
- Fixed manufacturing overhead
- Variable manufacturing overhead
- Selling, general, and administrative expenses

In managerial accounting, when specific product costs need to be calculated, different methods are available for use: absorption costing (job-order costing and process costing) and variable costing. In absorption costing, all manufacturing costs are absorbed into the product cost, whether they are variable or fixed. Not so in variable costing, where only manufacturing costs that vary with output are absorbed into the product cost.

Within this context, the variable costs for sales compensation (that varies with the number of units sold) can be considered a direct product cost. But under current *Generally Accepted Accounting Principles* (GAAP) accounting, the variable portion of sales compensation is considered a *selling, general, and administrative* (SG&A) expense, which is recognized in the current period. Note all managerial accounting-based costing systems (job-order, process, variable) categorize the variable portion of sales compensation as an SG&A expense. This is in contrast to a factory manager's salary, which currently is a fixed manufacturing overhead expense. In absorption costing, the factory manager's salary is classified and absorbed into the product's cost. This is not the case under variable costing. In variable costing, the factory manager's salary would be included in the SG&A expense. This is the case even though both the factory manager's salary and the salesperson's variable compensation have a somewhat similar contribution to the product's cost. This issue remains unresolved.

The sales commission expense is reported when the company has incurred the expense and a liability. This is also when the sales commission is earned by the salesperson. Commission expense is reported as a selling expense along with other selling and administrative expenses.

Another sales compensation accounting issue should be noted here. Some organizations believe that separating fixed and variable costs can better assist in forecasting and controlling costs. Therefore, some organizations use the contribution format income statement. In the contribution approach, the objective is to determine the contribution margin (the amount remaining from sales revenues after variable expenses are deducted). The

contribution margin determines the amount contributed toward covering fixed expenses and then profit.

In the contribution margin approach, sales compensation is divided into a variable portion, which goes toward calculating the contribution margin, and a fixed portion, which is deducted after the contribution margin is calculated. Exhibit 7-1 shows an example.

**Exhibit 7-1. Contribution Approach**

<b>Sales</b>		\$24,000
<b>Variable Expenses:</b>		
Variable production	\$4,000	
Variable selling	3,000	
Variable administrative	<u>1,500</u>	<u>8,500</u>
Contribution Margin		15,500
<b>Fixed Expenses:</b>		
Fixed production	6,000	
Fixed selling	5,000	
Fixed administrative	<u>2,500</u>	<u>13,500</u>
<b>Net Operating Income</b>		<u><b>2,000</b></u>

Organizations that use activity-based costing as an internal decision-making tool define five levels of activity:

- Unit
- Batch
- Product
- Customer

- Organization sustaining

Sales compensation costs in an ABC system will normally fit under two activity pools: customer orders and customer relations. These costs are regarded as selling expenses. The activity measures used are usually the number of customer orders (for customer orders) and the number of active customers (for customer relations).

Having described the current general accounting practice for variable sales compensation or sales commission plans, we now look at specific accounting and finance issues that determine the structure of a typical sales compensation plan. Then we go on to the issues specific to commission accounting.

## **SALES COMPENSATION PLANS**

Sales compensation plans can be structured as follows:

- A base, commission, and bonus plan
- A base and bonus plan
- A base-only plan
- A commission-only plan

The structure that a company adopts is based on the sales strategy of the company and the desired salesperson behavior. Other triggers are intended to direct salesperson actions toward achieving specific sales goals and targets. Our main concern here is to analyze the accounting and finance issues that are a part of the sales compensation plan design and administration. In this context, we look at a base, commission, and bonus plan, which by its very nature has more accounting and finance issues than the other sales compensation structures.

Before analyzing the base, commission, and bonus sales compensation plan, let's first define the sales commission payment. BusinessDictionary.com defines the *sales commission payment* as follows:

The amount of money that an individual receives based on the level of sales he or she has obtained. The sales person is provided a certain amount of money in addition to his/her standard salary based on the amount of sales obtained.<sup>1</sup>

<sup>1</sup> [www.businessdictionary.com/definition/sales-commission.html#ixzz1oDlkCaOh](http://www.businessdictionary.com/definition/sales-commission.html#ixzz1oDlkCaOh).

The main element of any sales compensation plan is the use of variable pay. The objective is to align the sales and marketing objectives of the organization with the specific objectives of the salesperson. The sales targets or quota targets that can be used in establishing the “right” sales compensation incentives include the following:

- **Sales volume:** The number of sales volume over a specified time period.
- **New business:** Sales to new customers. This may require a great deal of cold-calling, prospecting, converting, and closing.
- **Retaining sales:** Keeping customers from one sales time period to another.
- **Product mix:** The organization might want to sell a predetermined mix of products. This will help the competitiveness of the company by selling the whole product line, upselling and cross-selling up and down the product line.
- **Win-back sales:** This is a sale made to old customers who are being regained as customers.

- **New product sales to existing customers:** This is sales of new products to existing customers.

- **Selling across the company's product lines:** Cross-selling and upselling.

#### **A Cautionary Note on Using Sales as a Commission Trigger**

When deciding on targets or measures to trigger sales commission payouts, consider this: If sales volume is used as the exclusive triggering measure, this could lead to a reduction in profit. Let's demonstrate this with an example (see [Exhibit 7-2](#)). Suppose, for instance, that a company has two products in its portfolio, Product A and Product B.

#### **Exhibit 7-2. Analyzing The Effects of Sales as a Commission Trigger**

	Product A	Product B
Selling Price	\$525	\$825
Variable Expenses	\$255	\$650
Margin	\$270	\$175

If the sales personnel were paid a 15% commission on sales, they would clearly focus their efforts on selling Product B, although Product A has a greater contribution margin. Focusing on Product B will give the salesperson a higher commission payout. As far as the company is concerned, however, selling more of Product A will give the company a higher profit from which they could cover their fixed expenses and generate a higher net income.

So, if the company sets commissions on the contribution margin or a combination of factors, the likelihood is greater that the salespeople will be encouraged to sell a



mix of Products A and B. If fixed costs are not affected by the sales mix, the company can achieve a higher level of profitability if the salesperson is encouraged to sell a mix of products and not just the product with the highest commission potential.

The base, commission, and bonus structure is by far the most common sales compensation structure used by organizations that engage salespeople to generate revenue. Several advantages are associated with compensation plans that combine base salaries with commissions, including the following:

- The plans motivate the sales force to produce greater effort and results.
- The plans enable companies to provide additional rewards to superior salespeople.
- The structure of these plans facilitates the close correlation of compensation with sales performance.
- The plans are generally fairly easy to administer.

Note that in addition to commissions, compensation paid to sales personnel may include expense accounts, automobile leases, advances against future commission earnings (called draws), and sales contests.

Expense accounts are common in many industries. Salespeople routinely use business lunches, dinners, and other networking occasions to close deals. Salespeople often use their own vehicles to travel long distances to meet with customers, and so they expect the company to cover their vehicle expenses (as a business requirement). Providing these compensation elements in the sales compensation package is a competitive requirement if the company intends to hire and retain the highest-caliber sales professionals. You will learn more about

these elements of a sales compensation plan later in this chapter.

Sales contests are another compensation element organizations use to motivate sales personnel. Under these programs, sales personnel who beat their annual sales targets or quotas are rewarded with a company-paid trip to an exotic location (or any other reward that has a prestige factor attractive to high-achieving sales personnel). Sales contests can be highly motivational.

Because of these reasons, the company might establish quota clubs. Quota club memberships are reserved for sales personnel who on a year-to-year basis continue to beat their target achievement numbers. As indicated, the annual quota club event often takes place in an exotic location. During these quotas club events, organizations celebrate the top performers, who are thus motivated and encouraged to outdo their current-year performance during the next sales cycle.

Now let's analyze in detail a hypothetical sales compensation plan with a base, commission, and bonus structure from a finance and accounting perspective. Using this plan, we will discuss both the relevant potential and actual accounting and finance issues.

### **Accounting Issues Impacting Sales Compensation Program Design**

A number of specific accounting and finance issues impact the design of sales compensation plans, as follows:

- **Quota-based plans:** In these plans, there is usually an *order quota* and a *booking quota*. The order quota usually serves as the basis for determining commission earnings. And the booking quota usually serves as the basis for the eligibility for noncash incentives, such as the quota club.

A commission factor can then be determined. The following is an example of the calculation of a commission factor:

**Commission Factor =**

$$\frac{\text{Target Commission Earning @ 100 Order Quota}}{\text{Order Quota Dollars}}$$

Commission credit can be granted only for firm purchase orders procured by the sale representative and accepted by the company. The criteria for the acceptance of purchase orders is usually determined on a year-to-year basis.

Now that the commission formula is established, the commission payment structure can be triggered. Commission earnings are based on the order dollars generated by the salesperson's efforts.

If the commission factor were calculated to be (using formula) 8%, then if an order is received for \$10,000, the commission earned would be \$800. Some organizations might set up a sliding scale to determine the payout commission amount, as demonstrated in Exhibit 7-3.

### **Exhibit 7-3. The Commission Earned Sliding Scale**

\$1 sales to \$X dollars sold	4% commission factor
\$X sales to $X_1$ dollars sold	5% commission factor
$\$X_{1,1}$ sales to $X_2$ dollars sold	6% commission factor
$\$X_{2,1}$ sales to $X_3$ dollars sold	7% commission factor
$\$X_3$ sales to quota dollars	8% commission factor
Quota dollars + \$Y dollars sold	10% commission factors
$\$Y_{1,1} + \$Y_n$ dollars	12% commission factors

The commission formula scheme is an escalating scheme geared to motivate the salesperson to increase sales order dollars to as high as possible.

Sales personnel are also assigned an individual booking quota. The booking quota can be the prime determinant for quota club participation and for any other noncash recognition awards. Booking quota credit can be given for the total contract quantity for the first 12 months of the contract.

• **New customer/new product bonus plans:**

Because the generation of new business is important to the company, a bonus for new customers and new products sold to existing customers can be made whenever certain criteria are met within a specific time period. The bonus quantity might need to be shipped to qualify for the new account/new product bonuses.

A schedule for the bonus element can be laid out as shown in Exhibit 7-4.

**Exhibit 7-4. A Sales Bonus Schedule**

#Customer/New Product	Bonus
1	\$5,000
2	6,250
3	7,500
4	8,750

A stipulation might apply as to which new product qualifies for this bonus.

• **Shipment commission:** An additional shipment commission can also be provided for a revenue-

recognized shipment of product and spare parts per a predetermined schedule, as shown in Exhibit 7-5.

**Exhibit 7-5. A Shipment Bonus Schedule**

Revenue Amount	Commission
\$0 - \$5,000, 000	.5 (1/2 of 1%)
\$5,000,001 and above	.3

Shipment commissions are paid for shipments within a given yearly period.

- **Split commissions:** If the orders are booked in one territory and shipped from outside that territory, a formula can be set up to split the commissions. For example:
  - One-third commission to salesperson in territory where order is placed.
  - One-third commission to salesperson in territory into which product is shipped.
  - One-third or any partial one-third commission to wherever the approval, sales liaison, or sales effort was made. The adjudication of this commission is usually left up to management.
- **Draws:** When circumstances warrant, a draw against future commissions may be approved by management. The draw is often set for a fixed period at a particular level, but usually at no more than 50% of year-to-date quota performance. The maximum level of the draw balance that will be permitted in the draw account is specified as to amount and length of time the draw can be outstanding. Then a stipulation can be made saying that the draw balance can be recovered based on a

percentage of commission credits per month until 100% of the draw is recovered.

- **Reserves:** During any particular month, if the net commission results in a negative amount, the negative balance can be placed in a reserve account. Recovery is made at a certain percentage of the subsequent month's commission until the reserve balance has been reduced to zero.

- **Price changes and adjustments:** If the price for any product units ordered by the customer changes, a quota and commission credit adjustment can be charged or credited to the sales representative who originally received quota credit.

- **Commission recovery:** If the customer or the company cancels any part of an accepted purchase order, the quota and commission and any bonuses for units not yet shipped can be charged back to the sales representative who originally received quota credit. Also, if a receivable on an account goes beyond 60 days (for example), a straight chargeback can be applied to the commission on those accounts.

- **Exceptions:** Sales and revenue resulting from accounts designated "house accounts" may not qualify for commission purposes. Each house account can be treated on an individual basis, with an appropriate sales bonus associated with it. Plan conditions, might state, for example, that house accounts cannot be included in quota assignments for certain specific accounts.

## **ACCOUNTING CONTROL AND AUDIT ISSUES**

From an accounting control point of view, the following potential provisions of sales commission plans are important to understand:

- Commissions and bonuses will be paid upon the firm acceptance of a purchase order and revenue shipments.
- Commissions and bonuses can be paid in advance of the company's anticipated receipt of revenue. Advanced commissions and bonuses are considered earned and vested only upon receipt of full payment of revenue on which they are based. Commissions and bonuses not earned as a result of an order cancellation, returned shipment, or billing adjustment must be refunded to the company.
- Commissions and bonuses can be calculated and paid monthly. Each month's commissions are normally calculated monthly even if payment is not made. Each calendar month's net commissions and bonuses can be paid by the end of the following month.
- The net dollar amount paid during a particular month can be (1) the sum of the positive commission and bonus dollars calculated for the previous month minus any negative commission or bonus dollars owed pursuant to the plan provisions and not previously deducted, (2) and/or minus any draw recovery, and (3) any amount recovered as an offset to a negative reserve balance. (A maximum incentive dollar amount payable under the plan can normally be stipulated in the plan.)
- As an accounting control, companies can reserve the right, in sales compensation plans, to make a fair and equitable adjustment to quota, commission, and bonuses where business clearly has been lost because of nonperformance outside the control of the direct sales employee. This is in spite of the best efforts of the direct sales representative to manage the situation.
- Under certain circumstances, the company can reserve the right, at its discretion, to reduce quota achievement or commission and bonus dollars below levels set forth in

this plan. These circumstances might include but are not limited to the following transactions:

- Where profitability has been affected adversely by concessions
- Where normally required sales effort was not expended
- Where unusual assistance has been provided to the salesperson
- Where violations of good business practices or professional ethics occurred
- Each sales representative can be provided with a copy of the plan. The sales representative is expected to acknowledge receipt of the plan, read the plan, confirm his/her understanding by signing the plan, and then return it to their managers (all before any commission can be paid by the accounting department). Of course, the accounting department can make payment only subject to plan provisions.
- Contracts and purchase orders: A duly executed contract is often required for the acceptance of a purchase order. The contract should be referenced in each purchase order. A contract, even if a quantity over time is indicated, does not normally represent a purchase order. No quota credit is usually granted against contracts for purposes of determining commission payment amounts. Purchase orders need to be firm and in writing. If electronic media is used to transmit a purchase order, a written confirmation within 30 days (for example) might be required. In addition, for a purchase order to be accepted, it must specify the product, the quantity, the unit price, the extended price, and the requested delivery schedule. All these stipulations will need to be consistent with the terms of the underlying contract. Also, a provision can be



included that if delivery on a purchase order extends beyond 14 months the commission credit will be granted only for units to be delivered within 14 months.

## **OTHER SALIENT ELEMENTS OF A SALES COMPENSATION PLAN**

### **Expense Allowances**

Sales personnel are often required to travel as a part of their jobs. This travel might be part of their daily work routine or might cover longer distances that require them to be “on the road” for considerable periods of time. Per the U.S. tax code, this is a tax-deductible expense for the employee, if there is no employer reimbursement. But, most organizations reimburse the employee for these expenses.

### **Accountable and Nonaccountable Plans**

If the employer reimburses employee business expenses, how the employer treats this reimbursement on the employee’s Form W-2 depends in part on whether the employer has an accountable plan.<sup>2</sup> Reimbursements treated as paid under an accountable plan are not reported as pay. Reimbursements treated as paid under nonaccountable plans are reported as pay.

<sup>2</sup> This section was adapted from IRS publications at [www.irs.gov](http://www.irs.gov) and <http://irs.gov/publications/>.

To be an accountable plan, the employer’s reimbursement or allowance arrangement must meet all the following conditions:

- Expenses must have a business connection; that is, the employee must have paid or incurred deductible expenses while performing services as an employee of the employer.

- The employee must provide adequate accounting for these expenses within a reasonable period of time.
- The employee must return any excess reimbursement or allowance within a reasonable period of time. An excess reimbursement or allowance is any amount that the employer paid the employee that is more than the business-related expenses that the employee adequately accounted for to the employer.

The definition of *reasonable period of time* depends on the facts and circumstances of the employee's situation. However, regardless of the facts and circumstances of the situation, actions that take place within the times specified in the following are treated as taking place within a reasonable period of time:

- The employee received an advance within 30 days of the time the employee incurred the expense.
- The employee adequately accounts for the expenses within 60 days after they were paid or incurred.
- The employee returns any excess reimbursement within 120 days after the expense was paid or incurred.
- The employee is given a periodic statement (at least quarterly) that asks the employee to either return or adequately account for outstanding advances and to comply within 120 days of the statement.

If the employee meets the three conditions for accountable plans, the employer should not include any reimbursements in the employee's income in box 1 of the Form W-2. If the expenses are equal to the reimbursement, the employee does not have to complete Form 2106. The employee has no deduction because the expenses and reimbursements are equal.

If the employer includes the reimbursements in box 1 of the Form W-2 and the rules for accountable plans are met, the employee should ask for a corrected Form W-2.

Even though the employee is reimbursed under an accountable plan, some of the expenses may not meet all three conditions. All reimbursements that fail to meet all three conditions for accountable plans are generally treated as having been reimbursed under a nonaccountable plan.

If the employee is reimbursed under an accountable plan, but the employee fails to return, within a reasonable time, any amounts in excess of the substantiated amounts, the amounts paid in excess of the substantiated expenses are treated as paid under a nonaccountable plan.

The employee may be reimbursed under an employer's accountable plan for expenses related to that employer's business, some of which are deductible as employee business expenses and some of which are not deductible. If the reimbursements the employee receives for the nondeductible expenses do not meet the first condition for accountable plans, they are treated as paid under a nonaccountable plan.

The deductibility for the company as a business expense depends chiefly on whether the payment is made under an accountable plan. There is a definite advantage from a tax perspective, for both the organization and the employee, to seeing that reimbursements are made under an accountable plan.

If the organization's plan does not meet these conditions, as listed earlier, the plan is not an *accountable plan*. If it is not, the company has to pay FICA taxes on the reimbursement amounts paid to employees. For employees, the difficulty is having the reimbursements

considered wages and then having to deduct them from their own tax returns.<sup>3</sup>

<sup>3</sup> This section was adapted from IRS publications at [www.irs.gov](http://www.irs.gov) and <http://irs.gov/publications/p463/cho6.html>.

## TRAVEL ALLOWANCES

In practice, three main types of travel allowances are used: automobile allowances, company vehicles, and per diems.

### Automobile Allowances

There are three basic types of reimbursement plans used for the accounting of automobile expenses:

- **Actual expense method:** In this method, employees are required to keep track of all expenditures related to their automobile and to report them periodically to their employer for reimbursement. This includes all the items mentioned earlier with regard to accountable plans. The items can include fixed expenses such as registration fees and variable items such as gasoline and oil. The total costs then have to be divided by the percentage of total usage of the automobile for business purpose versus usage of the automobile for personal purposes.

The advantage to this method is that it reflects the actual costs rather than estimated costs. The disadvantage of the method is that it is time-consuming and can be quite involved to keep such a complete record of expenses. Because the employee keeps these records, there may be a tendency to inflate the figures.

- **Standard mileage method:** The simplest and most common way to reimburse employees for their automobile expenses is to pay them a mileage allowance based on the number of business-related miles they drive.

Ordinarily, the employer uses the standard mileage rate established by the IRS each year (.555 cent a mile in 2012). However, the organization might pay employees a higher rate, so long as the rate is reasonably designed not to exceed the employee's actual or anticipated expenses. In this case, the amount of expense the organization can deduct is the lesser of:

- The amount the organization paid under its own mileage allowance
- The government's standard mileage rate multiplied by the number of business miles substantiated by the employee

The standard mileage rate is reviewed and changed each year by the IRS. You can find this information at [www.irs.gov](http://www.irs.gov).

The main advantage to using the standard mileage method is clearly its simplicity. The record keeping is limited. Further simplification is provided in that the mileage rate is not subject to dollar caps or the special rules that apply if qualified business use does exceed 50% of total use. The major disadvantage to the standard mileage method is that it might not cover all the costs of driving the automobile. Fixed costs such as depreciation are not taken into account. The employee may be able to calculate these additional costs and deduct them as expenses from their taxes separately.

• **Fixed and variable rate (FAVR):** This is an allowance the employer may use to reimburse the employee's car expenses. Under this method, the employer pays an allowance that includes a combination of payments covering fixed and variable costs. For example, a cents-per-mile rate may be provided to cover the employee's variable operating costs (such as gas, oil, and so on). A flat amount to cover your fixed costs (such

as depreciation, lease payments, insurance, and so on) can also be added on. If the employer chooses to use this method, the employer must request the necessary records from the employee.

### **Use of Company Vehicles**

Some companies provide their sales personnel with company vehicles. If the company vehicle is used entirely for business purposes, the employer might be able to deduct the costs of the vehicle as a business expense. If the employee also uses the company-owned vehicle for personal use, however, the accounting treatment differs. The employee personal use portion of the vehicle's operational costs becomes a benefit to the employee and is considered income and is taxable. This will increase the record-keeping requirements, in that the employee will have to maintain a log of all travel in the company vehicle indicating whether each trip was for a business or personal reason.

For company-owned vehicles, the personal-use portion is calculated via one of three methods: cents-per-mile rule, commuting rule, and lease-value rule.

#### **Cents-Per-Mile Rule**

Under the cents-per-mile method, you multiply the current mileage rate (\$.51 for January through June 2011; \$.555 for July through December 2011) and .555 per mile in 2012 times the personal-use mileage. To use this method, you must, among other requirements, use the vehicle more than 10,000 miles per year, and the vehicle must be valued at less than the maximum permitted value when placed in service (\$15,300 autos, \$16,000 truck or van for 2010) and also meet the regular use requirements.

**Commuting Rule**

Valuation for the commuting rule is based on \$1.50 per one-way commute (per employee). To qualify for this method, the employer must (1) provide the vehicle for bona-fide business purposes and require the employees to commute in the vehicle and (2) establish a written policy stating that the employer does not allow the vehicle to be used for personal purposes other than for commuting.

**Lease-Value Rule**

Most employees can qualify under the lease-value rule based on the fair market value of the vehicle. The fair value is equal to what it would cost to lease a similar vehicle from a third party, known as the annual lease value. To make this calculation easy, the IRS provides an annual lease value for vehicles based on the vehicle's fair market value. The vehicle's fair market value can be determined from any number of Web sites or automobile appraisers. The best source is Kelley Blue Book's Web site: [www.kbb.com](http://www.kbb.com). Once the vehicle's fair market value is determined, the employer can use the annual lease value table provided by the IRS in Publication 15-B.

After the personal-use percentage and the annual lease value have been determined, the two items are multiplied together to determine the taxable value of the benefit. The taxable value of the benefit is subject to both income and payroll taxes. The value of the benefit must be increased to cover the payroll tax liabilities. This increased value should be shown on the employee's Form W-2 at the end of the year, because the employee will be subject to taxes on the value of the benefit. It is advisable that these calculations be done in advance so that additional income tax withholding can be taken out of the employee's regular pay.

The key thing is good record keeping, and it is essential to avoid understating or overstating the employee's tax liability.

### **Per Diems**

A per diem allowance is a fixed amount of daily reimbursement the employer pays the employee for lodging, meals, and incidental expenses. Federal government per diem rates can be figured by using one of the following methods:

- **The regular federal per diem rate:** This rate varies by location. It includes all the lodging, meals, and incidental expenses. You can find these per diem rates online at [www.gsa.gov/portal/category/100120](http://www.gsa.gov/portal/category/100120).
- **The standard meal allowance:** The standard meal allowance alternative is used when the employee does not have any lodging expense, such as when the employee stays in a company-owned accommodation or with relatives. It covers only meals and incidental expenses. You can find calculations for this category of expenses at the IRS Web site.
- **The high-low rate:** A simplified computation with one rate for high-cost cities and another for regular locations. The amount changes each year. You can find the current amounts and cities in IRS Publication 1542 ([www.irs.gov/pub/irs-pdf/p1542.pdf](http://www.irs.gov/pub/irs-pdf/p1542.pdf)).

### **COMMISSION ACCOUNTING**

We now turn our attention to commission accounting.

Usually, commission accounting activities are performed with add-on commission accounting software, many of which are available. Examples include the following:

- QCommission



- Glocent
- Sales Wand (for SAP only)
- Account Pro
- Actek ACom
- APPX
- Maestro
- TrueComp
- CompensationMaster Commission Planner
- Exaxe
- planIT Sales Compensation
- GreenWave

This is just a partial list; many others are available.

These applications improve sales productivity by centralizing and automating commission-based sales compensation plans. The commission accounting applications allow performance tracking, reporting, and the calculation of commission compensation based on performance variables and also the management of key dates in the company's sales/compensation cycles. Software applications can also assist in the management of regulatory requirements as it pertains to the sales compensation programs. The primary advantages of these applications are accounting integration, commission calculations, commission splits, quota management, and chargebacks.

The main operational functions of the software applications are transaction processing, file

maintenance, reporting and inquiry, and time-bound processing.

The commission accounting applications should include commission compensation administration features such as the following:

- Commission posting from accounts receivables and order entry into the commission accounting software
- Transfers of sales commissions to accounts payable and the payment of sales commissions through accounts payable
- Options for transferring summary or detail information to accounts payable

This chapter focused on just the accounting-related and finance-related issues of sales compensation program design. We used a hypothetical sales compensation plan to discuss the key financial and accounting issues. We also looked at various IRS rules and regulations with respect to factors that affect the design of sales compensation programs. This chapter also described commission accounting systems and various sales compensation payment types (allowances).

In sales compensation program design, another key implication is equally important: The program needs to be aligned with the organization's overall strategy, and especially the sales and marketing strategies.

## **KEY CONCEPTS IN THIS CHAPTER**

- Quota-based plans
- Base, bonus, and commission plans
- Commission factor

- Expense allowances for sales personnel
- Automobile allowance reimbursement plans
- New customer/product bonus plans
- Shipment commission
- Split commission
- Quota clubs
- Draws
- Reserves
- Commission accounting
- Gross margin versus revenue as a triggering mechanism

## **8. Employee Benefit Accounting**

### **Aims and objectives of this chapter**

- Review specific accounting issues related to health and welfare employee benefit programs
- Discuss the standards framework for the accounting and reporting of employee benefit programs
- Establish the difference between defined contribution and defined benefit programs within a health and welfare employee benefit structure
- Discuss the relevant points of FASB 965 – Employee Benefits
- Discuss the concept of claims incurred but not reported
- Review the reporting requirements for postretirement health plans
- Discuss the concept of self-funding of health and welfare plans
- Explain self-funding within the ERISA structure
- Review reporting standards for health and welfare plans under IFRS – IAS 19 standards
- Explain the financial reporting requirements for employee benefit plans, focusing on health and welfare plans

Employee benefit programs are a crucial element of the total compensation system for any organization.

Normally, the employee benefit element of the total compensation structure makes up about a third of the average total compensation. Within the employee benefit structure, the healthcare benefit element is experiencing ever-increasing cost inflation. Because of healthcare costs, the total benefit component can create significant cost exposure for most organizations. This makes the review and comprehensive analysis of employee benefits very important. The next three chapters cover the employee benefit component of the total compensation system.

We now turn our attention to the accounting and finance issues related to employee benefit programs as a whole.

Before 1980, U.S. *Generally Accepted Accounting Principles* (GAAP) had not issued any guidelines for the accounting treatment of employee benefit plans. So before 1980, in actual practice the principles used for the accounting of employee benefits was widely divergent. In March 1980, the *Financial Accounting Standards Board* (FASB) issued the *Statement of Financial Accounting Standards* (SFAS) No. 35, Accounting and Reporting by Defined Benefit Plans. Because these standards addressed only defined-benefit plans, the *American Institute of Certified Public Accountants* (AICPA) issued guidelines for the accounting of defined-contribution and health and welfare plans. The guidance was incorporated in AICPA's Audit and Accounting Guide: Audits of Employee Benefit Plans. The Audit and Accounting guide document was issued in 1983. Since then, the guidance has been updated quite a few times. In August 1992, FASB issued its Statement of Financial Standards No. 110, Reporting by Defined Benefit Pension Plans of Investment Contracts, which extended the fair value accounting to certain insurance contracts.

Specialized accounting and reporting guidance for employee benefit plans is now included in the FASB ASC 900s<sup>1</sup> topics. FASB ASC 960 addresses defined benefit pension plan accounting and reporting, FASB ASC 962 addresses defined contribution pension plan accounting and reporting, and FASB ASC 965 addresses health and welfare benefit plan accounting and reporting.

<sup>1</sup> Financial Accounting Standards Board (FASB) – Accounting Standard Codification (ASC).

Employee benefit programs can be generally classified into three categories:

- Risk benefits (covering medical, disability, and life insurance benefits)
- Time-away-from-work benefits
- Savings and retirement benefits (sometimes also called wealth-accumulation programs)

This chapter and Chapter 9, “Healthcare Benefits Cost Management,” discuss the accounting and finance implications of the first category of benefits. In this chapter, we focus on the accounting and financial reporting issues connected to health and welfare plans. Chapter 9 is devoted to the important issues of controlling and managing healthcare costs. Chapter 10, “The Accounting and Financing of Retirement Plans,” then discusses the third category of employee benefits: retirement benefits. Retirement benefits entail many accounting and finance implications (and so require a more comprehensive analysis).

## THE STANDARDS FRAMEWORK

Health and welfare program accounting in the United States is influenced by two significant guiding principles as codified in the U.S. GAAP (FASB) and the *Employee Retirement Security Act* (ERISA). Internationally, the guiding principle is the *International Financial Reporting Standards* (IFRS). In the U.S. GAAP, the accounting for health and welfare plans is codified in FASB ASC regulation 965, and the IFRS standard is in IAS 19.

Guiding our discussions throughout this chapter are the rules, regulations, and principles for the accounting of health and welfare benefit plans both under the U.S. GAAP and the IFRS (that is, FAS 965 and IAS 19, respectively). We discuss relevant elements of the accounting requirements under both codes. If you want a detailed analysis and understanding of the codes, you can review the complete codes at the respective Web sites ([www.fasb.org](http://www.fasb.org) and [www.ifrs.org](http://www.ifrs.org)).

Companies in the United States have been analyzing the differences between the IFRS and the U.S. GAAP in anticipation of the convergence of the standards. All parties are waiting to find out when a requirement will be imposed by rule-making bodies requiring U.S. companies to adopt IFRS standards. The *Securities and Exchange Commission* (SEC) had stated that they would evaluate the feasibility of requiring IFRS conversion in 2011. The convergence time-line indicates that the earliest years the SEC would require U.S. IFRS conversion is 2014 to 2016.

Analyzing, interpreting, and understanding the FASB standards with respect to employee benefit accounting is a worthwhile exercise. However, we also need to do the same analysis with the IFRS standards in mind. This is needed because U.S. companies will face convergence in

the near future. Looking at the accounting principles under both the standards will assist in the execution of the convergence effort if and when it is needed. Later in this chapter, we look at IFRS regulations as they pertain to health and welfare plans. The discussion that follows is based on a direct analysis, interpretation, and discussion of the standards.<sup>2</sup>

<sup>2</sup> FASB 965 Plan Accounting—Health and Welfare Plans (based on an analysis of FASB 965).

## **DEFINED CONTRIBUTION VERSUS DEFINED BENEFIT PLANS**

Defined contribution health and welfare plans differ from defined benefit health and welfare plans. A defined contribution health and welfare plan keeps a record of each individual plan participant's account. Records are kept of each participant's contribution and the employer's contribution attributable to that employee.

A defined benefit health and welfare plan<sup>3</sup> specifies a defined benefit, which may be a reimbursement to the covered plan participant or a direct payment to providers or third-party insurers for the cost of stipulated services on behalf of the participating employee. Defined benefit plans provide participants with a specifically determined benefit based on a formula provided in the plans, whereas defined contribution plans provide benefits based on amounts contributed to an employee's individual account.

<sup>3</sup> Hicks, S.W., "Accounting and Reporting by Health and Welfare Plans," *Journal of Accounting*, Vol. 174, Issue 6, 1992.

Both the types adjust values based on the following:<sup>4</sup>

<sup>4</sup> FASB – 965 – 325 – 05 – 2; [www.fasb.org](http://www.fasb.org).

- Forfeitures



- Investment experience
- Administrative expenses

Each type of plan provides a benefit that has value. Therefore, the defined benefit health and welfare plan's financial statements need to provide financial information that will aid in understanding and assessing the plan's present and future ability to pay its benefit obligations when they become payable. To meet this objective, a plan's financial statements should provide information about the plan assets and its benefit obligations, the results of transactions or events affecting the plan's assets and liabilities, and any other pertinent information necessary for users to analyze the information provided.

The different types of defined benefit health and welfare plans (multiemployer and single employer) should separately report benefit obligations, including postretirement benefit obligations.

## **SECTION 965 EXPLAINED<sup>5</sup>**

<sup>5</sup> In this part of the chapter, we are interpreting, adapting, and explaining relevant code sections (stating the relevant section) of FASB 965, [www.fasb.org](http://www.fasb.org).

**Benefit Payments – 965-30-25-1:** Health and welfare plans are able to process benefit payments directly, or the employer may retain a *third-party administrator* (TPA) through an *administrative service arrangement* (ASA). Benefits need to be paid by both fully and partially self-funded plans.

**Premiums Due Under Insurance Arrangements – 965-30-25-3:** Premiums due but not yet paid should be a part of the accounting of any obligation.

**Postemployment Benefits – 965-30-25-3:** Plans specially designed to provide postemployment benefits

need to recognize a benefit obligation for current plan participants based on amounts that will be paid in future periods if certain conditions are met. The conditions are as follows:

- The participant's right to receive the benefit needs to be based on services already provided.
- The participant has a vested benefit.
- There is a high probability of making the payment.
- The amount needs to be estimated in an accurate manner.

The exception to the rule is when all employees are provided the same benefits upon the occurrence of another specific event, such as medical benefits provided under a disability plan. In disability plans, medical benefits are paid regardless of the length of service. These disability plans usually do not have a vesting provision. Disability benefits need to be accrued from the start date of the disability (965-30-25-4).

#### **Obligations for Premium Deficits – 965-30-25-5:**

In fully insured experience-rated plans, the experience ratings determined directly by insurance companies or estimates developed by those companies can result in deficits. Premium deficits need to be included in the total benefit obligation if both the following criteria are met:

- It is probable that the deficit will be applied against the amounts of future premiums or future experience rated refunds. The determination has to consider both of the following:
- To what extent the insurance contract requires payment of the deficits

- The plan's desire to transfer coverage to another insurance company
- And the amount of the deficit can be estimated in a reasonable manner.

### **Recognition of Employer Contributions – 965-**

**310-25-1:** If there is formal commitment to make the employer contribution, there has to be documented evidence of the commitment. Documentary evidence can include the following:

- A resolution of a governing body signing off on this commitment.
- Evidence of a continuing pattern of making payments after the end of a plan year. This payment pattern needs to be made under a funding policy.
- Evidence of a deduction of a contribution taken for federal tax purposes. The deduction should be for periods ending on or before the financial statement date.
- Evidence of an accounting recognition of the contribution as a current expense payment liability. It is just not sufficient to show on the balance sheet that there is accrued liability. It is also insufficient evidence if the statement simply reflects that an accrued liability amount exceeds the plan's assets available to meet the plan's obligations.

### **Recognition of Premiums Paid to Insurance**

**Companies – 965-310-25-2:** This depends on whether a premium was paid to an insurance entity. It also depends on whether the premium payments were for the transfer of risk or merely a deposit. An analysis is required to determine the extent of the risk transfer to the insurance company. To mitigate the risk transfer, insurance companies might require a deposit be placed

that can be applied toward possible future losses. The deposits need to be reported as plan assets until the amounts are used to pay premiums. Premium stabilization reserves that are maintained when premiums paid are in excess of claims and other charges paid should also be reported as assets of the plan until the reserves are used to pay premiums. If these reserves are forfeitable when the insurance contract is terminated, this possibility should be considered when calculations are made to determine assets. If experience-rated premium refunds are expected, and if the policy year does not coincide with the plan's financial year, the refunds due should also be reported as plan assets. This is done only when a determination is made that the refund will become due. Finally, it is assumed that all the calculations can be reasonably performed (965-310-25-3).

## **CALCULATING PLAN BENEFIT OBLIGATIONS**

**965-30-35-1:** All benefit obligations for single-employer and multiple-employer defined benefit health and welfare plans should include the actuarial present value of

- Claims payable
- Claims *incurred but not reported* (IBNR)
- Premiums due to insurance companies for accumulated eligibility credits and for postemployment benefits, net of amounts currently payable, and IBNR claims. This should be premiums for retired plan participants, including beneficiaries and covered dependents, for other plan participants eligible for benefits, and for plan participants not yet fully eligible. Information elements need to be in the body of the financial reports and should not be footnote disclosures.

## **CLAIMS INCURRED BUT NOT REPORTED (IBNR)**

An important concept that affects the actuarial valuation of plan assets and liabilities is the IBNR (claims *incurred but not reported*).<sup>6</sup> According to HealthDictionarySeries.com, an IBNR claim signifies healthcare services that have been rendered but not invoiced or recorded by the healthcare provider, clinic, hospital, or any other health service organization. IBNRs are usually an integral part of a risk-adjusted contract between managed care organizations and healthcare providers. An IBNR claim refers to the estimated cost of medical services for which a claim has not been filed. These claims are normally monitored by an IBNR collection system or control sheet.

<sup>6</sup> Adapted from a blog authored by Dr. David Edward Marcinko, “What is an IBNR medical claim?” Blog: Medical Executive Post ... Insider News and Education for Doctors and Their Advisors, October 2008, <http://medicalexecutivepost.com/2008/10/07/what-is-an-ibnr-medical-claim/>.

More formally, IBNR is the financial accounting of all services that have been performed but because of a time element or a “lag” have not been invoiced or recorded as of a specific date. The transactions covering medical services that were provided should be accounted for using the following IBNR entry:

Debit—Accrued payments to medical providers or healthcare entity

Credit—IBNR accrual account

An example of an IBNR in a hospital is a coronary artery bypass surgery for a managed care plan member. The surgeon or healthcare organization has to pay for all related services, such as physical and respiratory therapy, rehabilitation services, drugs, and durable

medical equipment [DME] out of a future payment fund. These payments are contractual obligations (liabilities).

The health plan might not be completely billed until several weeks, months, or quarters later or even further downstream in the reporting year after the patient is discharged. To accurately project the health plan's financial liability, the health plan and hospital must estimate the cost of care based on past expenses.

Since the identification and control of costs are paramount in financial healthcare management, an IBNR reserve fund (an interest-bearing account) must be set up for claims that reflect services already delivered but, for whatever reason, not yet reimbursed.

From the accounting point of view, the IBNR needs to be accrued as an expense and a short-term liability for each fiscal month or accounting period. Otherwise, the organization may not be able to pay the claim if the associated revenue has already been spent. The proper handling of these "bills in the pipeline" is crucial for proactive providers and health organizations. IBNRs are especially important with newer patients who may be sicker than prior norms. Amounts that hospitals hope to recover (recoverable) are posted as part of their reserve charges. In many cases, these recoverables end up being IBNR losses. They are recorded as IBNR claims on the balance sheet. When these book losses start becoming actual losses, the hospital might look to the insurer to pay a part of the claim. This might end up being a disputable charge.

For self-funded plans, the IBNR cost should be measured at the present value of the plan's estimated ultimate cost of settling the claims. Estimated ultimate costs should reflect the plan's obligation to pay claims to or for participants (for example, continuing health coverage or long-term disability) regardless of employment status

and beyond the financial statement date if stipulated (965-30-35-1A).

## **OTHER BENEFIT OBLIGATIONS**

- Administrative expenses incurred by the plan can be recognized by including the estimated administrative expenses in the benefits expected to be paid or by reducing the discount rate (965-30-35-2).
- Postretirement retirement benefit obligations should be measured as the actuarial present value of future benefits that are tied into the participant's service performed as of the cost measurement date. The calculation should be reduced by projected future contributions from plan participants. The determined calculation represents the employer's funding requirement and the accumulated plan assets. This calculation should also consider the following variables:
  - Continuity of the plan.
  - That all assumptions made about future events for the calculation will indeed be met.
  - Any anticipated forfeitures and integration with other plans.
  - The discount rate used assumes a rate of return that matches the rates of return for high-quality fixed-income investments.
  - Any insurance premiums paid for plan participants who have accumulated enough eligibility credits or hours of employment. This is usually calculated by multiplying eligibility credits by the current insurance premium and for self-funded plans by using the average of benefits per eligible participant. Mortality, expected employee

turnover, and other required assumptions should be considered in the calculation.

- Any additional premiums as a result of the loss ratio exceeding a preset percentage.
- Additional payments to insurance companies resulting from stop-loss arrangements (965-30-35-9 and 965-30-35-12).

## **ADDITIONAL OBLIGATIONS FOR POSTRETIREMENT HEALTH PLANS**

If a benefit is provided for as part of a postretirement health plan, the estimated payments to participants needs to be accounted for. These benefits usually trigger on the retirement date, or sometimes these benefits trigger at a certain age. The calculation of the estimated obligation as of a given date is based on an actuarial present value of all future benefits that can be attributed to the participant's period of employment. Benefit recipients should cover (1) retirees, (2) a terminated employee, if benefits have been earned, (3) a beneficiary or a covered dependent, and (4) and active participants, their beneficiaries, and any covered dependents.

Benefit obligation calculations need to include the following assumptions and calculation elements:

- Appropriate discount rates to account for the time value of money
- Per-capita cost of claims by age
- Healthcare cost trends
- Current Medicare reimbursement rates
- Retirement age



- Dependency status
- Mortality
- Salary progression
- A probability of payment calculation
- Participation rates

Benefit obligations should not include death benefits that might need to be paid during a participant's active service period. This benefit obligation generally is determined by applying current insurance premium rates or, for a self-funded plan, the average cost of benefits per eligible participant. In either case, the calculation should consider assumptions on mortality rates and the probability of employee turnover (965-30-35-15 to 22).

## **SELF-FUNDING OF HEALTH BENEFITS**

One major financial issue of employer-provided health and welfare plans is the self-funding of these plans. In a self-funded health plan, the employer funds the plan from the company's general funds instead of buying an insurance product.

With the cost of healthcare soaring over the past many years, employers look for ways to bring these costs down to ensure corporate profitability. Self-insuring health plans, rather than purchasing them from insurance companies, was recognized as such an opportunity.

Companies can pay the claims submitted under the plan by using a pay-as-you-go process. When employee claims come in and are reviewed and audited as eligible claims under the terms of the health plan, the employer pays the claims from general funds. Or the employer could set

aside funds for use by this self-funded health plan and pay eligible claims from the set aside funds.

There is no insurance element here except that this arrangement can be considered as the company insuring itself. By way of contrast, an insured plan is one where the insurance company pays the claims, and the employer regularly pays the premiums to the insurance company. The premiums set by the insurance companies are adjusted each year based on the past-year usage experience of the insurance plan. Note that medical premiums and total healthcare costs have been the highest inflation-affected cost element in the whole market basket of goods and services within the Consumer Price Index sector of the economy.

Another point to note here is that the company will usually engage, on an annual fee basis, a TPA to administer the claims that come in for payment under the company's self-insured employee health plan. The claims processing part can be a time-consuming effort, and so companies often outsource this activity to a knowledgeable external third party.

### **ERISA and Self-Funding**

The *Employee Retirement Income Security Act* (ERISA) encouraged the growth in self-funded plans. ERISA covers all employee benefit plans sponsored by an employer. This includes employee pension plans and employee welfare plans. However, the emphasis of ERISA is on pension plans. Employee welfare plans include any nonpension employee benefit, including health plans, life insurance, and disability plans.

The key provisions of ERISA that relate to health plans are found in Section 514. This is known as the "preemption" clause, which states, "The provisions of this title and Title 4 shall supersede any and all state laws

insofar as they now and hereafter relate to any employee benefit plan.”

Under Section 514, all private-sector employer-provided health plans are ERISA plans and therefore exempt under the preemption clause from state regulations. ERISA exempts self-insured plans from providing state-mandated benefits and from paying state premium taxes because the employers offering them are not considered to be in the business of insurance. But ERISA does not prevent state regulation of insurance. States therefore can and do regulate health plans covered under insurance contracts. This is one factor that encourages self-insurance.

To avoid state regulations of the employer-provided health plans, a company can set up the plan as a self-funded plan; in other words, they self-insure the plan. The employer now assumes the risks of the health plan. In the insured plan, the insurance company bears the risks of the plan. Bigger companies have the financial resources to take on additional financial risks that comes with self-insurance and at the same retain their capital rather than passing it onto insurance companies by way of premiums.<sup>7</sup> The stable claims experience from year to year, due to the large employment base, also enables large businesses to safely assume the financial risk.<sup>8</sup>

<sup>7</sup> Scammon, D.L., “Self-funded health benefit plans: Marketing implications for PPOs and employers.” *Journal of Health Care Marketing*, 9 (1): 5-14.

<sup>8</sup> Park, Christina, H., “Prevalence of Employer Self-Insured Health Benefits: National and State Variation,” *Medical Care Research and Review*, Vol. 57, No. 3, September 2000, p. 342; Sage Publication, Inc.

So, as indicated, the term *self-funding* can indicate that the employer sets aside the money to pay the claims. Quite often, however, the employer sets up a pay-as-you-go arrangement, funding the claims from general funds.

Nevertheless, hybrid arrangements can be set up, with self-funding as a primary feature.<sup>9</sup>

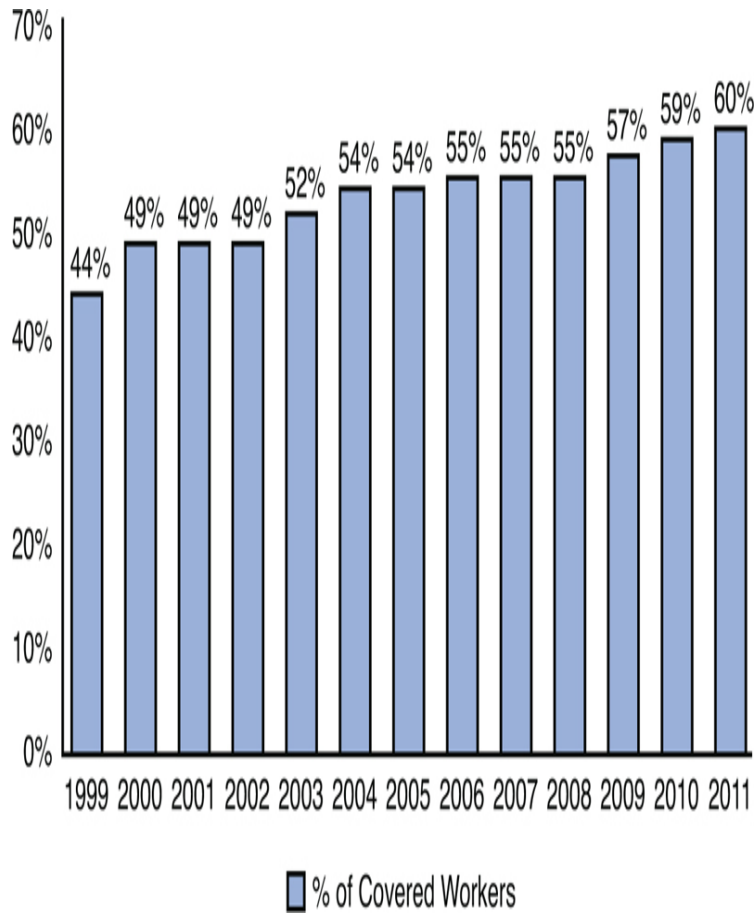
<sup>9</sup> EBRI Databook on Employee Benefits, Chapter 28, Employee Benefits Research Institute, update March 2008.

In some cases, the companies might choose to carve out certain elements of the health plan and buy an insurance contract to cover those elements. The other remaining elements would then be paid from general funds, again on a pay-as-you-go basis. Typically, these carved-out elements could be related to mental health or prescription drugs. The carved-out segment then can be regulated by state insurance regulations by those states where the benefits are being paid.

Another funding mechanism is the purchase of stop-loss coverage. This is usually done to provide coverage for catastrophic losses. There are usually two types of stop-loss coverage:

- Insures against the risk that any one claim will exceed a certain amount
- Aggregate stop-loss, which insures against the entire plan's losses exceeding a certain amount

In their 2011 annual report on employer health benefits, the Kaiser Family Foundation and Health Research and Educational Trust provided the data shown in Exhibit 8-1 on the prevalence of self-insured health plans.



**Exhibit 8-1. Percentage of Covered Workers in Partially or Completely Self-Funded Plans, 1999–2011**

*Source:* Employer Health Benefits Survey, 2011, The Henry J. Kaiser Family Foundation and Health Research & Educational Trust, September 2011.

## **INTERNATIONAL FINANCIAL REPORTING STANDARDS AND EMPLOYEE HEALTH AND WELFARE PLANS**

In the IFRS, the accounting for employee benefits is addressed in IAS 19, Employee Benefits. This section covers provisions in IAS 19 that affect employee benefits items only. Note that IAS 19 also covers items that are termed employee compensation for the purposes of the book. The main provisions of IAS 19 that affect employee benefits are as follows:

- **Short-term benefits:** Benefits payable within one year. The employee will have to have been provided the services for which required compensation has been earned. These items cover medical benefits provided to regular employees, vacation and sick pay, as they relate to the employee benefit categorization. IAS 19 requires that the undiscounted amount of these benefits expected to be paid, after the service has been rendered, should be recognized in that period.

- **Postemployment benefits:** Benefits that are payable after the employment term is completed. These benefits include pensions, retiree health benefits, life insurance, and the continuation of medical and life benefits after employment. No termination benefits are included in this category. In this category, IAS 19 states that if the benefit program is a defined contribution plan, the costs need to be recognized in the period the contributions are made in exchange for employee services during that period. For defined benefit plans, the amount recognized in the balance sheet needs to be the present value of the defined benefit obligation, as adjusted for unrecognized or actuarial gains or losses. Also included are unrecognized past service cost for pension plans (see Chapter 10). The balance needs to be reduced by the fair value of plan assets at the balance sheet date.

- **Termination Benefits:** Benefits paid upon involuntary termination or a voluntary termination where compensation has been paid for a temporary period.

For termination benefits, IAS 19 specifies that amounts payable should be recognized when the company has made a decision to either terminate the employment of an employee or group of employees before the normal retirement date or provide termination benefits as a

result of an offer made to encourage voluntary terminations.

Under IAS 19, the company has to show that the planned termination is being done within the terms and provisions of a formal written plan and that the company does not plan to cancel the plan after the termination action has been taken. IAS also allows discounting of termination action costs when 12 months have expired from the balance sheet date and the benefits are currently being paid.

## **THE FINANCIAL REPORTING OF EMPLOYEE BENEFIT PLANS**

The financial reporting for employee benefit plans cover reporting requirements for defined benefit and defined contribution plans health and welfare plans. The reporting standards for these plans have components that are similar in nature.

ERISA requires many different reports be prepared and filed annually. These reports need to be prepared and filed with the Department of Labor and provided to plan participants, plan beneficiaries, and others. ERISA requires the report filing, but the *Department of Labor* (DOL) regulations define the filing requirements.<sup>10</sup>

<sup>10</sup> Doran, Donald A., and Verrekia, JulieAnn, "Employee Benefit Plan Accounting & Reporting," Chapter 41, *The Handbook of Employee Benefits*, Edited by Larry S. Rosenbloom, 2001, McGraw Hill, New York.

DOL requirements stipulate the filing of Form 5500, with attachments, every year. The attachments include financial statements, notes, supporting schedules, and an accountant's report.

SFAS No. 35 requires that every plan issuing financial statements distribute, at the end of each year, a statement of net assets available to pay out plan benefits.

A statement of the changes in net assets for the year ended also needs to be developed. Related notes need to be filed, as well, as part of the financial statements.

The financial statements presented need to be a comparative form (that is, a year-to-year comparison). The statements have to be prepared under GAAP principles, which mean the use of accrual accounting. Under the accrual basis, the purchases and sales of securities must be recognized on a trade date basis rather than a settlement date basis.

### **Statement of Net Assets Available for Plan Benefits**

Because plan investments are usually a plan's biggest asset, the valuation of those plan assets is particularly important. Most plan investment assets are reported using a fair value concept.

In accounting, the fair value is usually the value that can be expected in a transaction between a willing buyer and a willing seller. For securities traded on an active market, the fair value is the quoted market price. For assets for which there is no quoted market price, alternative valuation methods need to be used. A commonly used method is the *discounted cash flow* (DFC) method.

Contracts with insurance companies need to be valued differently. Valuation of investment contracts with insurance companies for health and welfare plans and defined-contribution plans is governed by AICPA's SOP 94 – 4: Reporting of investment contracts held by health and welfare benefit plans and defined contribution pension plans. The AICPA requires that most plan contracts be valued at fair value, except contracts that incorporate mortality and morbidity risk or those that allow for withdrawals for benefits at contract value. In these cases, the contract can be reported at contract value.



It also depends on whether the payment to the insurance company is allocated to purchase insurance or annuities for the individual participants or whether the payments are accumulated in an unallocated fund to be used to pay retirement benefits. These are referred to as allocated and unallocated arrangements.

In allocated funding arrangements, the insurer has a legally enforceable obligation to make benefit payments. The obligations of the plan may have been transferred to the insurer through the payment of premiums. Payment of a premium where the risk is transferred to the insurance company represents a reduction in the net plan assets. So, for plan reporting purposes, the investments in the allocated insurance contract should be excluded from plan assets.

Unallocated funds are included in plan assets.

Premiums paid that represent deposits should be reflected as plan assets until such time as the deposit is refunded or are used to pay claims. Insured plan claims reported and claims incurred are the obligations of the insurance companies and do not therefore need to be reported. However, this is not the case in self-insured plans. So in these plans, the claims need to be reported. The footnotes should disclose significant assumption changes used to determine plan liabilities.

Often, funds for reporting purposes are commingled trust funds, pooled separate accounts of insurance companies, or master trust funds containing assets of two or more plans pooled for investment purposes. Common or commingled funds are generally for two or more companies. Master trusts hold assets for a single employer or for members of a controlled group.

For reporting purposes, the value of funds is based on unit value of the fund or the separate accounts that need

to be reported at fair value. The specific portion of interest of the plan in the master trust needs to be reported as a separate line item. The net change in fair value of each significant type of investment of the master trust, the total and net investment income, the method of determining fair value, the general type of investments, the basis used to allocate net assets, gains and losses to participating plans, and the plan's percentage interest in the master trust should all be reported in the footnote.

The general disclosure requirements for the statement are

- Whether fair value was measured using quoted market prices in an active market or an alternative method was used.
- The method of valuation.
- Detail of the investments must be provided either on the face of the statement of net investments or in a footnote.
- Investments must be segregated by types, such stock, bonds, and so on.
- Investments representing 5% or more of net assets available for plan benefits must be reported separately.

Receivables must be reported separately for employer contributions, participant contributions, amount due from brokers for securities sold, and accrued interest and dividends.

Contributions receivable must report only those that are receivables as of the date of the report. Participant contributions are usually those that are payroll withholdings that have yet to be remitted to the plan. Supporting documentary evidence for employer

contributions must be provided. Allowances for unaccountable receivables need to be established as per normal accounting practice. This becomes imperative considering that troubled companies might not have the ability to make the necessary contributions to the plan. Under these circumstances, the receivables need to be reduced by the uncollectible offset. Explanation for this probability should be disclosed in the footnotes. Finally, any deficiency in the funding status of the plan should be recognized as a receivable.

### **Statement of Changes in Net Assets Available for Plan Benefits**

Significant changes in net assets during the reporting period need to be disclosed. The net appreciation or depreciation includes realized gains or losses from the sales of investments and unrealized gains. Losses from market appreciation should also be disclosed. The separate disclosure is required by ERISA. But, the realized or unrealized gain or loss needs to be based on the value of the asset at the beginning of the plan year and not the historical cost of the asset.

### **Additional General Disclosure Requirements**

- A description of the plan, including vesting and benefit provisions, significant plan amendments during the year, and the policy regarding forfeitures
- The fund's funding policy along with changes made during the year
- Plan policy regarding the purchase of allocated insurance contracts that are excluded from plan assets
- Actuarial assumptions and any changes made to these assumptions during the year

- The federal tax status of the plan, including any IRS determination letters received
- Significant transactions with interested parties such as plan sponsor, plan administrator, employees, or employee representatives
- Significant events or transactions that happened during the plan year
- Accounting policies that differ from GAAP
- Commitment and contingencies
- Significant risks, uncertainties, and estimates used
- Information on off-balance sheet risks of accounting loss and the significant concentration of credit risk
- Facts on any investments in derivative financial investments
- Differences in amounts reported in financial statements and those reported in DOL Form 5500

#### **Additional General Disclosure Requirements for Health and Welfare Plans**

The general disclosure requirement for health and welfare plans are as follows:

- The organization's policy with regard to participant contributions to the plan
- The actuarial assumptions used to calculate plan benefit obligations and actuarial assumptions changed during the current plan year
- The method of funding plan benefits, if there are fund deficits

- The types and extent of insurance coverage that transfers risk from the plan
- The healthcare cost trend rates used to calculate cost of benefits
- For postretirement benefit plans, the effect of a percentage point increase in assumed healthcare cost trend

## **KEY CONCEPTS IN THIS CHAPTER**

- FASB 965 – Employee Benefits
- The standards framework
- Defined-contribution health and welfare plans
- Defined-benefits health and welfare plans
- Claims incurred but not reported
- Postretirement health plans
- Self-funding of health plans
- ERISA and self-funding
- International Financial Reporting Standards – IAS 19
- Financial reporting of employee benefit plans
- Statement of net assets available for plan benefits
- Statement of changes in net assets available for plan benefits

## 9. Healthcare Benefits Cost Management

### **Aims and objectives of this chapter**

- Discuss healthcare benefits cost containment
- Expose the causes for the escalating costs of healthcare benefit programs
- Consider various healthcare cost management options.
- Review consumer-driven healthcare cost containment initiatives
- Examine health savings accounts
- Discuss health reimbursement accounts
- Examine flexible spending accounts
- Discuss utilization reviews
- Discuss corporate wellness programs
- Model the forecasting of healthcare benefit program costs

This chapter examines healthcare benefits costs for employers only. Because this category of employee benefits is the major component of the total employee benefits program, understanding and forecasting these costs accurately is vital. After all, on average, the cost of a total employee benefit program is about 30% of the total compensation program costs in most organizations. So, in most organizations, this is a big-ticket cost, requiring close analysis and monitoring.

## THE BACKGROUND

Any book about financial and accounting aspects of *human resource* (HR) management must examine the escalating costs of employer-sponsored healthcare programs. The cost of this one element of the total compensation system has been continually rising, and so organizations need to exert sufficient analytical rigor and, when possible, implement fairly stringent cost-containment measures. Rising overall costs of doing business and stiff global competition make this even more of a business imperative.

Medical costs, which seem to continually increase, are a hot-button issue. Recent media coverage of the subject has been extensive, fueling emotions and ongoing political debates. With the Affordable Care Act (ObamaCare) signed into law, and the Supreme Court upholding its constitutionality, the issue remains at the forefront of our current societal dialogue and so must also be addressed by decision makers in business organizations.

The overall inflation rate (of all goods and services) has been around 2.3% since the year 2002. In contrast, the average annual premium for family healthcare coverage through an employer-sponsored plan reached \$15,073 in 2011, an increase of 9% over the previous year (according to a Kaiser Family Foundation study). The annual growth in premiums has slowed in recent years to 5%, however, rising just 3% in 2010. Double-digit increases in medical premiums were the norm for a long time, so any relief from that is most welcome. Note, however, that overall the cost of family coverage has doubled since 2001, when premiums averaged \$7,061, compared with a 34% gain in wages over the same period, according to the *New York Times*.<sup>1</sup> Any moderation in the inflation rate of medical premiums for employers is the result of the slowing down of the economy since 2008 (and the not-so-robust

economic recovery since then). Nevertheless, the same *NY Times* article suggests that employers expect to see medical premiums increasing at an annual rate of about 5% over the next few years.

<sup>1</sup> Data from [www.nytimes.com/2011/09/28/business/health-insurance-costs-rise-sharply-this-year-study-shows](http://www.nytimes.com/2011/09/28/business/health-insurance-costs-rise-sharply-this-year-study-shows).

Note, as well, that since the recession of 2008-2009 and the weak recovery thereafter the number of people covered by employer-sponsored healthcare programs has steadily declined. In a comprehensive briefing paper published by the Economic Policy Institute, author Elise Gould provides some interesting statistics derived from an analysis from U.S. Census Bureau data.<sup>2</sup> She states that for the entire under-65 population, the number of those covered by employer-sponsored medical benefit coverage fell from about 170 million to about 157 million from 2000/2001 to 2009/2010. This indicates that more and more people are uninsured because they are not in an employer-sponsored plan.

<sup>2</sup> Gould, Elise, "A Decade of Declines in Employer-Sponsored Health Insurance Coverage," EPI Briefing Paper #337, February 23, 2012.

The contributing factor is that over the past four years unemployment has been in the range of 8% to 10%. This is a good and a bad piece of information. Because the number of covered employees has been going down, the total cost of medical coverage has been (most probably) decreasing along with it. However, many people are currently unemployed. During their unemployment period, they could be on COBRA (*Consolidated Omnibus Budget Recovery Act*) coverage for up to 18 months. When their COBRA expires, they often go uninsured. When they need medical care, the uninsured go to the public hospitals and receive care free of charge. However, somebody has to pick up the tab for the uninsured. And most likely, the remaining working



employees pick up this tab with higher premiums and with rising doctor fees and hospital costs.

In 2010, 49.1 million people under 65 were uninsured. This is a huge indirect cost, borne by those covered by employer-sponsored medical plans. Therefore, rising medical premiums and unit coverage costs offset any potential savings from fewer persons being covered. So, even as the number of people covered by employer-sponsored medical plans declines, the cost of medical plans continues to climb faster than the overall inflation rate. For example, since 2001, premiums for employer-sponsored health coverage for families have increased by 113%, placing more cost burdens on employers and workers. And health expenditures in the United States neared \$2.6 trillion in 2010, more than ten times the \$256 billion spent in 1980.<sup>3</sup> According to the Congressional Budget Office, between 1975 and 2005, annual per-person health spending in the United States rose, on average, 2% faster than per-person economic growth.

<sup>3</sup> U.S. Healthcare Costs, Kaiser EDU.org, *Health policy explained*, [www.kaiseredu.org/issue-modules/us-health-care-costs/background-brief.aspx](http://www.kaiseredu.org/issue-modules/us-health-care-costs/background-brief.aspx).

## **THE REASONS FOR THE RISING COSTS**

Many factors have contributed to the ever-rising cost of employer-sponsored medical benefit programs (medical premiums), including the following:

- Cost of medical malpractice insurance
- The unusually high increase in hospital costs
- The ever-increasing number of underinsured and uninsured who need care (which adds indirectly to the cost of medical premiums because the payers [hospitals,

doctors, and insurance companies] are forced to pass these costs on to regular plan participants)

- The increasing demand for medical services from an expanding population base
- The consumer demand for better medical care and services

This is a plethora of reasons—many factors contributing to increasing costs. Many of these reasons are situational and not necessarily caused by problems within the structures of medical care.

There are other reasons for the rising costs as well. Among these is that for several years spending on prescription drugs has been a primary contributor to the increase in overall healthcare spending. Analysts state that the availability of more expensive prescription drugs, with their high development costs, is contributing to the rising costs.

Similarly, state-of-the-art medical technologies fuel healthcare spending through development costs and the subsequent demand for more costly services. These technologies might be improving quality of diagnosis and care, but they might not necessarily be cost-effective.

People in general are living longer, but they often face severe diseases as they do so. This places a tremendous demand on the healthcare system. Severe chronic diseases account for more than 70% of total healthcare expenses. Treatment of heart disease, obesity, diabetes, and other long-term disease conditions contributes to the rise in healthcare costs. In addition, as the population ages, use of medical care increases, with the cost of care rising with a person's age. Data indicates that in the last two years of a person's life is when the highest healthcare expenses are incurred.

Another reason for the rising costs is the inefficiency and the waste in the system. There is evidence that an excess of 25% of healthcare spending (or more \$600 billion) a year can be traced to inefficiency and waste.<sup>4</sup>

<sup>4</sup> Chanin, Jeffrey, Parke, Robert, and Mirkin, David, "Insight – Expert Thinking from Milliman," *Want to manage employer healthcare costs? It starts with managing utilization*, March 18, 2010, <http://insight.milliman.com/article.php?cntid=7217>.

Businesses are always scrambling to improve their bottom lines. And because of the increasing pressures from rising costs of medical plans and because of pending regulations (for example, the Affordable Care Act), businesses remain vigilant about this major cost element that can affect their bottom lines directly. All of this evidence suggests that management will continue to challenge the HR and benefits department staff to build various cost-containment measures in to their healthcare plan designs, annual updates, and revisions.

Nevertheless, this is a joint responsibility of the HR staff and the accounting staff. One activity where cooperation is essential is in projecting as accurately as possible the future costs of medical benefit programs. Accurate costs are essential for effective financial planning, budgeting, and overall effective managerial accounting. We discuss the projecting of medical benefit costs later on in this chapter.

Much has been written and published on the subject of healthcare costs and their containment, with entire books and numerous articles devoted to the subject. Even so, the objective of this chapter is to review the issue of healthcare costs from the employer's point of view and to discuss various cost-containment alternatives that can be built in to medical benefit plan designs.

The main objective for the employer in providing employees with a medical plan benefit is to help employees mitigate the financial risks associated with getting sick, both on minor and major illnesses. The mitigation of the risks is done for both the employee and his or her direct family. Major exposure arises when the employee or any member of his or her family becomes severely ill for whatever reason. These can be catastrophic events. Another primary reason that employers provide medical benefits to employees is to ensure that the employee stays physically healthy so that the employee currently is and continues to be productive for the entire duration of the employee's service life within the organization.

So, the medical benefit plan is an important component of the total compensation program. But costs need to be managed by building various cost-containment features into the design of the plan and by systematically forecasting these costs for effective managerial budgeting and control. We now look first at cost-containment ideas and concepts. Then the discussion turns to the issue of forecasting and budgeting medical benefit expenses.

## **COST CONTAINMENT ALTERNATIVES**

Healthcare benefit is one of the keys to the hiring and retaining of critical employees. So, when this benefit costs the employer large sums of money, it becomes imperative that these costs be analyzed and containment measures be put into place. Many cost-containment ideas and concepts have been floated. This discussion focuses on the most direct and concrete concepts for the cost containment of healthcare expenses.

## Consumer-Driven Healthcare

One concrete way to contain costs has been given the broad designation of *consumer-driven healthcare*. The fundamental principle here is that individuals are in control of their health condition—the good and the bad. The individual can direct the medical care expenditure by choosing a healthy lifestyle, by controlling diet, and by exercising. Consumer-driven healthcare advocates that the individual should self-direct these expenditures with monies they directly set aside as a saving for the eventuality of these expenses (with *some* structural facilitation provided by employers and the government). After all, when the employees are spending their own money, it makes them responsible purchasers of healthcare and they create the necessary cost-containment measures by themselves for themselves.

Self-directed healthcare programs that have been introduced in the recent past include

- Health savings accounts
- Health reimbursement accounts
- Flexible spending accounts (not really a consumer-driven cost-containment initiative, but rather a pretax spending provision)

### Health Savings Accounts

*Health savings accounts* (HSAs) were created in 2003 so that individuals covered by high-deductible health plans could receive tax-preferred treatment of money saved for medical expenses. Generally, an adult who is covered by a high-deductible health plan (and has no other first-dollar coverage) may establish an HSA.

The caveat for the establishment of an HSA is that an individual is eligible for an HSA only if he or she is covered by a high-deductible health plan. A *high-*

*deductible health plan* (HDHP) is a health insurance plan with lower premiums and higher deductibles than a traditional health plan. HDHPs are usually for catastrophic coverage, intended to cover specific catastrophic illnesses.

HSAs were established as part of the Medicare Prescription Drug, Improvement, and Modernization Act, which was signed into law by President George W. Bush on December 8, 2003.

A survey conducted by the Kaiser Family Foundation in September 2008 found that 8% of covered workers were enrolled in a consumer-driven health plan (including both HSAs and health reimbursement accounts), up from 4% in 2006. The study found that roughly 10% of firms offered such plans to their workers. Evidence suggests that the vast majority of HSA plans were employer-sponsored plans and about 25% of the total plans were individually set up. Another survey, done by *America's Health Insurance Plans* (AHIP), provides confirming evidence. They reported that the number of Americans covered by HSA-qualified plans had grown to 6.1 million as of January 2008 (4.6 million through employer-sponsored plans and 1.5 million covered by individually purchased HSA-qualified plans).

Evidence gleaned from various data sources on the use of HSAs since inception finds that contributions to these plans far outstrip the withdrawals. Contributions are normally almost double the withdrawals.

Contributions to an HSA may be made by any individual member of an HSA-eligible high-deductible health plan or by their employer, or by any other person. If the employer makes a contribution to such a plan, the plan is considered the same as any other *Employee Retirement Income Security Act* (ERISA) qualified plan, and nondiscrimination rules become effective. If

contributions are made through a Section 125 plan, however, nondiscrimination rules do not apply.

Employers have flexibility in the design of the plans in that they may treat full-time and part-time employees differently. Employers may also treat individual and family participants differently.

Contributions from an employer or employee may be made on a pretax basis through an employer. In the absence of employer contributions, contributions may be made on a post-tax basis and then used to decrease gross taxable income the following year.

The main advantage of making pretax contributions is the ability to avoid the FICA and the Medicare tax deduction, which amounts to a savings of 7.65%. Because of the temporary Social Security tax rate holiday, the 7.65% number may be different for employees. The stated percentage applies to employer and employee (subject to limits of the Social Security Wage Base). Regardless of the method or tax savings associated with the deposit, the deposits may only be made for persons covered under an HSA-eligible high-deductible plan.

Initially, the annual maximum deposit to an HSA was the lesser of the actual deductible or specified *Internal Revenue Service* (IRS) limits. Congress later abolished the limit based on the deductible and set statutory limits for maximum contributions. All contributions to an HSA, regardless of source, count toward the annual maximum. A catch-up provision also applies for plan participants who are age 55 or older, allowing the IRS limit to be increased.

All deposits to an HSA become the property of the policyholder, regardless of the source of the deposit. Funds deposited but not withdrawn each year carry over into the next year. Policyholders who end their HSA-

eligible insurance coverage lose eligibility to deposit further funds, but funds already in the HSA remain available for use.

The Tax Relief and Health Care Act of 2006, signed into law on December 20, 2006, added a provision allowing a one-time rollover of *Individual Retirement Account* (IRA) assets to be used to fund up to one year's maximum HSA contribution. State tax treatment of HSAs varies. According to IRS Publication 969: Health Savings Accounts and Other Tax-Favored Health Plans, an individual can generally make contributions to an HSA for a given tax year until the deadline for filing income tax returns for that year, which is typically April 15.

IRS-stipulated contributions for the years 2012 and 2013 are as follows, respectively:

- **Single:** \$3,100 and \$3,250
- **Family:** \$6,250 and \$6,450

Funds in an HSA can be invested in investments similar to the investments made in IRA funds. Investment earnings are sheltered from taxation until the money is withdrawn.

HSAs funds can be “rolled over” from fund to fund. However, an HSA cannot be rolled into an IRA or a 401(k), and funds from IRAs and similar investments cannot be rolled into an HSA, except for the one-time IRA transfer mentioned earlier.

Unlike some employer contributions to a 401(k) plan, all HSA contributions belong to the participant immediately, regardless of the deposit source. HSA participants do not have to obtain advance approval from their HSA trustee or their medical insurer to withdraw



funds, and the funds are not subject to income tax if made for qualified medical expenses. These include costs for services and items covered by the health plan but subject to cost sharing, such as a deductible and coinsurance or copayments. Funds can be withdrawn for expenses not covered under medical plans (such as dental, vision, and chiropractic care; durable medical equipment such as eyeglasses and hearing aids; and transportation expenses related to medical care). Through December 31, 2010, nonprescription over-the-counter medications were also eligible. Beginning January 1, 2011, the Patient Protection and Affordable Care Act, also known as Health Care Reform, stipulates HSA funds can no longer be used to buy over-the-counter drugs without a doctor's prescription.

There are several ways that funds in an HSA can be withdrawn, such as through a debit card, personal checks, and a reimbursement process similar to medical insurance. Funds can be withdrawn for any reason, but withdrawals that are not for documented qualified medical expenses are subject to income taxes and a 20% penalty. The 20% tax penalty is waived for persons who have reached the age of 65 or have become disabled at the time of the withdrawal. Then, only income tax is paid on the withdrawal, and in effect the account has grown tax deferred (similar to an IRA). Medical expenses continue to be tax free. Prior to January 1, 2011, when new rules governing HSAs in the Patient Protection and Affordable Care Act went in to effect, the penalty for nonqualified withdrawals was 10%.

Account holders are required to retain documentation for their qualified medical expenses. Failure to retain and provide documentation could cause the IRS to rule withdrawals were not for qualified medical expenses and subject the taxpayer to additional penalties.

The HSA plan is an innovation whose primary objective was to contain healthcare costs for employers. It is believed that HSAs should reduce the growth of healthcare costs and increase the efficiency of the healthcare system. When individuals spend their own money, it makes them responsible purchasers of healthcare. They pursue cost-effective choices. Many believe that individuals who see that they are having to pay the medical expenses themselves will consume less medical care, ask the doctors more questions about tests and medical exams, shop for lower-cost options, and be more vigilant against excess and fraud in the healthcare industry. For all these reasons, the HSA program has great value as a cost-containment measure.

Two other plans fall within the genre of consumer-driven health plans. These plans have similar objectives but differ in structure.

### **Health Reimbursement Arrangement**

*Health reimbursement accounts or health reimbursement arrangements* (HRAs) are IRS-approved programs that allow an employer to set aside funds to reimburse medical expenses that have been paid by employees. HRA programs have tax advantages for both employees and employers.

An HRA is an account offered to employees or retirees that the employee can use to pay for deductible and co-insurance amounts or covered medical expenses. Like an HSA, leftover dollars generally can be used from year to year, as long as the employee continues to be a member of the plan. Also, the money is contributed by the employer and doesn't count as income, saving valuable tax dollars.

Employers set up HRA programs and then engage a third-party administrator to manage the program. A

feature of this plan can be that participants would be allowed to roll over plan balances from one year to the next. However, the employer needs to decide how much can be rolled over from one year to the next. This can be stipulated as a percentage or a flat amount.

According to the IRS, an HRA “must be funded solely by an employer,” and contributions cannot be paid through a voluntary salary-reduction agreement. No limit applies to the employer’s contributions, which are excluded from an employee’s income.

Per the IRS regulations documented in IRS Publication 96, “Employees are reimbursed tax free for qualified medical expenses up to a maximum dollar amount for a coverage period.” HRAs reimburse only those items (copays, coinsurance, deductibles, and services) agreed to by the employer that are not covered by the company’s standard insurance plan. With an HRA, employers fund individual reimbursement accounts for their employees and define what those funds can be used for.

Before a plan is implemented, qualified claims must be described in the HRA plan document. Approved reimbursements could be for medical services, dental services, copays, coinsurance, and deductibles. But these reimbursement guidelines can vary from plan to plan. The employer is not required to prepay into a fund for reimbursements. Instead, the employer can reimburse employee claims as they occur.

Reimbursements under an HRA can be made for current and former employees, spouses, and any person the employee could have claimed as a dependent on the employee’s tax return (with stipulated exceptions).

The biggest cost-containment advantage of an HRA plan is that employers will have predictability regarding their expenses in providing attractive healthcare benefits for

their employees. Employers will know their maximum expense liabilities.

### **Flexible Spending Accounts**

As indicated earlier, *flexible spending accounts* (FSAs) cannot be classified as a cost-containment device for the employer. Instead, an FSA is more of a program that facilitates employees spending their own money on healthcare and dependent care expenses. In such programs, an individual can set aside a certain percentage of earnings to pay for qualified expenses, mostly medical expenses and dependent care expenses. The money set aside by the individual is not subject to payroll taxes. A major disadvantage of an FSA is that funds not used in an FSA by the end of the year are lost to the employee. This is not the case with an HSA.

The most common type of FSA is a medical-expense FSA. HSAs and FSAs are similar in nature. The main difference is that an HSA is offered as a component of a consumer-driven healthcare plan, whereas an FSA can also be offered with a traditional health benefit plan.

An FSA plan can have two components; one is for qualified medical expenses, and the other is for dependent care expenses.

#### **Medical-Expense FSA**

The most common type of FSA is used to pay for medical expenses not paid for by insurance, usually deductibles, copayments, and coinsurance amounts. As of January 1, 2011, over-the-counter medications are allowed only when purchased with a doctor's prescription, with the exception of insulin. Over-the-counter medical devices, such as bandages, crutches, and eyeglass repair kits, are covered.

Prior to the enactment of the Patient Protection and Affordable Care Act, the IRS permitted employers to set any maximum annual amount for their employees. The Patient Protection and Affordable Care Act amended Section 125 such that FSAs cannot allow employees to choose an annual election in excess of a limit determined by the IRS. The annual limit will be \$2,500 for the first plan year beginning after December 31, 2012. The IRS will index subsequent plan years' limits for cost-of-living adjustments. Employers have the option to limit their employees' annual elections further. This change starts in plan years that begin after December 31, 2012. The limit is applied to each employee, without regard to whether the employee has a spouse or children. Nonelective contributions made by the employer that are not deducted from the employee's wages are not counted against the limit. An employee employed by multiple unrelated employers may elect an amount up to the limit under each employer's plan. The limit does not apply to HSAs, HRAs, or the employee's share of the cost of employer-sponsored health insurance coverage.<sup>5</sup>

<sup>5</sup> All the provisions stated have been derived from <http://healthcare.gov> and from the IRS Web site <http://irs.gov>.

#### **Dependent Care FSA**

FSAs can also be established to pay for certain expenses to care for dependents who live with someone while that person is at work. The dependent care FSA is federally capped at \$5,000 per year, per household. Married spouses can each elect an FSA, but their total combined elections cannot exceed \$5,000. At tax time, all withdrawals in excess of \$5,000 are taxed.

#### **Other FSA Provisions**

An FSA's coverage period ends either at the time the plan year ends or at the time when coverage under the plan ends.

In recent years, the FSA debit card was developed to allow employees to access the FSA directly. It also simplified the substantiation requirement, which required labor-intensive claims processing.

A drawback to the FSA program is that the money set aside must be spent “within the coverage period” as defined by the benefits plan coverage definition. The *plan year* is commonly defined as the calendar year. Monies left unspent at the end of the coverage period are forfeited. These funds can be used for administrative costs or can be equally distributed as taxable income among all plan participants. The *coverage period* ceases with the termination of employment, whether the employee or the employer initiated the termination. The exception to the rule is when the employee continues coverage with the company under COBRA or another arrangement.

The next most direct and concrete way to contain healthcare expenses are utilization reviews.

### **Utilization Reviews**

The utilization review process has been used for awhile now. It is a process that determines whether medical services are appropriate and necessary. The process helps the organization minimize costs. Utilization reviews take various forms, including the following:

- Preadmission review for scheduled hospitalization (precertification review)
- Admission review for unscheduled hospitalization (precertification review)
- Second opinions for elective surgeries (precertification reviews)
- Concurrent reviews

- Individual case retrospective reviews
- Aggregate plan retrospective reviews

Insurance companies engage doctors and other healthcare professionals to perform these reviews. The reviews could also be conducted by independent agencies. In utilization reviews, there is a need to balance the desire to directly reduce the volume of services provided and the desire to increase the quality of care.

There are various types of utilization reviews. First is the precertification review. This is the preapproval process for treatments that the insurance companies have designated require precertification before the medical care is provided. Most precertification lists include nonemergency hospitalizations, outpatient surgery, skilled nursing and rehabilitation services, home care services, and some home medical equipment. The review and approval involves determining whether the requested service is medically necessary.

Most insurance plans have predetermined criteria or clinical guidelines of care for a given condition. Once the precertification request is submitted to the insurance company, a committee reviews these guidelines and determines whether the particular case meets the criteria for precertification coverage. If necessary, the committee may contact the healthcare provider. The process begins with data collection, including the symptoms, diagnosis, results of any lab tests, and a list of required services. The committee then reviews the submitted case against the criteria for the given condition. It may compare the medical information provided to the health plan's medical-necessity benchmarks.

The second type of a review is the concurrent review. Concurrent reviews are used for approval of medically necessary treatments or services. Concurrent reviews are

conducted during active management of a condition. This could be inpatient or ongoing outpatient care. The main objective of a concurrent review is to make sure that the patient is getting the right care in a timely and cost-effective way. After the physician has started a specific course of medical treatment, any new treatments found on the insurance companies' preapproval list are submitted to the insurance company for approval. Information is collected on the care provided up to that point in time. Information on clinical status and any progress or lack thereof is collected. Once the insurance company or an independent review organization reviews the information, the physician and other providers are informed as to the insurance company's position with respect to the particular case.

An important part of concurrent review is the assessment of the need for continued hospitalization. This is because a primary objective of the concurrent review is to decrease the amount of time the patient remains in the hospital. Often, the concurrent review feedback includes a specific discharge plan. This plan can include transfers to rehabilitation, hospice, or nursing facilities. Although discharge plans often change due to complications or abnormal test results, it is very important to minimize length of hospital stays to contain costs.

The final type of utilization review is the retrospective review. In this review, medical records are audited on the particular case after the treatment is completed. The retrospective review takes two forms. One reviews a particular plan's aggregate utilization statistics, and the other deals with individual cases.

The insurance company can use the results to approve or deny coverage an individual has already received. The particulars of individual cases are compared to those of other patients with the same condition. Based on the



retrospective review of the individual cases, the insurance company may revise treatment guidelines and criteria for that specific condition.

The other function of an individual case retrospective review is the after-the-fact approval of treatments that were conducted without precertification approvals. This can happen if a particular case was an extreme medical emergency and so time prevented the parties involved from securing precertification approvals. Emergency acute care surgeries often result in requesting eligibility for this type of review. The review takes place before any payment is made to the provider or hospital.

The second type of retrospective utilization reviews is the aggregate group review done by the insurance company for the plan sponsor. The plan sponsor, because of confidentiality laws, cannot be shown review results for individual cases. So, they need statistical data in aggregates. Here, average statistics on incident experience is provided for that particular plan sponsor compared to appropriate benchmarks. The health insurance company, an independent review organization, or the hospital involved in the treatment can conduct retrospective reviews.

The term *utilization management* is often used interchangeably with the term *utilization review*. Because the plan sponsor has to foot the bill for all medical costs in an employer-sponsored healthcare plan, they demonstrate the most concern as to how these expenses are being managed. Now, because of advances in information technology, plan sponsors require intermediaries (brokers and insurance companies) to provide them with empirical data about plan utilization. They are also requesting that this data be analyzed to provide them appropriate benchmark studies. Employers believe these studies can help them with their cost-

containment efforts by showing them areas for utilization improvement, better waste management potential, and improved ways to adhere to evidence-based medical practices.

### **Corporate Wellness Programs**

Another much discussed healthcare cost containment concept is to encourage and motivate employees to stay healthy. These programs usually fall under the generic title *corporate wellness programs*.

Proponents of this concept contend that there are many hidden costs of poor health. In a U.S. Chamber of Commerce innovative publication, *Leading by Example*,<sup>6</sup> Dan Ustian, president and CEO of Lincoln Plating, suggests that the main hidden costs of an unhealthy employee population base are (1) higher direct healthcare costs, (2) lower worker output, (3) higher rates of disability, (4) higher rates of absenteeism, (5) higher rates of injury, and (6) more workers' compensation claims. So, according to Mr. Ustian, it is important to understand the factors that are connecting the health of the organization's employees and the corporate performance.

<sup>6</sup> *Leading by Example, Leading Practices for Employee Health Management*, U.S. Chamber of Commerce and the Partnership for Prevention, 2007.

In the U.S. Chamber of Commerce study, a new concept was introduced with regard to corporate health: *presenteeism*. It suggests that there are instances of diminished worker productivity on the job attributable to employee poor health conditions. This leads to an increased concern that unmanaged health conditions such as diabetes, migraine headaches, or asthma attacks can affect on-the-job productivity of workers. Thus, negative employee health factors are of concern to many companies.

The saying “an ounce of prevention is worth a pound of cure” suggests that preventive services under the title *wellness programs* should be implemented as a cost-containment measure. As mentioned in the U.S. Chamber of Commerce study, Intel’s president and CEO, Paul Otellini,<sup>7</sup> talks about a landmark study done by the Partnership for Prevention. In the study, they assessed the impact of 25 preventive health services recommended by the U.S. Preventive Services Task Force and the Advisory Committee on Immunization Practices.<sup>8</sup> Preventive services recommended included

<sup>7</sup> Ibid.

<sup>8</sup> Maciosek, M.V., Coffield, A.B., Edwards, N.M., Goodman, M.J., Flottemesch, T.J., and Solberg, L.I., “Priorities among effective clinical preventive services: Results of a systematic review and analysis,” *American Journal Preventive Medicine*, Vol. 31, No. 1, 2006, pp. 52–56, <http://www.prevent.org/data/files/initiatives/prioritiesamongeffectiveclinicalpreventivesvcresultsofreviewandanalysis.pdf>

- Tobacco-use screening/brief intervention
- Colorectal cancer screening
- Hypertension screening
- Influenza immunization
- Problem drinking screening/brief counseling
- Cervical cancer screening
- Cholesterol screening

The report suggests that companies that are instituting healthcare cost-containment measures should examine their current healthcare benefit programs and determine whether coverage gaps exist with respect to preventive services. If the gaps do exist, they should fill the gaps with the addition of the highest-priority preventive services. They should also consider providing incentives

for preventive healthcare by reducing out-of-pocket costs for preventive services. They should also educate employees proactively on the value of preventive services and the resources provided under the company-sponsored healthcare plan.

It has also been suggested that companies need to add a health-promotion program as part of their healthcare cost-containment efforts. “The main goals of health promotion are to reduce health risks and optimize health and productivity while lowering total health-related costs,” says Andrew N. Liveris, chairman and CEO of Erickson Retirement Communities in the same U.S. Chamber of Commerce and Partnership for Prevention report.<sup>9</sup> A health-promotion program includes

<sup>9</sup> Ibid.

- Health education
- Supportive environments
- Integration with the company’s ongoing programs and structures
- Health screening

In an effort to promote wellness, companies provide employees with health coaches and risk assessments. Individuals who meet wellness goals are rewarded with discounts off annual premiums. Firms also sponsor wellness committees whose job is to create awareness and to develop promotional and competitive activities. The idea is to engage employees by encouraging each other to stay healthy in an effort to contain the costs as well as increase employee engagement and at the same time increase productivity.

Finally, proponents of organizational wellness programs suggest that return on investment on dollars spent for

wellness programs can be much above 100%. It is better to pay for preventive medicine than to spend large sums of money on catastrophic illnesses. That argument is hard to refute.

### **Other Cost Containment Alternatives**

In addition to the core concepts that have been reviewed so far, other healthcare cost-containment measures include the following:

- **Discount drug programs:** Many large retailers (for instance, Wal-Mart) have deep-discount prescription drug programs. Companies should offer the programs to employees and then encourage employees to use the programs. A significant employee participation in such programs can assist organizations with their healthcare costs-containment programs.
- **Spousal coverage:** An employee's spouse can often secure coverage at his or her own place of employment. In these cases, organizations have a provision in their plans stating that if an employee's spouse has comparable coverage available at their place of employment the employee's employer will not cover the spouse. Some companies impose a surcharge in these situations.
- **Self-funding:** With the costs rising and with uncertainties of the new healthcare reform, organizations are considering self-funding as a real cost-containment alternative.

## **FORECASTING HEALTHCARE BENEFIT COSTS**

The final topic this chapter covers is forecasting the cost of healthcare benefit programs for budgeting purposes. After all, if we want to contain costs for this ever-increasing component of the total compensation system, we need to develop accurate forecasts and budgets so that the actual expenses can be compared to the forecasts and budgets and then managed with clarity.

A macro goal for most organizations is that the overall benefit program (including costs of the healthcare benefits) should account for approximately 30% of total compensation costs. This will provide an overall total benefits cost target.

Historical data collection on the breakdown of each benefit line item should be undertaken. Here is a comprehensive list of all the benefit components:

- Legally required benefits mandated by various laws
- Medical benefits
- Disability benefits (mandatory and supplementary)
- Group life insurance (company provided and supplementary)
- Accidental death and dismemberment insurance
- Defined benefit pension plan (if the organization has one)
- Defined contribution pension plan (404(k))
- Vision and dental care plans
- Employee service plans
- Employee advisory services

Here is a step-by-step process to develop a fairly accurate forecast for the healthcare benefit program for an upcoming budget year:

- 1.** Collect data on the historical expenditures for each of the line items listed here. Collect data on as many years as possible (from a data-retrievable-ease point of view).
- 2.** After collecting the data, calculate an average dollar cost across the years.
- 3.** An average dollar cost weighted by the total employee population is desirable.
- 4.** Calculate a total dollar cost for all benefit line items.
- 5.** Calculate a percentage for each line item cost of the total weighted average cost.
- 6.** Determine the 30% total benefits cost target with the assistance of the accounting department for the budget year. This measure is usually called—the benefit burden rate.
- 7.** After deriving the 30% total dollar number, apply the percentage numbers calculated in a previous step to the forecasted 30% budgeted total benefits number to determine the budgeted dollar number for each line item benefit budgeted cost.

Using this method, organizations can determine the total budgeted cost for the healthcare benefit plan for the upcoming year, as shown in Exhibit 9-1.

#### **Exhibit 9-1. Benefit Cost Forecasting**

Line Item Benefit	Weighted Historical Average	Percentage (%)	Total Budget Cost	Budgeted Line Item Cost
Legal	\$565,000	13.3		\$605,102
Medical	1,833,000	43.1		1,960,895
Disability	326,000	7.7		350,322
Life insurance	254,000	6.0		272,978
AD&D	153,000	3.6		163,787
401(k)	655,500	15.4		700,645
Vision	115,000	2.7		122,840
Employee services	226,000	5.3		241,131
Employee advisory	125,000	2.9		131,940
<b>Total weighted average cost</b>	<b>\$4,252,500</b>			<b>\$4,549,640</b>
<b>Total budget 30% cost</b>			<b>\$4,549,640</b>	

The budgeted healthcare benefits for the upcoming year in this example are \$1,960,895. As shown in this exhibit, healthcare benefit costs are the largest line item benefit cost in most organizations. This budgeted healthcare cost number should be used to develop the specifics of the healthcare program next year.

As a final point about healthcare cost containment, most organizations should shop around every year for a better deal for their healthcare dollar. Those who shop may find opportunities to change carriers for better rates. Just because an employer receives a small rate increase from their existing carrier does not mean that all other carriers will charge the same rates. Of course, you must watch out for loss-leading practices. Remember, insurance companies pay benefit brokers, and their motivations are not directed toward earning a lower commission for the



benefit of their clients. Instead, they seek to maximize their commission earnings. So, buyer beware!

## **KEY CONCEPTS IN THIS CHAPTER**

- Consumer-driven healthcare
- Health savings accounts
- Health reimbursement accounts
- Flexible spending accounts
- Utilization reviews
- Utilization management
- Healthcare cost-containment challenges
- Corporate wellness programs
- Forecasting healthcare benefit programs
- Precertification reviews
- Concurrent reviews
- Retrospective reviews

## **10. The Accounting and Financing of Retirement Plans**

## **Aims and objectives of this chapter**

- Establish a framework for employer-sponsored pension plans
- Further explain the difference between defined-benefit and defined-contribution pension plans
- Discuss the accounting for pension plans
- Review the accounting of defined contribution pension plans
- Explain accounting issues surrounding loans under defined contribution pension plans
- Discuss the accounting of defined benefit pension plans
- Explain the concept of income-replacement ratio
- Explain the reasons for the decrease in the use of defined benefit pension plans
- Explain the role of the actuary in the determination of defined benefit plan costs
- Discuss all the components involved in the accounting of defined-benefit pension plans
- Explain all elements of the pension benefit obligation
- Explain the accumulated benefit obligation
- Explain the vested benefit obligation
- Explain the projected benefit obligation

- Discuss the role of Pension Benefit Guarantee Corporation
- Examine the elements involved in accounting for the PBO changes
- Discuss the elements involved in the accounting for pension plan assets
- Explain the reasons for underfunding of defined benefit pension plans
- Explain the elements involved in the accounting for the annual pension expense
- Explore the components of the pension expense
- Review pension plan journal entries and financial statement requirements
- Review the accounting standards governing pension plan accounting

Pension funds in the United States are the largest source of accumulated investment funds. These pension funds control about one fourth of the stock market. Pension costs of an organization constitute one of the largest expenditures of any organization. The organizational liability to provide benefits is huge. Therefore, accounting for these expenditures is a very important organizational responsibility. The responsibility is normally shared between the *human resource* (HR) department and the accounting department.

## THE BACKGROUND

So, pension plans are employer-sponsored programs providing benefits to retired employees for services provided to the employer during working years. From an accounting point of view, there are two entities here: the sponsoring employer and the pension plan itself. The pension plan's role is to receive contributions from employers, administer the pension plan assets, and make payments to retired employees. When employers contribute to the pension plan, they are funding the plan. Some pension plans are contributory, where an employee bears some of costs of the plan. Other plans are noncontributory, where the employer bears the entire cost of the plan. Note that the pension plan is a separate legal and accounting entity from the sponsoring company.

Individuals accumulate pension funds in an attempt to ensure old-age financial security, when that person will not be able to continue with gainful economic employment. Therefore, the goal is to collect funds so that when the retirement comes around there will be enough of a passive income that will enable retirees and their partners to live a risk-free and comfortable life, without financial concerns. The idea is to replace earned wages with this source of income at retirement.

Living costs do not have to continue at the preretirement levels; pension planners usually target an income-replacement ratio at retirement of around 70% to 80% of the preretirement income. To achieve that goal, individuals save and invest in stocks, bonds, *certificates of deposit* (CDs), and so on for the sole purpose of saving for retirement.

From an individual's point of view, because of many uncontrollable factors, effective retirement planning suggests a three-prong approach to old-age income

security: private savings and investments, government Social Security (less secure day by day), and employer-provided retirement programs.

This is where employer-sponsored retirement plans come in. Companies sponsor retirement programs to provide employees with a sense of security, to create a satisfied and motivated workforce. Sometimes, based on collective bargaining agreements, employers are obligated to provide retirement benefits.

Employers also are motivated to sponsor retirement programs because of specific tax advantages derived from such programs. Employer-sponsored retirement programs that comply with the *Employee Retirement Income Security Act* (ERISA) are called qualified plans because they qualify for tax advantages for the employer. An employer is allowed to take an immediate tax deduction for contributions made into a pension fund within specified limits.

There is also a tax benefit because pension fund assets are accumulated on a tax-free basis. The employee is not taxed on a current basis for contributions they make or are made on their behalf by their employers until they retire and start receiving the retirement benefits. The earnings of the pension funds are also not taxed until benefits are received, which is usually after retirement age. *Individual retirement accounts* (IRAs), Roth IRAs, and company-sponsored 401(k) plans all are tax-advantaged plans. In other words, contributions to these plans are made with before-tax dollars.

For all these reasons, understanding the accounting, finance, and tax aspects of these programs is a must for all those involved in these plans (that is, those who are responsible for the design, development, and administration of the plans), irrespective of their functional designations or their core competencies.

Participation in employer-sponsored retirement plans in the United States grew from 43 million in 1997 to 86 million in 2007.<sup>1</sup> This growth in participation in employer-sponsored retirement plans is directly correlated with the expansion of workers who participated in defined contribution plans (for example, 401(k) plans). Between calendar years 1977 and 2007, the number of participants in defined contribution plans increased 358% compared to a 31% decrease in defined benefit plans. More than two-thirds of workers covered by pension plans are covered by defined-contribution pension plans now. Note, however, that in the United States, 88% of public employees are still covered by a defined-benefit pension plan.<sup>2</sup>

<sup>1</sup> Treasury Inspector General for Tax Administration, Statistical Trends in Retirement Plans, August 9, 2010, Reference Number: 2010-10-097.

<sup>2</sup> “City employees’ golden years start too soon.” Opinion editorial. Statesman.com. May 7, 2009.

In the private sector, defined benefit plans are certainly on a downward trend with respect to the number of these plans. The reasons are as follows:

- Governmental regulations make defined benefit pension plans administratively complicated.
- Employers do not want the risk of the future with respect to defined-benefit pension plans.
- Long-term “one-employer” employment is not the norm any more.

Although decreasing in numbers, the understanding of the accounting and financing implications of defined benefit pension plans remains an important area of study.

## **Defined Contribution and Defined Benefit Pension Plans “Defined”**

Before we go any further, let's define the concepts of defined contribution and defined benefit pension plans, which have also been discussed in the previous chapters.

### **Defined Contribution Pension Plans**

In a defined contribution pension plan, the employee contributes an amount voluntarily and regularly on a before-tax basis. The contributions are then invested, based on the employee's choice, usually in various company-approved investment instruments. There is an annual limit for employee contributions imposed by the government. The limit for employee contributions to a defined contribution plan for the year 2013 is \$17,500, up from \$17,000 in 2012. The employer normally agrees to match the employee's contribution by a fixed matching contribution amount. The retirement distributions, upon reaching retirement age, then depend on the size of the accumulated funds in the defined contribution plan.

### **Defined Benefit Pension Plans**

Defined benefit plans promise participants a fixed retirement benefit established by a predefined formula. Factors that are considered in the equation include:

- Years of service
- A compensation amount (either final career average pay or the pay level in the year immediately before retirement)
- Age

Such pension plans have to ensure sufficient funds are available to pay out the defined benefit when disbursement of funds to participants is required.



## THE ACCOUNTING OF THE PLANS

Currently, the basic accounting standards requires that the cost of providing postemployment retirement benefits be recognized when the employee is in active service, rather than when the company actually pays those benefits.<sup>3</sup>

<sup>3</sup> Most Intermediate Accounting books cover the subject of pension plan accounting. The explanation in this book relies primarily, but not exclusively, on material from: Spiceland, J. David, James Sepe, Mark Nelson, and Lawrence Tomassini, *Intermediate Accounting, 5th Edition*, McGraw-Hill Irwin, New York, 2009.

### The Accounting for Defined Contribution Plans

Employers offering defined contribution plans may promise the participant a fixed matching contribution based on the contribution made by the employee. The employer may agree to match each year and deposit the employee contribution into a trust fund based on a formula. The formula might consider factors such as age, length of employee service, and the compensation level of the employee. There are several variations of defined contribution plans, such as money purchase plans, thrift plans, and 401(k) plans. Over 70% of American workers participate in 401(k) plans, with over \$2 trillion invested in 401(k) plans. 401(k) plans are now the most commonly used form for the accumulation of retirement savings.

Defined contribution plans can also be tied into company performance, as in profit-sharing plans, 401(k) profit-sharing plans, and incentive savings plans. The retirement benefits that an employee finally collects under a defined contribution plan depend on the amounts contributed to the plan over the years and the investment performance of the funds.

Accounting for defined contribution plans is fairly straightforward. Each year, the employer records a

pension expense equal to the amount the organization contributes to the plan. On the income statement, the amount of the contribution is recorded as an operating expense (typically under Selling, General, and Administrative Expenses) in the period the employee provides the employment services to have earned the contribution.

Suppose that a defined contribution plan promises an annual contribution of 5% of the employee's salary. If the total employee base payroll of those who have elected to participate in the company sponsored 401(k) plan is \$10 million, the accounting entry is as follows:

Pension Expense	500,000	
Cash ( $\$10,000,000 \times 5\%$ )		500,000

If the employer recognizes and records pension expense on a monthly basis (a more likely scenario), the monthly journal entry will be as follows:

Pension Expense	41,667	
Cash		41,667

In most companies, the contribution is “matched” with the employee's base salary. Including the many other elements of cash compensation for matching purposes will introduce too much variability to the pension expense.

In some instances, if the employer chooses to contribute less than the contracted amount to the plan, a pension liability is accrued for these expenses. However, when the employer pays more than the obligated amount to the plan, the employer records a pension asset. On the balance sheet, if the contribution is paid in the same period as the employee earns the benefit, no entries are necessary. If service-related benefits are earned in one period but are expensed in the next, however, the company must record a liability for the amount of the

contribution until it is expensed in the income statement. This amount typically falls under Accrued Salary or Other Accrued Expenses.

If the company has recorded a pension payable and makes the contribution at the end of a year, the company then debits Pension Payable (that is, decreases liability) and credits Cash.

Note also that these accounting entries need to be made as and when the employee earns the company contributions by completing the requisite service period. If the plan contract indicates that the company will match up to a certain percentage of employee salary as and when the employee makes his or her contribution, it can be assumed that the service period has been completed. It is important to note that the accounting record keeping is different from the vesting of the employer contributions, which in most plans happens only after the employee has completed a specific employment period. This period in most defined contribution plans is usually three to five years.

Also note that under a defined contribution plan the amount of the employee's retirement income depends on how well the funds in the employee's account do over time. The employee bears all the risk of uncertain investment returns. Therefore, investment portfolio strategic choice becomes critical.

### **Loans under the Plan**

IRS regulations allow loans to be taken out from one's 401(k) accounts. The plan document has to have a provision for such loans. A loan will not be taxable if certain conditions are met.

Generally, a participant may borrow up to 50% of the vested account balance. The loan has to be repaid to the

plan within five years, unless the loan was to buy the principal home of the 401(k) account holder. Loans need to be repaid regularly, at least quarterly, over the life of the loan. 401(k) account balances are lowered for loans if there was already a loan outstanding during previous one year before the new loan. Certain participant loans can be considered taxable distributions.

Prior to September 2010, *Financial Accounting Standards Board* (FASB) guidance allowed participant loans to be classified as plan investments as per 962-325-45-10. Subtopic 962-325 stated that these loans be generally measured at fair value. In practice, though, most participant loans were carried at their unpaid principal balance plus any accrued but unpaid interest, which was considered a good faith approximation of fair value. And because some parties raised issues with the fair value determination, the standard was revised as of September 2010. These parties questioned whether the standard as written conformed to the requirement to use observable inputs, such as market interest rates, borrower's credit risk, and historical default rates, to estimate the fair value of participant loans.

So, the current revised standard and guidance indicates that loans to participants be classified as notes receivable from participants. FASB suggested that the guidance now would reduce the amount of time that plan administrators spend on estimating the fair value of participant loans using observable inputs. The classification of participant loans as notes receivable from participants acknowledges that participant loans are unique from other investments in that a participant taking out such a loan essentially borrows against his or her own individual vested benefit account balance.

Also in the discussion about the revised standard it was concluded that it is more meaningful to measure

participant loans at their unpaid principal balance plus any accrued but unpaid interest rather than at fair value. Participant loans cannot be sold by the plan. Furthermore, if a participant were to default, the unpaid balance of the loan would reduce the participant's account, and there would be no effect on the plan's investment returns or any other participant's account balance.<sup>4</sup>

<sup>4</sup> Adapted from Financial Accounting Series, Accounting Standards update, No. 2010, September 25, 2010, Plan Accounting—Defined Contribution Pension Plans (Topic 962), Reporting Loans to Participants by Defined Contribution Pension Plans, a consensus of the FASB Emerging Issue Task Force.

401(k) plan's distribution rules are well-defined in IRS regulations. There are specific rules for hardship withdrawals also.

### **The Accounting for Defined Benefit Pension Plans**

Defined benefit plans are based on a predetermined benefit formula. These benefits usually depend on the employee's years of service and on the compensation level of the employees close to retirement. The company has to determine what they should contribute today using the time value of money. The funding method used should ensure that sufficient funds are available in the plan to pay the required benefit when the need arises.

In a defined benefit plan, the employees receive the specified benefits when they retire and they are the beneficiaries of the defined benefit trust. The trust's main objective is the safeguard and proper investment of the accumulated funds so that there is enough to cover the obligations to pay the retirement benefits. Although the pension trust is a separate entity from the employer, the trust assets belong to the employer, and the employer is responsible to pay the defined benefits no matter what the financial position of the trust when benefits have to be paid. So, the employer has to make up any

deficiencies in the trust and make up any shortfalls when needed. When there are excesses in the trust, the employer can recapture those excesses either by reducing future funding or taking the excess funds out for other uses. Thus, the employer is at risk with the defined benefit plan because it is their responsibility to ensure that sufficient funds have been accumulated in the defined benefit trust to pay employees' retirement benefits based on the predetermined formula when needed.

The annual predetermined benefit formula normally starts off with an acceptable income replacement ratio (percentage of preretirement income that will be replaced after retirement).<sup>5</sup> The conceptual reasoning behind the income-replacement percentage factor is the percentage of preretirement income the retired person needs to sustain the same standard of living he or she enjoyed before retiring. Logic suggests that the percentage needed is something below 100%. This is because the retired person does not have same types of expenditures in retirement (for example, employment expenses, commuting expenses, child-rearing expenses, and food expenses for a family with children). Therefore, this is usually a policy decision, and in a unionized organization it is often a matter of bargaining negotiations.

<sup>5</sup> The theory behind the income-replacement ratio is that a retiring employee can sufficiently manage to live the preretirement standard of living at less than 100% of preretirement income because their living expenses are not as high as they were in their earlier years (no children at home, no employment-related expenses, and so forth).

The annual benefit pension formula consists of various factors: an average employee salary (either final year, or career average salary, or final five- or ten-year salary), years of credited service, and a preestablished percentage factor such as 1.0%, or 1.5%, or 2.5%. The acceptable formula for any organization needs to be derived using

an iterative calculation method with the ultimate goal of achieving the policy-driven income-replacement ratio. Additional factors that go into the calculation are mortality estimates and the estimated number of retirement years before the employee dies.

An example of a derived annual defined benefit formula is shown here.

$2.5\% \times \text{final five year average salary} \times \text{years of credited service} = \text{the retirement benefit lump sum amount.}$

So, an employee who retires after 35 years of credited service and whose final five-year average salary is \$150,000 would receive an annual retirement benefit of

$$2.5\% \times 35 \times \$150,000 = \$131,250$$

This works out to be an income-replacement ratio of 87.5%, which is an acceptable income-replacement ratio. Sometimes the calculated lump-sum retirement benefit is (in the preceding example, \$ 131,250) distributed via an annuity.

Note that as a result of union negotiations, organizations have inserted different twists to the income-replacement percentage factor. Here is how the *California State Teachers' Retirement System* (CalSTRS) describes this income-replacement factor:

The age factor is the percent of final compensation to which you are entitled for each year of service credit, determined by your age on the last day of the month in which your retirement is effective. It is set at 2% at age 60. The age factor is decreased if you retire before age 60 and increased to a maximum of 2.4% if you retire later than age 60. If you retire with at least 30 years of earned service credit, a 0.2% career factor will be added to your age factor, up to a maximum age factor of 2.4%.<sup>6</sup>

<sup>9</sup> California Teachers' Association Retirement Employee Web site:  
<http://ctainvest.org/home/CalSTRS-CalPERS/about-calstrs/calstrs-retirement-benefit.aspx>.

Some organizations call this income-replacement factor a retirement factor; others call it the age factor.

Conceptually and theoretically, however, the need for this factor in the defined benefit pension formula is as what has been proposed here: an income replacement percentage (a percentage of preretirement income needed by the retiree to live at the same standard of living he or she enjoyed before retiring). Manipulating this factor to fit self-serving needs just increases the costs of these programs. No wonder private employers are moving away from defined benefit pension plans. This manipulation of the income replacement ratios adds to the "black box" nature of defined benefit pension plans.

Note that in plans where the defined benefit formula uses the final average pay it is possible to make the final average pay artificially high, thus deriving a retirement income level that is higher than preretirement income. One can add overtime pay, accumulated vacation pay, expense reimbursements, and other items to make final pay very high. This results in a high level of defined benefit formula generated retirement income. In these situations, the retiree ends up at an income level that is higher than his or her employment period income level. In essence, they get paid more for not working. The logic of such expenditures is really hard to comprehend. This is an issue that is generating a lot public displeasure with the California Public Service employee defined benefit retirement programs.

But more assumptions, covered with uncertainties, have to be made to accumulate enough funds to be able to distribute the promised benefits using the predetermined formula. Also note that these defined benefits are contractually promised to the retiring employee. The



assumptions cover the rate of return on plan assets, employee turnover impacting the number of eligible employees, the actual retirement age when the employee retires (which will impact the length of the retirement period benefits will need to be paid out), inflation rates, salary-increase trends resulting in future salary levels, and interest rates.

All of these unknowns, assumptions, calculations, and the use of a fairly arbitrary defined benefit formula can make defined benefit plans a complicated, uncertain, and very expensive black box.

Defined benefit pension plans have suffered from many structural issues. Because many assumptions are used in the calculations, these assumptions need to be continually adjusted for changing financial conditions. In addition, pension investment targets have not been met regularly. Pension liabilities have increased, but pension assets have not kept pace. All of these factors and many others have caused the decrease in the incidence of defined benefit pension plans, at least in the private sector. Nevertheless, as long as these plans exist, there is a need to study the structure from a finance and accounting perspective.

The calculation of the retirement benefit expenses, obligations, liabilities, and the determination of the formula is the responsibility of an actuary. An actuary is professionally trained and certified in a particular branch of mathematics and statistics. They assign probabilities to future events and calculate the organization's defined benefits plan assets and liabilities. Employers depend on actuaries for assistance with developing, implementing, and funding of pension plans. However, these calculations involve a lot of subjectivity. Therefore, the actual numbers end up deviating from calculated figures. This necessitates a lot of adjustments to assumptions to

ensure that there are sufficient accumulated funds to pay the promised benefits. The actuary works in a challenging environment, in that the accounting estimates of liabilities and expenses need to be created for cash payments that may occur years in the future. Forecasting has many perils.

The risk of the pension-obligation amount increasing from amounts previously calculated is borne by the employer because in a defined benefit plan a fixed predetermined formula is used. Over the years, the uncertainties of the economic environment and the volatility in the financial markets have resulted in changing pension asset balances. Pension investments have not performed as well as expected. The employer's financial inability to fund the plan regularly has prevented plans from making up funding deficiencies. The shareholders have been confronted with large amounts of unfunded pension liabilities. This has often resulted in weak balance sheets.

Also, falling interest rates and bear markets have wreaked havoc with pension plans, creating a "pensions crisis." The pension plans of many companies have been severely underfunded, as a result companies, such as United Airlines, have had to file for bankruptcy, stating that it is not possible for them to meet their pension obligations. For all these reasons, FASB reformed pension accounting and in 2006 passed a new standard (SFAS 158), in part to fix the problems with pension accounting. The scene has not been pretty! We discuss the FASB standards governing defined benefit pension plans later in the chapter.

### **The Accounting for Defined Benefit Plans Explained**

From an accounting point of view, the key elements to consider in defined benefit plan accounting are as follows:

- The obligation of the employer to pay the retirement benefit when the employee retires at a future date
- The accumulation of assets in the pension plan to pay retirement benefits from, as, and when the participating employee retires
- The periodic expense of offering and maintaining a pension plan

Currently, the expense items are not reported individually in the financial statements, but the pension obligation is netted against pension assets, and the net amount has to be shown as a line item on the balance sheet. The individual balances are reported separately in the footnote disclosures. Also, a calculated pension expense needs to be shown as an operating expense on the income statement. The expense is a composite of the periodic changes in both the plan obligations and the plan assets. The components of the pension expense are as follows:

- The service cost related to employee service during a specific period.
- The interest accrued on the pension liability during a given period.
- The impact of the return on plan assets, on the balances. If this is negative, it reduces the pension expense. The opposite is true if the returns are positive.
- The increased impact of the amortization of prior service cost attributed to employee service.
- Either the positive or negative impact of the losses or gains from revisions in the pension liability or from investing the plan assets.

We now take a closer look at the pension obligation and the pension asset. Then we review the components of the pension expense.

## **THE PENSION BENEFIT OBLIGATION**

The employer's pension obligation is the deferred obligation the employer has to its employees for the service they have rendered satisfying the terms of the pension plan. There are various ways of measuring that obligation.

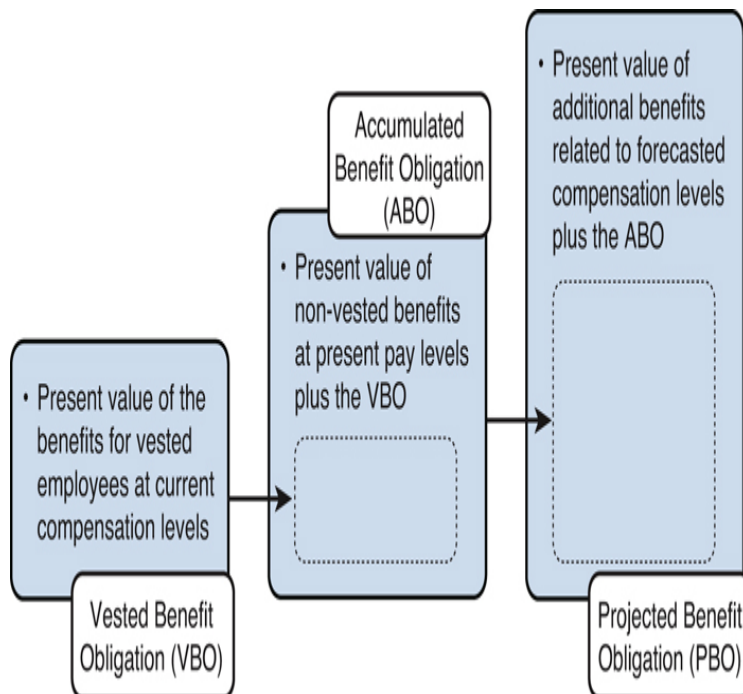
The different measurement methods for the benefit obligations are as follows:

- **The vested benefit obligation (VBO):** This is the amount of the accumulated benefit obligation that plan participants are entitled to receive regardless of whether they discontinue their current employment with their present employer or not (the vested pension benefits). Pension plans usually require a minimum years of service before the employee attains the vested benefits status. The calculation is made at the current salary levels. Since 1989, the plan provisions should indicate that benefits must vest (1) completely within five years or (2) 20% within three years with another 20% vesting each subsequent year until full vesting within seven years.

- **The accumulated benefit obligation (ABO):** This is the amount estimated by the actuary of the discounted present value of the retirement benefits earned by employees as of the valuation date, using the current compensation level of those employees and the plan's pension formula. The measurement here is based on both the vested and nonvested years of service. The current salaries are used in this calculation.

• **The projected benefit obligation (PBO):** The amount the actuary calculates as the present value of vested and nonvested benefits accrued to date based on all the employees' projected salaries at retirement. The accounting profession has adopted the *projected benefit obligation* (PBO) as the measure for overall pension liability of an organization.

Another way of looking at the projected benefit obligation is the build-up method. Three components form the total pension benefit obligation. The summary given in Exhibit 10-1 should further clarify the three elements of the total pension benefit obligation.



**Exhibit 10-1. The Build-up Method for the PBO**

## **A Note about the Pension Benefit Guarantee Corporation**

The *Pension Benefit Guarantee Corporation* (PBGC) was established under the ERISA legislation as a governmental insurance entity to which qualified plans pay a premium for each participant enrolled in a plan. The role of the PBGC was to serve as a payer of last resort for retirement benefits in case of a plan default due to a bankruptcy. The maximum pension benefit guaranteed by PBGC is set by law and adjusted yearly. For plans that end in 2011, under PBGC's insurance program for single-employer plans, workers who retire at age 65 can receive up to \$4,500 per month (or \$54,000 per year).<sup>7</sup> PBGC's role is similar to the role that the *Federal Deposit Insurance Corporation* (FDIC) plays in the banking sector. For 2011, the premium rate is \$9 per participant for multiemployer plans; single-employer plans pay \$35 per participant plus \$9 for each \$1,000 of unfunded vested benefits. The per-participant rates are indexed for inflation.<sup>8</sup>

<sup>7</sup> "Maximum monthly guarantee tables." Pension Benefit Guaranty Corporation.

<sup>8</sup> Federal Register, Vol. 72, No. 230, November 30, 2007, Notices 67765.000.

Note that during fiscal year 2010 the PBGC paid \$5.6 billion in benefits to participants of failed pension plans. That year, 147 pension plans failed, and the PBGC's deficit increased 4.5% to \$23 billion. The PBGC has a total of \$102.5 billion in obligations and \$79.5 billion in assets.<sup>9</sup> Not a pretty picture!

<sup>9</sup> "Insurer reports wider annual deficit," *Washington Post*, November 16, 2010.

## **The Projected Benefit Obligation**

Note the defined benefit formula might indicate that the final average salary or the final-year salary needs to be used. To calculate the projected benefit obligation, the actuary projects the salary levels using an estimate of future salary increases. Using the salary projection, the actuary creates an estimate of the final average pay or the final-year salary. The projections for salary levels are used to project the benefit obligation liability.

Let's look at an example of the calculations for the different pension obligation measures using ten employees.

Let's suppose that the Safari Group hired ten employees in 1995. The company has a defined benefit pension plan with the predefined benefit formula as follows:

$$2.0\% \times \text{Final year salary} \times \text{Years of credited service}$$

Let's now say that all ten employees are scheduled to retire in 2030 after 35 years of service. These employees' retirement period is estimated to be on the average 30 years (we are taking an average here for simplicity; in actuality, the actuary would do the calculation separately for each employee). At the end of 2005, after ten years of service, the base salaries of the ten employees totaled \$700,000. The projected salary at retirement for the ten employees totaled \$1,465,645. The average salary increase assumption being used here is 3.0% per year. The interest rate assumption for this example is 4%.

So, what is the projected benefit obligation for the ten employees?

**1.** First, determine retirement benefits earned to date (after ten years of services at the end of year 2005):

$2.0\% \times 10 \text{ years} \times \$1,465,645 = \$293,129$  (or \$ 29,313 per person per year)

**2.** Next, find the present value of the retirement benefits as of the retirement date:

$n = 30 \text{ years}; i = 4\%; \$293,129 \times 17.29203^* = \$5,068,795$   
(\$506,880 per person)

Retirement benefits are scheduled to be paid out for 30 years.

**\*Note 1:** Using appropriate PV tables discount factor for 30 years; present value of an ordinary annuity of \$1.

**3.** Next, find the present value of retirement benefits as of the current date:

$n = 25 \text{ years}; i = 4\%; \$5,068,795 \times .37512^* = \$1,901,406$   
(\$190,141 per person PBO at the end of year 2005)

**\*Note 2:** Using appropriate PV tables discount factor for 25 years; present value of \$1.

From year to year, the estimate for the projected benefits obligation changes. This is because the actuary has to add an additional year of service and the participating employee is one year closer to retirement. So, the present value increases. The other factors that change the PBO estimate from year to year are the gains or losses on pension assets, prior service cost, and the benefits paid to employees who retired during the current year.

So, the PBO changes because of the following:

- **Service cost:** At the end of a year, an additional year has expired for pension obligation calculation purposes. So, the change in the pension obligation reflects the increase in the PBO estimate resulting from the



additional year of service. Another year of service will change the calculations in this manner:

At the end of the year 2006, the calculations demonstrated for the ten employees will change in this manner:

**1.**  $2.0\% \times 11 \text{ years} \times \$1,465,645 = \$322,442$  (or \$32,244 per person per year)

**2.**  $n = 30 \text{ years}, i = 4.0\%; \$322,442 \times 17.29203^* = \$5,575,677$  (or \$557,568 per person)

**\*Note 3:** the same discount factor for 30 years shown in the previous calculation.

**3.**  $n = 24 \text{ years}, i = 4.0\%; \$5,575,677 \times .39012^* = \$2,175,183$  (\$217,518 per person PBO at the end of the year 2006)

**\*Note 4:** Using appropriate PV tables discount factor for 24 years; present value of \$1.

The PBO has increased from \$1,901,406 to \$2,175,183; an increase of \$273,777 (\$27,378 per person).

• **Interest cost:** Another reason the PBO estimate increases is because of interest cost. Because the PBO is a liability, interest on the liability changes from year to year. This estimate is calculated by multiplying the discount rate by the PBO balance existing at the beginning of the year. The calculations in Exhibit 10-2 demonstrate that PBO changes are reflecting an additional service year and the interest cost for the ten employees.

#### **Exhibit 10-2. PBO at the end of 2006**

PBO at the end of the year 2005 is	\$1,901,406
Additional year of service cost: $2.0\% \times 1 \text{ year} \times \$1,465,645 \times 17.29203 \times .39012 =$	\$197,745
Interest cost = $\$1,901,406 \times 4\% =$	<u>\$76,056</u>
PBO at the end of year 2006 =	<u>\$2,175,207*</u>

\*(Rounding difference)

• **Prior service cost:** Sometimes the sponsoring organization might amend the plan during a given year by changing the plan formula. When the new defined benefit formula is applied during the current year, the PBO estimate changes. The estimate going forward might either increase or decrease. Plan designers might designate these benefit plan changes to be on a proactive (going forward) or retroactive (going back) basis. The PBO estimates made during the current period can change based on the retroactive or the proactive designation. This change element is called the prior service cost change. To demonstrate how the plan changes affect the pension benefit obligation when changes are made on a retroactive basis, consider the calculation for the ten employee example shown here.

Let's say in our example plan design changes the benefit formula (changed January 2, 2006) as follows:

$2.5\% \times \text{Years of credited service} \times \text{Final year pay}$  (instead of 2%)

Now we see how the formula change affects the PBO:

1.  $2.5\% \times \$1,465,645 \times 10 \text{ years} = \$366,411$

2.  $\$366,411 \times 17.29203^* = \$6,335,990$

3.  $\$6,335,990 \times .37512^* = \$2,376,766$

Prior service cost then is =  $\$2,376,766 - \$1,901,406 = \$475,360$  (\$47,536 per person)

**\*Note 4:** From PV tables discount factors (see previous explanations).

So, now we see the PBO at the end of the year 2006 as shown in Exhibit 10-3.

**Exhibit 10-3. PBO at the end of year 2006 with formula change**

PBO beginning of the year 2006	\$1,901,406
Prior Service Cost	<u>\$475,360</u>
PBO including prior service cost at the beginning of 2006	\$2,376,766
Now service cost for the year 2006: $2.5\% \times 1 \text{ year} \times \$1,465,645 \times 17.29203 \times .39012$	\$247,149
and interest cost = $\$2,376,766 \times 4\%$	<u>\$95,071</u>
PBO at the end of the year 2006	<u>\$2,718,986</u>

\$2,718,986 is changed from \$2,175,207 because of formula change.

Let's assume that in our example it is now year 2007. The end of year 2007 calculation is (for the ten person case) as shown in Exhibit 10-4.

**Exhibit 10-4. PBO at the end of 2007**

PBO at the beginning of the year 2007	\$2,718,986
Service cost for the year 2007 is: $2.5\% \times 1 \text{ year} \times \$1,465,645 \times 17.2903^* \times .40573^*$	\$257,045
Interest cost $\$2,718,986 \times 4\%$	<u>\$108,759</u>
PBO at the end of the year 2007	<u><u>\$3,102,790</u></u>

**\*Note 5:** From PV tables discount factors for 30 years and 23 years, respectively.

• **Gain or loss on the PBO:** If the actuary revises his or her calculation assumptions during the current year, this might result in a gain or a loss. The actuary might change the following assumptions:

- A change of life expectancy
- The assumption as to when retirement will actually occur
- A change made in the assumed discount rate

If any of these assumption changes are executed, the PBO obligation can show a gain or a loss. Let's see an example of this factor in the ten-employee example we are using.

Now let's assume that a change is made for the final-year salary from \$1,465,645 to \$1,550,000 in the year 2007.

The PBO with the revision will be as follows

$$2.5\% \times 12 \text{ years} \times \$1,550,000 = \$465,000$$

$$\$465,000 \times 17.29203^* = \$8,039,990$$

$$\$8,039,990 \times .40573^* = \$3,262,065$$

**\*Note 6:** From PV tables discount factors for 30 years and 23 years, respectively.

The PBO increase because of the revised assumption to final-year salary by =  $\$3,262,065 - \$3,102,790 = \$159,275$  (\$15,928 per person).

Exhibit 10-5 shows a summary of the change.

**Exhibit 10-5. PBO end of year 2007 with Salary assumption increase**

PBO at the beginning of the year 2007	\$2,718,207
Service Cost	\$257,045
Interest Cost	\$108,759
Salary Assumption Increase (or loss on PBO)	<u>\$159,275</u>
PBO at the end of 2007	<u><u>\$3,243,286</u></u>

• **Payment of retirement benefits:** This is the change in the PBO that takes place when employees retire during the current period and retirement benefits are paid out to these employees resulting in reducing the pension benefit obligation.

So, in summary, the PBO changes because of the factors listed in Exhibit 10-6.

**Exhibit 10-6. Factors affecting PBO**

Service cost =	(+)
Interest cost =	(+)
Prior service cost =	(+)
Increase or decrease due to revisions =	(+/-)
Retiree benefits paid =	(-)

### Aggregate Calculation

Our example here has focused the calculations for ten employees only for ease of understanding. Normally, the actuary makes the estimates and projections for the entire employee population covered under the defined benefit pension plan.

Let's assume that the aggregate (total of all employees) calculations for the Safari Group are as shown in Exhibit 10-7. The changes in the PBO for the Safari Group during the year 2007 are shown; all amounts are assumed.

### Exhibit 10-7. Aggregate PBO Calculations

	\$ in millions
PBO at the beginning of the year	166
Service cost, 2007	10
Interest cost, 2007 \$166 mil. $\times$ 4%	6.6
Less (gain) on PBO	6
Less: Retiree benefits paid	(5)
PBO at the end of the year 2007	<u>\$183.6</u>

## **PENSION PLAN ASSETS**

Calculation of the pension obligation is one thing, regardless of whether the obligation is the vested benefit obligation, or the accumulated benefit obligation, or the projected benefit obligation. The other thing is having enough funds to pay the obligations when necessary.

So, the defined benefit plan has to accumulate enough assets to be able to pay the benefit obligations. The balances in the pension plan assets have to be reported in the footnotes of the company's financial statements.

A trustee holds the assets of the pension plan. The pension plan trustee accepts the employer's contribution to the plan and invests the funds accumulated and pays out pension benefits to retired employees. The trustee is normally a bank or a company that provides services as a pension plan trustee. The trustee, on the advice of a pension plan advisor, invests pension plan assets in stocks, bonds, and other types of income-producing assets. The investment advisor or manager influences pension plan investments by directing the trustee to invest the funds as advised.

The investment advisor or manager acts in accordance and within the structure developed by a retirement committee. The retirement committee sets up an appropriate retirement funds investment policy. This committee also establishes the ongoing funding policy for the pension plan. For example, they might lay out a policy that states that the company will fund each year's incremental service cost and also a portion of the prior year's service cost if the plan formula is or has been changed. They will also advise whether retroactivity will be applied. The goal is to ensure that the pension asset balances are sufficient to be able to pay the benefits as and when they become due. The pension plan assets

fluctuate based on dividends earned, interest, and market-price appreciation.

Each year, the actuary calculates whether the company needs to contribute more funds to be set aside to pay the benefits. To do this, they need to estimate an expected rate of return that the accumulated funds will produce. This is because the higher the expected return, the more funds will be available to pay out in benefits and the less current contributions will be needed from the company. If the estimate of the expected rate of return does not materialize, the company might need to make additional contributions from general funds to ensure that there are enough pension plan assets to meet the obligations. In the recent past, rate-of-return estimates have been around 3% to 9%, with 6.0% being the median percentage. These are the estimates actuaries have used.

So, during any given calculating period, if the actuary calculates that the plan assets will not suffice to meet the projected benefit obligation, the pension plan is underfunded. Over the past few years, the reality has been that defined benefit plans have remained underfunded. The reasons for underfunding have been many, including the main ones listed here:

- Because of limited cash availability, companies have been unable to continue funding pension plans. Therefore, the underfunding condition has been difficult to remove. The inability to replenish the plan with additional contribution funds got aggravated over the years, and many companies therefore have had to convert defined benefit plans to defined contribution plans or completely disband defined benefit pension plans.
- From year to year, actuaries have found that their assumptions for plan calculations have needed to be revised (and mainly downward). This downward



adjustment has been made specifically for the rate-of-return assumption, mainly because investments have suffered from increased market volatility.

- Union pressure to change benefit formulas upward. This has increased the projected pension benefit obligation and increased the underfunding situations.

With the passage of ERISA, minimum funding standards have been introduced to protect plan participants. But the bust and boom scenarios of the stock market have created projected benefit obligation overfunding and underfunding. In addition, companies have diverted pension funds when there has been overfunding situations. The diversion of funds has reduced the long-term viability of the plans over an extended period of time. This has resulted in many firms being in an underfunded situation. Sponsoring companies have had financial troubles, and therefore the pension plans were disbanded. PBGC insurance got triggered. Excessive demands on the PBGC have also negatively impacted the whole system. The PBGC benefit amount in case of a sponsor disbanding their plan is \$3,500 a month. Often, this payment is much less than the promised benefit. And because calls to PBGC to pay more and more retirement benefits for bankrupt plans have increased, PBGC has had to increase per-participant premiums. Thus, in a circular manner, the defined benefit plan environment has become problematic, leaving companies no other option than to discontinue defined benefit pension plans and to introduce defined contribution plans instead.

But, there is still no requirement to report pension plan obligations or the accumulated pension plan assets directly in the financial statements in any reporting period. Organizations need to report only the net difference between the two amounts, either as net

pension liability or a net pension asset depending on the funding status of the plan.

Let's now demonstrate aggregate calculations with the Safari Group example.

The Safari Group decides that it will fund a portion of each year's service cost. Let's say that the retirement committee has decided to fund the plan with \$5 million for the year.

Let's assume that the plan assets at the beginning of the year 2007 were \$170 million. The expected return was 7%, but the actual return in 2007 was 8%. And let's assume that the company paid out \$2 million in retirement during the year 2007.

Exhibit 10-8 shows the plan's assets at the end of 2007.

**Exhibit 10-8. The Plan Assets at Year's End 2007**

	\$ in millions
Plan assets at the beginning of the year 2007	\$170
Return on plan assets 8%	13.6
Cash contributions in 2007	5
Less: Retiree benefits paid	(2)
Plan assets at the end of year 2007	<u>\$176.6</u>

And let's assume that the PBO at the end of the year for the entire employee population was \$183.6, as indicated in Exhibit 10-7. The plan is now underfunded.

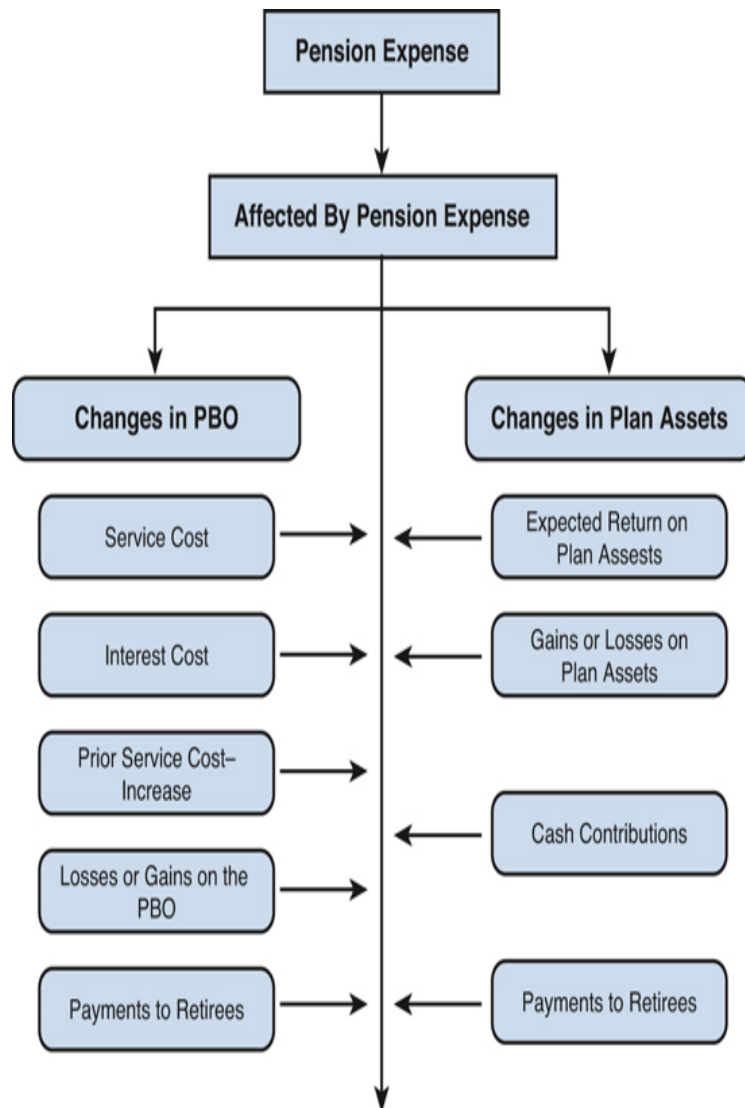
Companies are required to recognize on their balance sheets the underfunded or overfunded status of their defined benefit plans. This status is recorded on the

balance sheet as the netted amount of the fair values of plan assets and the projected benefit obligation.

## **THE PENSION EXPENSE**

The pension expense relates directly to the changes in the projected benefit obligation and the change in plan assets discussed in the previous sections. Once calculated, the pension expense is directly reported as a period expense on the current period's income statement. The pension expense reported on the income statement is a combination of changes that took place in the pension obligation, the pension plan assets, and the current-year increase in the employer's obligation attributed to the employee service during the current reporting year. The pension expense then is considered as a current period compensation expense along with other total compensation expenses such as wages, salaries, sales commissions, incentives, bonuses, and the various other forms of compensation discussed in this book. So, in essence, the accounting process is matching all the forms of total compensation with the services provided by employees during that specific time period.

Exhibit 10-9 explains the derivation of the pension expense.



**Exhibit 10-9. Factors affecting the Pension Expense**

We will now discuss each component of the pension expense:

- **Service cost:** This is the change in the PBO attributable to the employee service that was provided during the current reporting year for which the financial statements are being prepared. More precisely, the service cost is said to be the actuarial present value of retirement benefits based on a predetermined benefit formula applied to the employee service rendered during the past year. FASB has adopted a benefits/year-of-

service actuarial method. The important point to note here is that the service cost or the present obligation has to be calculated using the future compensation levels

- **Interest cost:** This is the cost that is calculated by multiplying the actuary's discount rate (interest rate) by the beginning-year projected benefit obligation. This is the interest for the period on the PBO outstanding during the period. FASB states that the assumed discount rate should reflect the rates at which pension benefits are expected to be settled. Companies usually look for rates of return on high-quality fixed-income investments currently available in the market. Note that the interest cost is combined with the other components of the pension expense and reported as part of the pension expense and not shown separately in the income statement as an interest expense.

- **Return on plan assets:** The return on plan assets is derived from investing the plan assets in various investment instruments, such as, stocks, bonds, and various other securities. But each year there has to be a reconciliation of the expected rate of return used versus the actual rate of return achieved. This is because the employer contributions and actual returns on the accumulated pension assets increase the pension plan assets.

We know that if the plan assets are invested wisely and the assets accrue positive returns that the employer sponsoring the plan does not have to contribute as much to the plan. Positive returns reduce the cost of the pension plan, and so the amount to be reported as pension expense will be reduced by positive investment returns. The actual returns earned on the plan's assets increase the fund balance and as a result reduce the employer's cost of providing employee pension benefits.

In the Safari Group example, the expected return is used in deriving the pension expense. In the example, the expected rate of return was 7% on the beginning of the year plan assets of \$170 million.  $\$170 \text{ million} \times .07 = \$11.9 \text{ million}$ .

Then there is the question of how and when to reconcile differences between the actual rate of return and expected rate of return that was used in the estimates. FASB has required that the expected rate of return be used in the calculation of the pension expense. This seems counter logical because the pension expense is reduced by the actual rate of return on plan assets and the charge to pension should reflect the actual return. But FASB guidance says otherwise. The difference between the actual rate of return and the expected rate of return is considered a gain or a loss on plan assets.

• **Amortization of prior service cost:** If a plan sponsor for whatever reason changes the pension benefit formula during a given reporting year, the actuary has to change the pension benefit obligation to reflect that change. Sometimes a plan sponsor changes the benefit formula during a given year but because of the terms of a union contract or for just good employee relations the plan sponsor agrees to retroactively give credit for prior service years. Of course, such action might not work with the employee if the employer revises the formula downward. In this case, the expedient path would be that the reduced formula would take effect only going forward. In any case, normally the formula is revised upward, with the pension benefit obligation increasing.

But how does the accounting convention treat the increased pension obligation? The increased obligation can be reported entirely as a current period expense in the year of the plan amendment. But under FASB, the increased costs associated with plan amendments cannot

all be carried to expense in the year of the amendment but must be amortized. The time period to amortize these costs is over the time the employees who benefit from the changes will work for the company.

Also note that under FASB the unamortized balance of prior service cost is not an asset, although it is being amortized, but it is carried as a shareholder equity account under *accumulated other comprehensive income* (AOCI).

Suppose, for example, that in aggregate the prior service cost (which was explained in the ten-employees example) is \$5 million at the beginning of 2007. Also assume that the average service period remaining for all employees at Safari Communications is 15 years. Then, the current-year pension expense for the amortization of prior-year service cost will be as follows:

$\$5 \text{ million} / 15 \text{ years} = \$333,333$ , and this will be the number that will be used as part of this year's pension expense.

• **Amortization of a net loss or net gain:** Gains or losses occur when the assumptions used to calculate both the pension obligations and the pension assets are revised during the current year. Accounting conventions, like the prior service costs, do not allow the entire gain or loss resulting from updating the pension obligation to be reported on the income statement as a pension expense in the year the changes are made. However, it is reported as other comprehensive income on the statement of comprehensive income. Then it is carried as Net Loss – AOCI or a Net Gain – AOCI depending on whether there are greater losses or gains. These amounts are reported as part of AOCI on the balance sheet in the Shareholder's Equity section.

A case can be made that these gains or losses should be shown as part of the current-year earnings because these gains or losses affect the net cost of providing the defined benefit plan. But FASB designates that the income statement recognition for both the gains and losses be delayed.

The current delayed recognition of gains or losses achieves income smoothing, but this stance is not true to the accounting principle, referred to as the matching principle. But the practical justification for the delay principle is the fact that over time, gains and losses cancel each other out. And if that were the case, why subject corporate income statements to nonoperational fluctuations via the changes in the pension benefit account?

So, in any year when the gain or loss is excessive, there needs to be recognition in the pension expense account.

SFAS 87 arbitrarily assigns a 10% threshold to the excess evaluation. When the PBO or the pension asset gain or loss at the beginning of the year is more than the 10% threshold, then there needs to be recognition. This 10% threshold is called a corridor. The corridor states that 10% of either the PBO or the pension asset, whichever is higher at the beginning of the year, will be taken as a pension expense. The excess is charged to income over a period of time and not all at once. The amount of the excess that is charged to income is the excess divided by the average remaining service period of all active employees who would be scheduled to receive retirement benefits. The calculation of the amortized amount for the amortization of a net loss or net gain is shown in Exhibit 10-10.

#### **Exhibit 10-10. The Corridor Calculation**



Prior Net Loss position (previous losses exceeded previous gains)	\$20 mil.
10% of \$170 million is greater than 10% of \$166 million “the corridor” <sup>a</sup>	\$17 mil.
Excess at the beginning of the year	\$ 3 mil.
Average remaining service period	/ 15 years
Amount amortized to 2007 pension expense	<u>\$200,000</u>

Let’s say that the Safari Group had a cumulative net loss position.

**\*Note 7:** In the example, the aggregate numbers were \$170 million plan assets at the beginning of the year and \$166 million PBO at the beginning of the year.

So, for this example, the summary of pension expense in 2007 is as shown in Exhibit 10-11.

**Exhibit 10-11. Summary of Pension Expense in  
2007**

	(\$ in millions)
Service cost	10
Interest cost	6.6
Expected return on plan assets	(11.9)
Amortization of prior service cost – AOCI	.333
Amortization of net loss – AOCI	.200
Pension expense for 2007	<u>\$5,233</u>

Note that numbers for Exhibit 10-11 came from Exhibit 10-7.

So, the Net Loss – AOCI account at the end of 2007 will be as shown in Exhibit 10-12.

**Exhibit 10-12. Net Loss – AOCI Account**

	(\$ in millions)
Net Loss – AOCI at the beginning of 2007	20
Less: 2007 amortization	(.333)
Plus: 2007 loss on PBO (assumed for illustration)	3
Less: 2007 gain on plan assets (\$13.6m – 11.9m)	<u>(1.7)</u>
Net Loss – AOCI at the end of 2007	<u>\$20,967</u>

**THE ACCOUNTING RECORD-KEEPING**

Here we include a brief review of the required journal entries for pension accounting. As discussed previously, gains or losses resulting from (1) changing PBO assumption and (2) from the return of assets being either higher or lower than expected are not immediately charged to pension expense in any given year. They are reported as part of *other comprehensive income* (OCI) on the statement of comprehensive income.

If a loss occurs, because of a change in assumption, an increase (credit) in the PBO account is recorded, and an associated decrease (debit) is recorded to the OCI account. If a change in assumption causes a gain in the PBO account, a debit is recorded, and a credit is recorded to the OCI account.

If there is a gain because the actual returns were higher than the expected return, the plan assets increase. The

increase in the plan assets is the difference between the expected and the actual return. In this case, the PBO account is debited and a credit entry is made to the OCI account reflecting the gain. If the actual return was the less-than-expected return, a debit entry is made to the OCI account and a credit to plan assets is recorded.

There is also a need to make a change in the prior service account for any new prior service cost when it occurs. For this, a debit entry is made to Prior Service Cost – OCI (increase because of plan revision) and a credit entry is made to the PBO account.

As indicated, prior service cost as well as gains or losses when they occur are reported as OCI on the statement of comprehensive income. The OCI items accumulate as Prior Service Cost – AOCI and net loss (or gain) – AOCI. When this account is amortized, the amortization amounts are also reported in the Statement of Comprehensive Income. Amortization reduces Prior Service Cost – OCI and Net Loss – AOCI. Because these accounts have debit balances, the amortization amounts are credited. Net gain amortization is debited because net gain has a credit balance.

The funded status of the plan is reported in the balance sheet, and that is the difference between the PBO and the plan assets.

When the company contributes additional funds to the plan, the plan assets are debited and cash is credited.

To record a pension expense, the following entries need to be made.

- 1.** Pension expense (debit).
- 2.** Plan assets (expected return on assets) (debit)

3. Amortization of prior service cost – OCI (for a given year) (credit)

4. Amortization of net loss – OCI (for a given year) (credit)

5. PBO (service cost + interest cost) – credit (an increase)

On a typical balance sheet, the Net Pension Liability (which has been explained before) is reported in the Liabilities section of the balance sheet. And in the Shareholder's Equity section, you would find the following accounts reported under Accumulated Other Comprehensive Income:

- Net Loss – AOCI
- Prior Service Cost – AOCI

ERISA, FASB, and *American Institute of Certified Public Accountants* (AICPA) have established requirements for financial statement issuance for defined benefit pension plans. We briefly review these required statements in the next section.

## **Statement of Accumulated Plan Benefits for Defined Benefit Pension Plans**

In addition to other reporting and disclosure requirements, defined benefit pension plans are required to report the actuarial present value of accumulated plan benefits for the beginning and the ending of the plan year. In addition, the change to the *present value of accumulated benefits* (PVAB) from year to year has to be reported. Note that this amount is not the actual plan liability. The PVAB reflects only those benefits that have accumulated as of a specific date. The PVAB can be reported on the same page as the Statement of Net Assets Available for Plan Benefits, or it can be reported in a separate statement. It can also be reported in a footnote. The report needs to show numbers for (1) vested benefits for participants currently receiving benefits, (2) other vested benefits, and (3) nonvested benefits. The method of calculation and significant assumptions used to calculate the PVAB needs to be reported in a footnote.

### **Statement of Changes in Accumulated Plan Benefits for Defined Benefit Pension Plans**

Here information on the changes in the PVAB from the previous to the current reporting period can be presented as a separate financial statement or in the footnote. This can be presented in a narrative or a reconciliation format. Any changes in accumulated plan benefits made during the plan year needs to be reported as of that year, and there is no requirement for retroactive reporting. Any significant factor, whether affecting independently or in conjunction with other factors, needs to be identified. Minimum disclosure requirements for this statement include (1) plan amendments, (2) changes in the nature of the plan (for example, resulting from spinoffs and mergers), and (3) changes in actuarial assumptions. Other changes in accumulated benefits and benefits paid, including actuarial gains or losses, as a result of changes in the discount rates need to be disclosed as well.

### **Reporting Requirements for Defined Contribution Plans**

In defined contribution pension plans, amounts contributed by participants and the investment results of the accumulated funds and forfeitures allocated all affect the plan balances.

The required disclosure requirements are as follows:

- Amount of unallocated assets
- The basis used to allocate assets to participant accounts when there is a difference in the allocation basis from that used to record assets in the financial statements
- Net assets and significant components of the changes in net assets for nonparticipant-directed investment programs

- Amounts allocated to participants who have withdrawn from the plan
- Nonparticipant-directed investments that represent more than 5% of total net assets

Note also that an auditor's report on employee benefit plan financial statements is normally included as part of the annual reports as per ERISA standards. These audit reports need to conform to requirements of SFAS No. 58 – Reports on Audited Financial Statements.

### **ACCOUNTING STANDARDS AFFECTING PENSION PLANS**

In September 2006, SFAS 158, Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans – An Amendment of FASB Statements No. 87, 88, 106, 132 (R), was issued. This statement significantly changed balance sheet reporting of defined benefit pension plans.

The instability in the defined benefit pension plan environment resulted in FASB reforming pension accounting. With the passage of SFAS 158, this was accomplished. Before SFAS 158, certain events, such as plan amendments or actuarial gains or losses, were granted delayed balance sheet recognition. Therefore, the plan's funded status (plan assets minus obligations) was rarely reported on the balance sheet. SFAS 158 requires companies to report the plan's funded status either as an asset or a liability on the balance sheets.

The framework for pension accounting under *Generally Accepted Accounting Principles* (GAAP) was first established with the standard SFAS 87. The focus of SFAS 87 was obtaining a stable and permanent measure of the pension expense. Pension expense was included in net income – net periodic pension cost. This smoothed

out the volatile components of the pension costs (for example, actuarial gains and losses, prior service, and actual return on planned assets). To connect the pension to the balance sheet, SFAS recognized the cumulative net periodic cost (accrued or prepaid pension cost) on the balance sheet instead of the actual funded status of the plan.

SFAS 158 improves financial reporting by more clearly communicating the funded status of the defined benefit pension plans. Under SFAS 158, companies with defined benefit pension plans must recognize the difference between the plan's projected benefit obligation and the fair value of the plan assets, either as an asset or a liability. The unrecognized prior service costs and actuarial gains and losses that were previously reported in the footnotes are now recognized on the balance sheet, with an offsetting amount in accumulated other comprehensive income in shareholder's equity.

The pension expense included in net income remains SFAS 87's net periodic pension cost. This remains a function of service cost, interest cost, expected return on pension plan assets, and amortization of unrecognized items. However, actuarial gains or losses and prior service costs that arise during a period are recognized as part of comprehensive income amortization of actuarial gains or losses; prior service costs require reclassification adjustment to comprehensive income.

## **KEY CONCEPTS IN THIS CHAPTER**

- Income replacement ratio
- Defined contribution pension plans
- Loans from defined contribution pension plans
- Defined benefit pension plans



- FASB standards for the accounting of pension plans
- Pension benefit obligation
- Accumulated benefit obligation
- Projected benefit obligation
- Pension Benefit Guarantee Corporation
- Service cost
- Interest cost
- Prior service cost
- Gain or loss on the PBO
- Pension plan assets
- The pension expense
- Return on plan assets
- Amortization of prior service cost
- Amortization of a net loss or net gain
- Statement of accumulated plan benefits
- Changes to accumulated plan benefits
- Reporting requirements for defined benefit pension plans
- Actuary's role in costing defined benefit pension plans

## Part II

The second part of this book covers compensation, benefits, and *human resource* (HR) management topics that are on the periphery of the accounting and finance disciplines. It also covers some concepts that make a connection between HR management and accounting but are not part of current accounting principles or standards. Specifically, you will learn about HR accounting. HR accounting has been a subject of interest for many years. However, because the ideas presented are not accepted within the current *Generally Accepted Accounting Principles* (GAAP) standards, the subject has remained in the domain of academic research and discussion. This part also examines the concept of HR analytics (metrics).

HR executives should use the basic financial concepts underlying return on assets to determine human asset *return on investment* (ROI). HR professionals should calculate human asset ROI as the profit generated by an HR program divided by the investment made for that program.

It can be difficult to figure out what to include in the “investment” amount or how to attribute the profit to the HR programs. However, it is important that there is a metric of the HR program ROI because it allows senior management to evaluate the effectiveness of these “soft” programs. It assists with quantifying the benefits the HR department provides the organization. In periods of tight budgets, such an analysis can assist HR departments to avoid budget cuts.

Let’s first start with the concept of HR analytics.



## 11. Human Resource Analytics

### Aims and objectives of the chapter

- Discuss human resource analytics
- Establish the need for HR effectiveness metrics
- Discuss the effectiveness of benchmarking HR Metrics
- Consider HR effectiveness metrics with regard to internal efficiency and effectiveness
- Discuss internal HR operational metrics
- Examine total compensation effectiveness metrics
- Discuss the span of control management effectiveness metric
- Discuss how perceptions about HR effectiveness metrics have changed

More than ever before, the *human resource* (HR) function is being challenged by senior business executives, such as *chief executive officers* (CEOs), *chief operating officers* (COOs), and *chief financial officers* (CFOs), to demonstrate the value of the human capital employed and the value of the HR function using the language of business: accounting. Business success in general is measured, evaluated, and scrutinized using concrete numbers, as in dollars and cents. Why not demand from the HR function the same analytical rigor?

The emphasis on valuing, evaluating, and measuring HR investments stems from the fact that management throughout the world clearly recognize that the

effectiveness of their HR assets can be a major competitive advantage. The effectiveness of human resources (the employees) can be the main contributing factor in becoming a successful organization. Therefore, business leaders have said that managing their human resources is their most important responsibility.

## **THE BACKGROUND FOR THE USE OF HR ANALYTICS**

An organization's financial effectiveness is evaluated through the use of financial ratios. The discipline of using financial ratios is a key tool in the evaluation of the financial success or failure of any business (both for-profit and nonprofit organizations). Financial ratios are also used to value a business (its assets and liabilities). Various stakeholders, both internal and external, use financial ratios to judge organizational performance. The stakeholders can be investors, stock analysts, business valuation specialists, investment bankers, internal management, government regulators, and many others. In other words, financial ratios are integral to managing and evaluating a business or even a nonprofit organization. The discipline of financial metric analysis and evaluation by using financial ratios has widespread usage.

The use of quantitative metrics is common, except for the HR function. The utilization of metrics and reporting on them for human resources is lagging. In comparison, metrics drive performance in other business functions such as sales, finance, operations, supply chain management, and marketing. As organizational resources become scarce, all staff functions (information technology, research and development, and human resources) are also being scrutinized as to their abilities to add value. The efforts expended by these functions toward the achievement of organizational objectives are being questioned.

A lack of data and appropriate information systems that might otherwise facilitate the collection and reporting of HR analytics and metrics often hamper HR personnel. This lack of effective and relevant data has prevented the HR department from “coming to the table.” Whatever data the HR function can collect and report is out of sync with the information and data structures of the entire organization. Therefore, the HR function is often not regarded as a strategic function. Instead, the HR function is regarded as a purely operational and administrative function.

The data the HR function usually develops and disseminates is mainly tactical and operational. Examples include performance appraisals, healthcare costs per employee, turnover rates, absentee rates, cost per hire, workers’ compensation costs, to name a few.

## **THE NEED FOR HR ANALYTICS**

HR metric systems are needed for two main reasons. The first is the evaluation of the effectiveness of the actual investments made in human capital. The second is the evaluation of the HR function itself. This chapter first covers the issues of measuring the effectiveness of human capital investments. The focus then turns to measuring the effectiveness of the HR function. The chapter closes with a discussion about compensation and benefit program metrics.

There is a need to use quantifiable metrics and financial ratios to determine the value of the two dimensions mentioned in the preceding paragraph. There is a need to use human capital management analytics.

In recent years, this topic has elicited a great deal of conversation. It has been discussed widely, in seminars, conferences, journal articles, books, and on the Internet. The use of HR metrics is not a new phenomenon.

Discussion on this topic has continued steadily from the 1960s.

Early approaches centered on auditing the HR function. Then in the 1970s and 1980s, more value-added approaches started being utilized. Competitive HR benchmarking, HR satisfaction surveys, and HR cost monitoring and HR key indicators started being discussed and used.

Although the concepts were being discussed, the actual usage was found in only a few companies in the 1960s and 1970s. But since the mid-1980s, the discussion about HR metrics has become more intense. We also see a wider use and increased sophistication of the concepts. Concepts such as *return on investment* (ROI), evaluation of the HR departments as a profit center, balanced scorecards, and human capital metrics are now in the forefront of HR thinking.

Therefore, more and more HR professionals will be challenged to show the value of the investments in human capital assets quantitatively. The challenge will also be to show the ROI for human capital initiatives.

## MEASURING THE EFFECTIVENESS OF HR INVESTMENTS

HR professionals will add value by not only deciding what to measure but also by deciding how to interpret the data and compare the data to benchmarks within industry segments. In addition, HR professionals need to focus on improving the methodology for securing the type of information the organization needs to achieve its overall goals. The concept being advocated here is that HR professionals should look at improving their metric data systems from being just tactical and operational to being integrated with the strategic organizational data system that is used for overall financial performance evaluation. This involves tying HR metrics with key financial success factors that are normally used to measure business or organizational success.

Conceptual connections between HR plans, programs, and activities and business performance need to be understood and developed, as has been demonstrated in [Chapter 2](#). And HR metrics are needed that capture the impact of HR investments on business performance. This chapter describes some of these connected metrics. Let's first look at metrics that lend themselves to effective industry benchmarking, and then consider various HR value indicators.

### **Benchmarking HR Effectiveness Metrics**

*Benchmarking* is the process of comparing an organization's processes and related performance metrics, first to the standards within the same industry group and then with the standards across all industry groups. Also *market intelligence* and *competitive intelligence*—comparing to direct competitors and the industry—is a common practice in benchmarking. In the financial area, organizations compare financial performance with those of others in the same industry group and then across all industries.



HR professionals should use benchmarking, and if they already are, they should enhance the analytical rigor in their benchmarking efforts. The analytical rigor should be commensurate with that used by accounting, investment, and finance professionals. Metrics that you can use for benchmark comparisons include the following:

- **Revenue per employee:** A company's sales in relation to the number of employees they have. This is an overall measure of an organization's employee productivity.
- **Profit per employee:** A precisely defined metric using *earnings before interest, taxes, depreciation, and amortization* (EBITDA) in the numerator.
- **Number of employees per HR staff:** A very useful HR department effectiveness measure. In the past, the industry average for this ratio was 100 employees to 1 HR staff member. Actual practice varied. In recent times, with the advent of HR department automation, a good target for this ratio is approximately 80 employees to 1 HR staff.
- **Total HR department expenses versus total operating expense:** A measure of the operational efficiency of an organization's HR department.
- **Training investments:** A measure of the total training dollars divided by total headcount.
- **Total compensation:** A measure of total compensation as a percentage of net income before taxes.
- **Internal placement:** A measure of the percent of management positions filled internally.

- **Employee benefits costs:** A measure of employee benefit costs as a percentage of total payroll cost.

Supporting the benchmarking contention, Dr. Jac Fitz-enz, a leading proponent of HR metrics and the founder of Saratoga Institute,<sup>1</sup> has often suggested that HR metrics should look toward integrating the metrics with the entire organizational metric system instead of just focusing on internal HR department metrics.

<sup>1</sup> Saratoga Institute was sold to PricewaterhouseCoopers, and this service is now part of PwC's Human Capital Consulting Services.

Exhibit 11-1 is adapted from an article Dr. Fitz-enz wrote for *HR Focus* magazine. It gives a sample of metrics recommended by Dr. Fitz-enz. Dr. Fitz-enz endorses the concept of benchmarking the metrics.

### **Exhibit 11-1. HR Business Performance Metrics Suitable for Benchmarking<sup>2</sup>**

<sup>2</sup> Source: Adapted from Jac Fitz-Enz, "Top 10 Calculations for Your HRIS," *HR Focus*, April 1998, p. S-3.

HR Performance Area	Method of Calculation
Human value added	Revenue – Operating expense – Pay and benefits = Adjusted profit ÷ Full-time equivalent employees
Return on human capital invested	Revenue – Operating expense – Pay and benefits = Adjusted profit ÷ Pay and benefits
Time to fill openings	Total calendar days from each requisition opening to accepted offer ÷ Number of openings filled
Turnover cost	Cost to terminate + Cost to hire + Vacancy cost + Productivity loss = Total ÷ Employees lost
Volunteer turnover rate	Total voluntary employee separations ÷ Total number of employees
Return on training	Depends on the type of training done
Cost per employee hired	Advertising expenses + Agency fees + Employee referral bonuses + HR recruiters pay and benefits + 10% misc. costs = Total ÷ Total number of employees hired
Pay and benefits as % of operating expense	Total pay and benefit expenditures ÷ Total operating expense
Healthcare costs per employee	Total healthcare benefits expenses ÷ Total number of employees

We have thus far discussed metrics appropriate for external benchmarking; after all, much has been written about developing outward-looking metrics appropriate for benchmarking. But there is another reason HR analytics are necessary: to measure HR effectiveness, not just for benchmarking purposes but also for the optimization of human resources and HR management. In other words, although it is necessary to develop metrics for external comparisons, it is also vital to use HR metrics to effectively and efficiently manage human resources internally. So, organizations need to develop a comprehensive HR metric structure for both external comparisons and for internal management use.

What follows is a comprehensive review of all HR effectiveness metrics that are appropriate for both internal and external purposes. Notice that some of these metrics are also listed as benchmarking metrics (for external comparisons). Also within this category of HR effectiveness metrics one can include those that evaluate HR department efficiencies.

### **Human Capital Effectiveness Metrics**

As previously mentioned, HR effectiveness metrics are those measures that are used to evaluate the overall organizational human resource effectiveness. In other words, they are an evaluation of the effectiveness of an organization's human capital investments. These metrics include the following:

- **Revenue per employee (revenue factor):** Also used in benchmarking.
- **Expense factor:** Current literature on HR effectiveness advocates the use of total operating expenses dividing by the total headcount. A better measure for the expense factor might be total HR-related expenses (as discussed in previous chapters) divided by

the total headcount. Of course, total HR-related expenses are not aggregated in *Generally Accepted Accounting Principles* (GAAP)-based accounting consolidations. HR departments, by analyzing journal entries and ledger accounts, can calculate the aggregate total HR-related expenses.

- **Profit per employee:** This is an income factor. For this metric, many hold that the total operating income should be used. However, *total operating income* can mean many things. Total operating income can be gross profit, or net cash operating income (net income adjusted for noncash items), or *net operating income after taxes* (NOPAT), or net income before taxes (that is, *earnings before interest and taxes* [EBIT]), or *earnings before interest, taxes, depreciation, and amortization* (EBITDA). Clearly for a financial metric to evaluate HR effectiveness, one needs to select a metric that correlates directly with the efforts of the human resources of the company. Therefore, the most effective profit metric that correlates clearly with the organization's HR efforts is EBITDA, because this measure excludes the extraneous accounting and tax-related issues. Profit per employee is also an appropriate external benchmarking factor.

A case can be made, though, that discounted free cash flow, a true metric of the intrinsic value of a company, should be used. Therefore, another effective metric of HR effectiveness is discounted free cash flow divided by the total headcount. And for that matter, organizations can use any metric of economic value added as an HR effectiveness indicator.

The next metric category (turnover rate) can be used to evaluate human asset retention and depletion. These effectiveness metrics have been around for a while. But with the new emphasis on the value of human resources

as a core facilitator of organizational value, they are now looked at in a new light.

• **Turnover rate:** The number of employees terminating per 100 employees employed within a given time period. It can be broken into two components: voluntary turnover rate and involuntary turnover rate. Some organizations add the two types of turnover and calculate a total turnover rate per 100 employees.

Note that the metrics described so far are just descriptive statistics. Unless you convert these statistics to a normative model or a predictive model, they might not be of much value. Normative and predictive models not only analyze the present but also suggest different alternatives for future action using a standard decision criterion.

Organizations can build a model to predict voluntary employee turnover. The first step in this model is to hypothesize, based on exit interviews, the possible causes of voluntary turnover. When the appropriate sets of causes are conceptually agreed to, a correlation matrix can be developed with voluntary turnover rates and data on causes from the exit interviews. The data on causes can be derived from the use of a semantic differential scale (a type of scale that is designed to measure the connotative meaning of concepts, which are meant to capture attitudes). Of course, the semantic differential scale needs to be built into the exit interview questionnaire. This resulting correlation matrix indicates those hypothesized causes for voluntary turnover that have the largest correlation with the voluntary turnover rate.

The next step in the analysis is to develop a predictive voluntary turnover model, as follows:

$$Y = a + b x_1 + b x_2 + b x_3 \text{ --- } b x_n$$

Where  $Y$  = Voluntary turnover rate

$a$  = Intercept

$b_1 - b_n$  = Slopes of the independent variables

$x_1 - x_n$  = Reasons and causes or Independent variables

Another important point to consider with regard to the dimensions of HR effectiveness is what element should be the denominator of the ratio calculation. Is total headcount appropriate, or would *full-time equivalent* (FTE) be a more appropriate metric? PwC–Saratoga Institute advocates the use of FTE in the denominator. The FTE number could be a better data point because nowadays most organizations use a flexible workforce, with a variety of employee working arrangements (full time, job share, part time, temporaries, telecommuters, flexible-schedule employees, and others). No matter the working arrangement the various employees work under, all of them are contributing to the HR effectiveness of the organization.

### **Internal HR Operational Metrics**

Traditional HR management operational metrics focus on the efficiency, quality, and the speed of delivering HR services. To facilitate this type of analysis, statistical models are built to analyze the costs and benefits associated with specific HR activities.

The typical metrics used are as follows:

- **HR process cycle time:** The cycle time for each HR process, such as selection and staffing, benefit claims administration, and payroll and salary administration. Cycle time refers to the average time required to complete the activity, start to finish.

- **The HR service quality:** Assessed via the use of internal customer satisfaction surveys.
- **HR process costs:** The cost of the various HR processes, such as staffing, benefit claims administration, and payroll and salary administration.
- **Offer-acceptance ratios:** For staffing effectiveness.
- **Training evaluation:** Also called the development rate. It is calculated as the number of employees trained divided by total headcount (that is, access to training).
- **Training costs:** The average dollar amount spent for training an employee. Training efficiency requires that this factor should show a declining rate with the passage of time. The training cost factor is calculated by using the average training dollar and dividing it by the number of employees trained.

## **TOTAL COMPENSATION EFFECTIVENESS METRICS**

Total compensation and benefit effectiveness metrics represent the final category of HR effectiveness metrics.

Some researchers contend that the value of human capital is best measured by using compensation data. Compensation data is the proxy value of human capital. Compensation is a monetary metric, and so it can be used as a value metric. Within this context, some of the metrics of compensation and benefit effectiveness that can be applied to the valuation of human capital are as follows:

- Compensation to revenue ratio factor
- Compensation to total expense ratio factor



- Executive compensation to the number of executives ratio factor
- Span of control factor (a managerial effectiveness indicator)

*Compensation to revenue factor* is a metric of total compensation costs as a ratio of total revenue. Improving organizational efficiencies should reduce this ratio over time. It is undesirable to see compensation expenses growing at a higher rate than the revenue growth rate. Many consider this ratio a valid employee-productivity metric.

*Compensation to total expense factor* is also an employee-productivity metric. Because of improving organizational efficiencies, this metric should show a downward trend over time. Many consider this to be a valid HR effectiveness metric. It is calculated by dividing total compensation expenses by total expenses. Note that *total expenses* in accounting terminology include both the cost of goods sold and the period expenses. Therefore, all income statement expenses are used as the denominator.

Total compensation expenses include all elements of compensation as described in this book

- Base salary
- Incentives
- Employee benefits
- Executive compensation
- Sales compensation
- Expatriate and international compensation

- Equity compensation
- All pay adders, such as overtime pay

*Executive compensation expenses to the number of executives factor* has gained importance as a metric because of the recent public outcry about excessive executive compensation paid to a handful of executives. For this metric, total compensation paid to vice presidents and above is divided by the number of executives. This metric can readily be used to compare with the ratios of comparable organizations. Another ratio used to determine the relationship of executive compensation to the pay of the total employee population is the ratio of senior executives' total compensation as a ratio of the lowest-paid employee. The ratio establishes a reasonableness of executive pay indicator. A modified version of the ratio is the total compensation of the top ten executives as a ratio of the bottom ten executives.

The United States often ranks number one (for unreasonableness) when calculations are made using this ratio. In 2010, for instance, CEO pay in the United States was 325 times that of the average worker pay, according to the annual Executive Excess survey published by the Institute for Policy Studies, a Washington, D.C.-based research group critical of high executive pay. According to a February 2007 Heritage Institute summary of various survey data, the multiple has increased from about 24 in 1965 to 262 in 2005.

In an August 2008 article,<sup>3</sup> Graef Crystal, a renowned executive compensation consultant, indicated that the larger the company in sales size, the larger the differential between CEO and average worker pay. For the denominator, he used the 2007 Bureau of Labor Statistics average American worker annualized pay of \$36,100. For the numerator, he used the pay of CEOs of

very large companies. For the company with the highest sales rank, the differential was 525; for the company with the lowest sales rank, the ratio was 162.

<sup>3</sup> Found on the Internet:

[www.Graefcrystal.com/images/CEO\\_worker\\_pay\\_ratios\\_web\\_7\\_1\\_08.pdf](http://www.Graefcrystal.com/images/CEO_worker_pay_ratios_web_7_1_08.pdf).

Executive compensation surveys also provide industry average data on the various executive compensation elements. For example, an examination of executive compensation might indicate that perquisites make up only 5% of the average of the total executive compensation package, or that the annual incentive compensation is 50% of total cash compensation.

*Span of control factor* is a management effectiveness metric. Common practice suggests that there is an optimum number of employees that one manager or supervisor can manage. With corporate delayering initiatives, this number has been increasing in recent years. In the past, an optimum number of employees supervised by a single manager or supervisor was approximately 6 employees. Nowadays, this ratio has gone up to 10 or 12 employees. The logic of this change is (1) the increasing use of automation and information technology, (2) enlightened management practices, (3) improving worker skills, and (4) the need to manage costs.

Another dimension of the span of control ratio is total managerial compensation dollars divided by the number of managers. This is the average total compensation for the management employee group. This metric can also be compared with other comparable companies.

Other effectiveness metrics used by compensation professionals to evaluate compensation programs include the following:

- **Average performance rating:** Average performance rating is the sum of performance ratings divided by the number of employees.

- **Average merit increase:** Average merit increase is the sum of all merit increases granted divided by the number of employees.

- **Grade creep:** Grade creep or inflation is the number and percentage of employees in each grade from one year to the next.

- **Compa-ratio:** Compa-ratio is the average salary divided by the midpoint within each grade, pay program, job family, and in the company as a whole.

- **Market index:** Market index is the average salary divided by the job or position's market average salary.

- **Actual incentive compensation payout as a percentage of target payout:** Incentive payout percentage is the actual average incentive compensation payout divided by the target incentive payout. This metric can be calculated in total dollars or by using the average actual payout and the average target payout.

- **Change in incentive compensation payout as a percentage of the change in net income:** Incentive payout effectiveness is a metric that evaluates the alignment of incentive compensation paid out versus net income. In recent times, especially in executive compensation, the increases in incentive compensation payouts have been higher than the growth in net income. In public companies, compensation committees of the board of directors are charged with the fiduciary responsibility to monitor and attest to the reasonableness of executive compensation. The compensation committees should ask to regularly see a

presentation of these metrics to monitor the reasonableness of executive compensation.

## **A CHANGED PARADIGM**

Most often, a company's compensation staff focuses on objectives from one angle only: competitiveness.

Compensation professionals consider their job is primarily to ensure that pay packages are externally competitive. Questions commonly addressed by the compensation staff center involve the following:

- Are salaries commensurate with the averages in the relevant market?
- Are the company's programs similar in features to that of our competitors?
- What is the company's ability to pay? What can we afford to pay?

These are appropriate questions. But human resources employed by an organization are primarily responsible for increasing revenue and the value derived by various stakeholders. The human resources in an organization drive the top line and the bottom line. They are responsible for creating new products, making the products, selling the products, and maintaining customer satisfaction.

Therefore, in analyzing HR effectiveness ratios, focus needs to be placed both on the numerator and the denominator of the ratio.

In other words, compensation professionals should focus on not only the supply side (of human resources) of the equation but also pay attention to the demand side.

The supply side has traditionally received the most attention. On the supply side, compensation and benefit

professionals design programs to attract and retain the numbers and types of employees an organization needs.

The demand side considers what employees need from their compensation programs and which types of compensation plans and programs create the highest satisfaction levels for the employees. By focusing on the demand side, organizations can motivate employees to enhance productivity and improve the top line. Various consulting companies have developed and marketed programs that assist clients to design programs that address both the supply side and the demand side. These programs often encourage employee input into the compensation design process. The demand side focuses on employee performance.

## **KEY CONCEPTS IN THIS CHAPTER**

- The need for HR analytics
- Measuring the effectiveness of HR investments
- Benchmarking HR effectiveness metrics
- HR effectiveness metrics
- Revenue per employee
- Profit per employee
- Training investments
- Total compensation costs
- Internal placement effectiveness
- Employee benefit costs
- Expense factor

- Turnover rates
- Internal HR operational metrics
- Training evaluation
- Training cost factor
- Total compensation effectiveness metrics
- Span of control
- Compensation program effectiveness metrics

## 12. Human Resource Accounting

### Aims and objectives of this chapter

- Define human resource accounting
- Explain the conceptual basis for HR accounting
- Explain the debate with respect to HR accounting
- Describe HR accounting methods
- Review cost-based models
- Discuss the economic value models for HR accounting
- Explain the limitations of each of these models

Thus far in this book we have been discussing *human resource* (HR) management topics that have accounting and finance implications. The basis of the discussion has been within the structure of current accounting principles and practices as defined by *Generally Accepted Accounting Principles* (GAAP) and *International Financial Reporting Standards* (IFRS).

### THE BACKGROUND

This chapter covers HR accounting, a paradigm-shifting proposition that proposes capitalizing HR expenditures.

Although the previous chapters in this book covered many concepts for the accounting of human resources, the term itself is specifically used by proponents of capitalizing HR expenditures. They use the term *human resource accounting* to identify this paradigm-shifting concept.



The proposition suggesting the capitalization of HR expenses has been around since the 1960s (although mainly in academic circles). As proposed, HR accounting is a system of identifying, gathering, and reporting of data on the economic investments in human assets. This is an effort to analyze and report on the investments in human resources in a manner that is not a part of the current accounting standards and principles. *Human resource accounting* (HRA) uses current accounting and finance principles covering the capitalization of expenses and applies those concepts to first quantifying the cost and then valuing the human resources employed.

Fundamentally, the HRA has a two-pronged conceptual basis:

- **The quantification of the cost of human resources:** Covers all the expenses an organization incurs for acquiring, motivating, retaining, maintaining, developing, and redeploying its HR assets.
- **The valuing of human resources:** An analysis of the *return on investment* (ROI) received from HR investments. HRA suggests that the value can be measured by calculating the present value of an employee's total compensation income earned over the employee's service period.

As indicated, HR accounting has been around for a while, but mostly relegated to academic dialogue. HRA as a concept was first developed as a research effort at the University of Michigan. Rensis Likert, founder of the University of Michigan Institute of Social Research, along with some colleagues at Michigan (R. Lee Brummet, William C. Pyle, and Eric G. Flamholtz), was responsible for the original work on HRA. The term *human resource accounting* was first used in a paper in 1968.<sup>1</sup> That paper is the earliest study dealing with HR measurements.

<sup>1</sup> Brummet, R.L., Flamholtz, E.G., and Pyle, W.C., “Human resource measurement: A challenge for accountants,” *Accounting Review*, April 1986, pp. 217–224.

This chapter reviews HRA and discusses its efficacy, applicability, and its drawbacks.

## **THE DEBATE**

Some say that current accounting principles as codified in the U.S. GAAP and the IFRS is a legacy of the manufacturing era. Since the early 1970s, the manufacturing era has given way to a service economy. Ever since the advent of the use of technology, automation, robotics, and other process efficiencies, the need for relevant know-how has risen exponentially. Given these structural transformations, it can be said that an organization’s real investments, its assets, and ultimately its value lie in its human resources. However, the accounting profession has not placed human assets in the same place on the balance sheet (or in business valuations) as physical assets.

A manufacturing organization’s core assets are its physical assets: property, plant, and equipment. For service-based and knowledge-based organizations, the core assets are the HR assets. In service and knowledge organizations, human capital is the most important asset employed in extracting value from the organization. This is especially true in purely knowledge-based economics. Imagine Intel, Google, and Facebook without human capital. Without their human talent, those companies would possess minimal value.

Others say that organizational decision makers currently lack complete information on the effectiveness and efficiency of human capital expenditures. But, currently, in financial statements the value of HR assets is not recorded.

The paradigm-shifting concept of HRA is a methodology to bridge this gap. So, HRA is the process for recording, reporting, and analyzing HR expenditures using the language of finance and accounting.

Nevertheless, in the absence of legitimate recognition by the accounting profession for this structural accounting principles shift, HRA will remain the domain for academic discussion and dialogue. Change in this area is slow to come.

HRA proponents suggest that intellectual capital of an organization consists of its human capital and its organizational capital, which is the sum of customer satisfaction, the efficiency of internal processes, and the ability of the organization for continuous learning and development (a learning organization).

Others have postulated that the human capital of an organization can be looked at from a longitudinal point of view—or a human asset life cycle view (see Appendix in Chapter 2, “Business, Financial, and Human Resource Planning”). In this conceptual structure, human assets are acquired, onboarded, motivated and retained, maintained, developed, and redeployed. Thus, human capital assets have a life cycle just like any other physical capital assets.

There is a twofold uniqueness to human capital. Human capital and thus human assets have longer life cycles and most probably appreciate rather than depreciate. Physical assets can only depreciate.

The accounting profession contends that human capital as contained in skills, knowledge, abilities, and competencies of an individual employee is hard to replicate. The accounting profession will argue that the value of one human capital unit (an employee) compared to another is not comparable. One employee’s

contribution can be greater than another employee's contribution. This issue in itself makes it difficult to calculate human asset values accurately. Human capital valuation is therefore hard to quantify. The future benefit to be derived from HR investments is hard to determine. As a result, the accounting profession has avoided including human capital in the financial and accounting records and statements. Under current GAAP principles, all monetary outlays for HR-related costs are considered as period expenses and not as assets.

The problem with this way of thinking is that the more an organization invests (or, based on current accounting thinking, spends), the more an organization's current net income decreases. The logic here is hard to rationalize. The human resources of an organization (its human capital investments) with their individual and joint effort, skills, experiences, abilities, knowledge, and competencies are solely responsible for creating and adding value to an organization. Yet the current accounting system considers those expenditures as immediate expenditures. This, in turn, reduces the financial value of the organization because current expenditures decrease current income. How can an expense increase and decrease organizational value at the same time?

Furthermore, in analyzing the financial value or viability of an organization, analysts currently use many ratios. But none of these measures consider HR contributions or the human capital value. All of these ratios are based on hard physical capital values only. ROI is also based on investments only in physical capital.

The most glaring outcome of this logical conundrum is found in reduction-in-force decisions (layoffs). When organizations decide to lay off employees, the short-term immediate cost savings is what motivates the decision.

The objective of making this decision is primarily to show a short-term increase in profitability. But is this analysis complete? What about the longer-term implications? In the long term, there will be many incremental costs in reacquiring, retraining, and paying pay premiums for replacement hires. One cannot also ignore the negative impact on the remaining employee's motivation and morale. So, shouldn't this decision be made with a longer-term perspective?

When investors are considering long-term investments, the data from HRA will provide valuable information about the long-term viability of the enterprise. And shouldn't we use a capital budgeting approach in making this decision? This chapter's appendix lays out a model for such an analysis.

## **HR ACCOUNTING METHODS**

Many computational models have been used for the calculations of the value human resources in an organization. Generally, these models can be grouped into two categories: cost-based models and value-based models. Within each category, you can find various individual models. The following subsections briefly cover each of these models.

The first category of models is cost-based models. Here you can find models that focus on capitalization of historical costs, replacement cost models, and opportunity cost models. The second category of models is value-based models. In this category, you can find the present value of future earnings model (the Lev and Schwartz model), the reward valuation model (the Flamholtz model), and the group-based valuation model.

## Cost-Based Models

### Acquisition Cost Model

The acquisition cost model was developed starting in 1967, at the University of Michigan, by a research team that included Rensis Likert, R. Lee Brummet, William C. Pyle, and Eric G. Flamholtz. Brummet, Flamholtz, and Pyle published a seminal article in the area of HR measurement in the *Accounting Review*,<sup>2</sup> where they introduced the acquisition cost model. Their research was based on work they had done on employee valuation at the R.G. Barry Corporation of Columbus, Ohio.

<sup>2</sup> Brummet, R.L., Flamholtz, E.G., and Pyle, W.C., "Human resource measurement: A challenge for accountants," *Accounting Review*, April 1968, pp. 217–224.

The method measures the organization's investment in employees using the five HR functions:

- Recruiting and acquisition
- Formal training and familiarization
- Informal training, informal familiarization
- Experience
- Development

The model suggested that instead of charging the HR process costs to the income statement they should be capitalized in the balance sheet. Like all other asset accounts, the researchers suggested that HR assets should also be amortized over a determined useful life. It was suggested that the amortization process should also be done over a period of time. The period of time was the difference between the date of hire and the retirement date. If the employee terminates any time during this period, an impairment calculation can be done and an

impairment expense taken during the termination year (similar to methods used to account for a physical asset).

For example, suppose that a company had hired an employee at age 35 on January 1, 1991, for an annual salary of \$100,000, and the employee left the company after 20 years of service, on December 31, 2010 (normal retirement age is age 60). The company would have amortized \$80,000 as of 2010, so the unamortized amount of the annual salary of \$20,000 should have been charged to the income in the year 2011.

In essence, the human asset value is amortized annually each year over the expected length of the service of the individual employee, and the unamortized cost is shown as the investment in the human asset on the balance sheet. If the employee leaves the organization (that is, human assets expire) before the expected service life period, the net value of that specific human asset is charged against current revenue as a current expense.

This model has also been referred to as the *capitalization of historical costs model*. The original classification of the costs by the researchers seemed somewhat esoteric. A better categorization is the sum of all costs related to acquisition (recruitment, selection, and onboarding), total rewards, maintenance (employee benefits and services), training (both in-house and outside) and development, and redeployment.<sup>3</sup> These costs taken together would represent the real value of the human resources of an organization.

<sup>3</sup> This is a different classification of HR costs than that presented by Brummet, Flamholtz, and Pyle.

Another category of costs to consider within the acquisition cost methodology is learning costs. From a managerial accounting point of view, a clear estimation of learning costs is necessary to derive a good prediction

of product costs. So, concepts such as the learning factor and experience curves should be brought in to more effectively estimate the true costs of the organization's learning and development efforts.

The acquisition cost model of HRA is simple and easy to understand and satisfies the basic matching accounting principle for costs and revenues. But, the model has some drawbacks. Historical costs are sunk costs and are irrelevant for decision making. So, the model fails to value human resources accurately from the point of view of using relevant costs. Another conceptual drawback of this model is that because no distinction is made for the differing value of individual human resources (some human resources in an organization are of a higher value than others because of their advanced knowledge, skills, and abilities) and because training costs (specifically) for these employees will be lower (they already possess the much needed knowledge and know-how), they will be given a lower value. Intrinsically, employees with advanced knowledge, skills, and abilities have a higher value for the organization.

Another criticism of this model is that this method measures only the costs to the organization but completely ignores any measure of the value of the employee to the organization.<sup>4</sup>

<sup>4</sup> Cascio, W.F., *Costing Human Resources: The Financial Impact of Behavior in Organizations*, 3e, 1991, PWS-Kent Pub. Co., Boston.



### Replacement Cost Model

The replacement cost model takes into consideration the costs that would be incurred to replace one individual with another (or one group of employees with another). However, the replacement is based on the exchange of identical *knowledge, skills, and abilities* (commonly called KSAs). The costs included in replacement costs include the termination costs associated with the terminating employee or the group of employees plus the costs of hiring and training the replacement.

Proponents suggest that the concept of replacement cost has two manifestations: position and personal. So, individual replacement costs cover the costs that have to be incurred to replace an employee by another employee who can provide the same set of services as that of the individual being replaced. Positional replacement costs refer to the cost of replacing the set of services being rendered by an individual occupying a specific position. The positional replacement cost takes into account the position in the organization currently held by the employee. In contrast, personal replacement costs are costs for any specific individual being replaced by another specific employee capable of rendering the specific services. This personal replacement is not connected to any particular position. For practical reasons, this is too fine a distinction and would create data-tracking difficulties.

This is a per-person cost method compared to the average cost method employed by the historical cost method. So in this method, you use the average HR costs for a specific position or employee, which could be held by either one person or a number of employees.

Note here the specific difference between a position and a job. A job entails the roles and responsibilities and the skills required for a specific job. The job can be

benchmarked against similar jobs in other organizations. A position includes the cumulative job responsibilities, duties, and tasks entrusted to a specific employee. The individual components that make up the position can be benchmarked. The position provides a more dynamic and flexible framework within which to make salary decisions. For example, clerk is a job, whereas a payroll clerk is a position.

The replacement cost model can also be built around competencies within an organization. Competencies refer to the optimum set of knowledge, skills, and abilities and associated behavioral indicators that are necessary to achieve the company's strategic and operational business objectives.

The problem with this model is that the determination of the replacement cost of an employee is highly subjective. This is because the collection of the replacement cost data is not a normal part of regular accounting systems or even a part of regular HR information systems. Procedurally, both these systems do not keep track of which terminating employee is being replaced by which new hire. To match replacements, a system can be developed to do the necessary data tracking. For senior management personnel, this replacement tracking will not be very difficult.

#### **Opportunity Cost Model**

The opportunity cost model states that the human resource of an organization has to be valued on the basis of the economist's concept of opportunity cost. This is the value of the benefit foregone by putting it to an alternative use. This is measured by the net cash inflow that is forgone by redirecting a resource from one use to another. So in the HR area, it is the value lost by assigning an employee to one assignment as opposed to another.

The value of an employee is determined by the alternative best use of that employee's knowledge, skills, and abilities in the organization. The opportunity cost value may be established by competitive bidding within the firm, so that, in effect, managers bid for any scarce employee. This model advocates setting up a market where a competitive bidding arrangement establishes a value for the human resource. Managers bid for a scarce resource and establish a bid price for that resource. The net cash inflow is calculated by the increased profit the hiring entity derives from acquiring that scarce resource. The human asset therefore will have a value only if it is a scarce resource (that is, when its employment in one division denies it to another division).

A selection process is set up to operate this system. A human asset has value only if it is a bid-for scarce resource. The others are not. Only scarce human resources are used in the model. Readily recruited human resources are not scarce and are excluded. Therefore, this approach is concerned with only one section of the human resources in an organization. Of concern are only those internal human assets who have profit-generating special skills. In addition, the special skills can be hired from the external labor market.

## **Value-Based Models**

### **Present Value of Future Earnings Model**

This model of HRA was developed by Lev and Schwartz in 1971 and involves determining the value of human resources by calculating the present value of estimated future earnings discounted by the firm's cost of capital.<sup>5</sup> Exhibit 12-1 shows the expression used to calculate the expected value of a person's human capital.

<sup>5</sup> Lev, B., and Schwartz, A., "On the use of the economic concept of human capital in financial statements," *Accounting Review*, January 1971, pp. 103–112.

$$E(V_{\tau}) = \sum_{t=\tau}^T P_{\tau}(t+1) \sum_{t=\tau}^t \frac{I_t}{(1+r)^{t-\tau}}$$

**Exhibit 12-1. Calculating Human Capital**

Where  $E(V_{\tau})$  is the expected value of a person's human capital and  $P(t)$  is the probability of a person dying at age  $t$ .  $V_{\tau}$  is the human capital value of a person  $\tau$  years old.  $I(t)$  is the person's annual earnings up to retirement,  $r$  is a discount rate specific to the person, and  $T$  is the retirement age.

Lev and Schwartz used employee compensation as a proxy for the HR value. Estimated future earnings of an employee were used as a substitute for economic value. According to the authors, "the value of human capital embodied in a person of age  $r$  is the present value of his remaining future earnings from employment."<sup>6</sup>

<sup>6</sup> Lev and Schwartz, "On the Use of the Economic Concept of Human Capital," p.105.

The present value model ignores the probability that an individual may leave an organization for reasons other than death or retirement. It also ignores the probability that people may make job or position changes during their careers. Service life is overstated, which results in inflating the value of human capital. It is important to calculate a person's expected realizable value and not just the conditional value (the value based on the person's current employment condition).

#### **Reward Valuation Model**

The reward valuation model is also known as the stochastic rewards valuation model or the Flamholtz model.

Flamholtz advocated that an employee's value to an organization is determined by the services the employee delivers to the organization. This takes into account the probability that an individual is expected to transit through a set of mutually exclusive organizational roles or employment states during a given time interval. The assumption here is that an employee provides value to the organization as the employee holds various jobs and positions as he or she moves along a career progression. The realizable value and the conditional value can be calculated as follows:<sup>7</sup>

<sup>7</sup> Flamholtz, E.G., *Human Resource Accounting: Advances in Concepts, Methods and Applications*, 3e, 1999, Kluwer Academic Publishers, Boston, pp. 180–181.

- 1.** Define the mutually exclusive transition states or service states.
- 2.** Determine the value of each state to the organization.
- 3.** Estimate a person's expected tenure in an organization.
- 4.** Find the probability that a person will occupy each possible state at specified future time periods.
- 5.** Discount the expected future cash flows to determine their present value.

The first step identifies time periods or stages when an employee can generate an employment service value to the organization. The second step calculates the value the organization derives by the employee occupying each specific service state. These are service state values. The third step estimates the employee's total tenure within the organization. In the fourth step, a probability determination is made that a specific employee will remain in that service state at specific future times.

What is the probability that an employee holding a marketing manager position now will remain in that marketing manager position at the end of a specific time period? What is the probability that an individual will leave the organization? These are example of some analytical questions that are posed. Finally, the expected future values are discounted to derive the present value of future benefits.

In this model, the value of each service state is an implied value of what a person in that service state will do during a specific period. The four possible value states are

- Remain in the present position
- Be promoted
- Be transferred
- Leave the organization

These state values form the basis of the valuation in this model.

The major drawback to this model is the difficulty of calculating any realistic probabilities for each likely service state. The methodology for the determination of a monetary value equivalent of each service state is not clearly provided in this model. Also, because this model has an individual employee orientation, it ignores team effort and activities.

### **Valuation on a Group Basis**

Proper valuation of human resources is not possible unless the contributions of individuals as a group are taken into consideration. An individual's expected service tenure in the organization is difficult to predict, but on a group basis it is easier to estimate the percentage of people in that group who are likely to leave the organization at any specific time. Group valuation of HRA attempts to calculate the present value of the entire group in a service state. You can calculate the group-based present value as follows:

- 1.** Ascertain the number of employees in each group.
- 2.** Estimate the impact of the group using a probability estimate of the termination of an individual group member.
- 3.** Estimate an economic value of each member in the service state.
- 4.** Estimate the value of the entire service state by multiplying the result of the first three steps.

Although the group method simplifies the valuation process in HRA, it ignores the exceptional qualities of specific skilled employees. The performance of a group may be seriously negatively affected if a skilled member leaves (thus reducing the value of the entire group).

### **Comments on HRA**

The theoretical discussion on HRA has value. Why the accounting profession has been slow to embrace these concepts remains a big question. The theoretical constructs of HRA have yet to meet the requirements of current accounting measurement standards. Specifically, the current standards emphasize that accounting principles need to meet the following principles:

- Relevancy for organizational decision making
- Verifiable by independent sources
- Free of subjective bias
- Quantifiable in meaningful accounting terms

Recently, there has been a movement toward adoption of more complex measurements compared to the historical costing methods. Time value of money and present value calculations have come into more use by the accounting profession. There has also been a lot of consideration given to the use of fair value measurements. This trend has been accentuated by the convergence efforts between GAAP and IFRS. The fair value measurements are made at each balance sheet date. Many items on the balance sheet that are now noncurrent are being measured at the present value of future cash flows. We have talked about these initiatives in various sections of this book.

So, as the accounting profession diversifies their thinking and becomes accustomed with different and even complex measurement systems, a possibility exists that they will embrace similar approaches taken to measure HR asset values.

Also in current accounting practice it is fairly routine to determine values of intangible assets using accepted accounting measurement techniques. These approaches are even sanctioned by the *Financial Accounting Standards Board* (FASB). It can be argued that the human capital asset is the most important intangible asset in any organization. Given these arguments, it is hard to see why any accountant would consider HRA an unrealistic concept.



## **KEY CONCEPTS IN THIS CHAPTER**

- Human resource accounting
- Capitalization of HR expenses
- Why the accounting profession is yet to buy in to HRA
- HRA methods
- Acquisition cost model
- Replacement cost model
- Opportunity cost model
- Present value of future earnings model
- Reward valuation model
- Valuation on a group basis
- Limitation of HRA
- Valuation of HR assets

## **APPENDIX: NO LONG-TERM SAVINGS FROM WORKFORCE REDUCTIONS**

Nowadays, more than ever, we see a widespread use of a very short-term business practice: workforce reductions. It seems this practice is quite popular. Business pundits have even coined extraordinary words to describe the practice. Words such as *rightsizing*, *restructuring*, *downsizing*, and *delayering* are now commonly used to describe workforce reductions. The words being used have legitimized a practice that in reality is just short-term cost reduction. The widespread global use of these practices has climbed steadily over the past two decades. This has resulted in an acceptance of these actions as a common management practice. But when is common practice common sense?

The argument here is that such a practice is ineffective from the human side of the enterprise. The widespread use of reductions in force has emotional, psychological, economic, and social consequences that are far reaching. Use of this management practice destroys people and communities.

In addition to the devastating human consequences, a case can be made that this practice does not fulfill its intended purpose (saving money). Sure, it saves expenses in the short term. It makes income statements look good immediately. However, you cannot be sure about the impact of this short-term cost reduction on the balance sheet. And as discussed previously, accountants are yet to look at human capital investments as assets.

The use of this practice can make business leaders look competent in the eyes of shareholders in the short run. However, long-term investors might recognize that this practice does not really save money. Another key question is how this action affects the intrinsic value of a company over the long term. It can be argued that it ends

up increasing long-term costs. Yet, this practice has become a reality in business decision making, especially in bigger organizations.

Workforce reductions result in direct long-term consequences and costs. Very few organizations creatively explore alternatives to saving on expenses before executing the workforce-reduction cost-saving program.

The workforce-reduction decision has resulted in business leaders weakening their organizations through repeated downsizing exercises. In the process, these executives have earned enormous compensation and also fame and glory for “turning the company around.” When HP brought in a new CEO in the late 1900s, the company underwent major reorganization, which involved massive layoffs and off-shoring of the jobs of long-tenured HP employees. These efforts were fruitless because of many other ineffective management decisions. The legendary high-technology company lost 50% of its stock value, resulting in a high-profile CEO termination.

From an analytical point of view, long-term cost savings accruing from massive layoffs is not a reality. Using the concepts of HRA, a financial model can be developed that can prove that over an extended period of time, reduction in force actions do not save money. In fact, they cost more in the long run. The present value concept has been used to develop the following model shown in Exhibit 12-2.

### **Exhibit 12-2. An HRA Model**

#### **Savings from layoffs (immediate short-term impact):**

> Direct labor expenses (–)

> Associated benefits costs (–)

**Short-term and long-term costs incurred as a result of layoffs:**

> Separation payments (+)

> Replacement hiring costs (+)

> In/out additional compensation costs (+)

> Replacement hires training costs (+)

> Replacement productivity ramp-up costs (+)

> Loss from unused office and other facilities (+)

> Key employee additional retention costs (+)

> Remaining employee demoralization cost (+)

Now do a present value analysis, as shown in Exhibit 12-3.

**Exhibit 12-3. PV Calculations of Savings and Costs**

	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
Savings \$					
Costs \$					
Net Savings \$ Or Net Cost \$					
PV net savings or costs @ an appropriate discount rate					

So, if you calculate the impact of workforce-reduction policies using this model, you might see a different reality.

After all, the fundamental value measure of a company is its intrinsic value. Intrinsic value enhancement is mainly a result of increasing free cash flows. So, managers can enhance company value by focusing on increasing the size of expected cash flows. Also, the true value of a company is based on future cash flows and not just cash flows in the immediate, short-term time period.

## **Conclusion**

This book has focused on applying finance and accounting principles to HR management systems. From that perspective, it is a technical book.

More often than not, the soft side of human resources is emphasized in practice. But HR management has a harder side, too. This book has attempted to explain the hard side, with an emphasis on the compensation and benefit function.

As discussed at the beginning of this book, the discipline of HR management has multidisciplinary underpinnings. The HR profession is guided by influences from psychology, economics, sociology, philosophy, mathematics, and statistics, as well as from accounting and finance. Many stakeholders suggest that accounting and finance are the languages of business and organizations. In many ways, accounting and finance are core functions in the management of nonprofits as well. HR management is a very important component for both for-profit and nonprofit organizations. Therefore, HR management should also use the core language of organizational management. This book encourages and has attempted to facilitate the use of this language by HR professionals.

We focused on compensation and benefits because this is where accounting and finance has the most impact. The hope with this book is that in ongoing HR management education, especially compensation management, this book can be used to add to the required technical know-how.

The topics and subjects covered in the book are not new. The ideas and concepts can be found in many textbooks

and other publications. In this book, we have attempted to compile all relevant topics, ideas, thoughts, concepts, principles, and subjects in one text. We focused on the core dimensions of compensation and benefits management. We covered accounting and finance implications in base, incentive, sales, international, and equity compensation. We also covered accounting and finance implications of employee benefit plans.

Our primary objective was to develop a single-source publication to serve as a knowledge repository and a reference source. Overall, our hope is that this book will be the impetus to help develop the accounting and finance knowledge of HR professionals.

HR professionals come to this discipline from various paths. There is no discernible singular career path to becoming an HR professional. Quite often, therefore, HR professionals lack accounting and finance knowledge and know-how. This clearly hinders HR professionals in many ways. Some of these hindrances can be seen in HR professionals lacking credibility with senior management. HR professionals are mainly considered “soft-side” professionals and considered advisors and counselors but not core decision makers. Therefore, HR professionals are not always brought to the “decision-makers table.” One of the main ways to change these perceptions is for the HR professional to talk the language of business in a credible fashion using accounting and finance knowledge and know-how. We hope this book facilitates that end. For the HR professional, this knowledge enhancement is not a want, but a need.

## **AN HR FINANCE AND ACCOUNTING AUDIT**

We conclude with various questions HR professionals should ask themselves with respect to applying accounting and finance principles to global HR management systems. If an HR professional does not have adequate answers to these questions, he or she should take the necessary steps to develop the requisite skills and knowledge to implement these principles. The questions are in no particular order:

- Does your organization have an adequate system of accurately projecting total compensation expenses that is tied in to the organization's financial budgeting system?
- If your organization has a defined benefit plan, do you participate in cost determination activities? Do you understand the funding issues of the plan? Do you understand the calculations involving the ongoing pension expense?
- Are you aware and knowledgeable about the financial triggers used in the determination of sales commissions earned?
- If your organization sends expatriates overseas, who manages the expatriate tax program? Do you understand the specifics of the calculations involved?
- From an accounting point of view, what are the implications of capitalizing HR expenses for your organization?
- Do you know the difference between the VBO, ABO, and PBO in pension accounting?
- Does your organization have a stock option program? Do you know how the stock option expenses are calculated for that program?



- Do you know how the intrinsic value of any business is calculated?
- Do you know how the economic value of any business is calculated?
- Do you understand the various financial ratios commonly used to evaluate the performance of a business?
- Are the linkages between HR programs and the intrinsic value of your organization clearly delineated?
- Can you suggest ways in which HR programs can add economic value to the organization?
- Can you justify HR programs using ROI methodologies and capital budgeting techniques?
- Do you know and understand the details of the stock option pricing models?
- What are specific connections between HR programs and the financial ratios used to measure operating profits?
- In what ways can the HR function improve the company's free cash flow position?
- Do you exclusively rely on outside consultants for technical accounting and financial issues that need to be addressed for HR programs?
- Does your organization regularly monitor and then report performance on HR metrics to senior management?
- Do you engage in industry benchmark comparisons for HR metrics?

- Do you annually engage in employee benefits program costing in coordination with your outside vendors?
- Do you participate with the senior management team in developing linked incentive compensation financial triggers?
- Do you understand the tax implications of your compensation and benefit programs?
- Are you knowledgeable about governmental reporting requirements for (DOL and ERISA) your compensation and benefit programs?
- Are you knowledgeable about accounting requirements under the current accounting standards (GAAP and IFRS)?
- Do you know how your equity compensation programs affect the company's balance sheet, especially the Accumulated Paid-in Capital account?
- Do you know how your equity compensation program affects your company's earnings per share?

If your knowledge is limited in answering these questions, a good place to start is this book.

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# **People Analytics**

**How Social Sensing Technology Will  
Transform Business and What It Tells Us  
about the Future of Work**

**Ben Waber**

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“This is one of those rare books that combines engrossing examples, practical advice, and counter-intuitive research. Ben Waber convincingly shatters orthodoxies of team and workplace design. A must-read.”

—**Scott Anthony**, Managing Partner, Innosight; author of *The Little Black Book of Innovation*

“In *People Analytics*, Ben Waber presents a thought-provoking comparison between formal organizational structures and how work actually gets done. In doing so, he provides numerous examples to illustrate how social analytics could help transform business operating practices in the future. It’s a fascinating area of study.”

—**Paul Mascarenas**, Chief Technical Officer, Ford Motor Company

“In *People Analytics*, Ben Waber provides us with a fresh and breathless look at how we might better design work and organizations if we were to take into account what people actually do in and out of their respective cubicles, teams, projects, and work units. This is entirely imaginable science fiction that rests on the striking

results of a set of ingenious, practical, and rather persuasive field experiments that bring big data to bear on the social world. A worthy and rousing read.”

—**John Van Maanen**, Professor of Organization Studies, MIT; author of *Tales of the Field*

“This is more than a required read—this is must-have workforce survival knowledge for all leaders and individual contributors. Dr. Waber takes us on an exciting journey that ends in showing how sociometric data can help all of us, from CEO to front line manager to the shop floor technician, deliver consistent winning results.”

—**Gene Fraser**, Corporate Vice President, Programs, Quality and Engineering, Northrop Grumman Corporation

“Human connection is all-important and *People Analytics* gives great insight on how businesses can strengthen that connection.”

—**John Hesselmann**, Bank of America Merrill Lynch, Specialized Industries Executive

“*People Analytics* is a terrific book that provides real and important insight into ways to maximize the value of the new work environment and helps us see over the horizon to understand what can be done to create the optimum enterprise of the future.”

—**Tracey Edwards**, Global Chief Knowledge Officer, Deloitte

“Ben Waber follows a new trail of ‘digital breadcrumbs’ to see the world with fresh perspective. We know our technology shapes us; ...a clearer vision may enable us to

design with purpose and take a human-centered approach. A fascinating read.”

—**Sherry Turkle**, Professor, MIT; author, most recently of *Alone Together: Why We Expect More of Technology and Less from Each Other*

*To Becca and Josh*

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## About the Author

**Ben Waber** is President and CEO of Sociometric Solutions, a management services firm that uses social sensing technology. He is also a visiting scientist at the MIT Media Lab, where he received his Ph.D. He was previously Senior Researcher at Harvard Business School.

Waber's work has been featured in *Wired*, the *New York Times*, on NPR, and he has given invited talks at Google, EMC, and Samsung. His research was selected for the *Harvard Business Review's* List of Breakthrough Ideas and the *Technology Review's* Top 10 Emerging Technologies.

## **Preface**

People analytics is simultaneously an extremely old and new phenomenon. When we use data to uncover the workplace behaviors that make people effective, happy, creative, experts, leaders, followers, connectors, early adopters, and so on, we are using people analytics. Thousands of years ago, this data came from humans' observations of the world. By watching their collaborators interact with other people and react to changing conditions, people were able to make educated guesses about what makes them effective and happy. Later, we augmented our senses using surveys and interviews. These methods allowed us to obtain responses from thousands of people, establishing new metrics that were a bit more quantitative, but this did not herald any radical change in the way people run companies.

Today, people analytics is poised for a revolution, and the catalyst is the explosion of hard data about our behavior at work. This data comes from a wide variety of sources. Digital traces of activity from e-mail records, web browsing behavior, instant messaging, and all the other IT systems we use give us incredibly detailed data on how people work. Who communicates with whom? How is IT tool usage related to productivity? Are there work styles that aren't well-supported by current technology? Although this data can provide amazing insights, it's only the digital part of the story.

Data on the physical world is also expanding at a breakneck pace thanks to the rapid development of wearable sensing technology. These sensors, from company ID badges to cell phones to environmental sensors, provide reams of fine-grained data on

interaction patterns, speaking patterns, motion, and location, among other things. Because most communication and collaboration happens face to face, this data is critical for people analytics to take that next leap forward and become a transformative organizational tool. By combining precise data from both real and virtual worlds, we can now understand behavior at a previously unimaginable scale.

In this book, I use this data in a series of case studies to illuminate a new kind of people analytics. In particular, we'll see how slight changes in behavior, from changing when you take breaks to what lunch tables you sit at, can make you happier, healthier, and more productive. This book shows how people analytics transforms our understanding of socialization in the workplace, the impact of office layout, and even concepts as "soft" as creativity.

Coupled with this new sensing and data mining technology, the findings in this book can help us imagine what organizations could be. I'll take a quick tour through history to help you understand all the different ways people have organized themselves since humans first formed tribes millennia ago. Looking to the future, we can use this knowledge to create fundamentally new ways of organizing people that will radically improve the way we work. Office layouts that respond to social context and real-time feedback on communication patterns and interaction styles are new levers enabled by people analytics that no one could have imagined.

This book is by no means the final say on the topic of people analytics—rather, it is a beginning. The years ahead will offer many new opportunities for people analytics that cannot possibly be anticipated. The following pages explore some of those limitless

possibilities, their foundations in history, and some paths to the future.

## **1. Sensible Organizations: Sensors, Big Data, and Quantifying the Unquantifiable**

What if I told you that changing when you take a coffee break could make you more productive? Or that one of the biggest decisions a company makes revolves around the size of its lunch tables? These are things that traditional theory never looked at, indeed couldn't look at, because there was no way to measure them.

If people have learned anything over the past few decades, it's that using data to build organizations is better than following instinct. There is a reason the first "moneyball" team in major league baseball, the Oakland Athletics (in a now well-publicized example of data versus instinct) performed so well with a paltry budget: they used data to drive their decisions. Sidestepping convention, they relied on player metrics to assemble the best team possible within their budget, a strategy that resulted in a 20-game winning streak and a trip to the playoffs, even though they had the third-lowest payroll in the league.

Life is a game of small percentages. The difference in baseball between an average player and an all-star can be as small as a five-percentage point difference in batting average (between a 0.300 hitter and a 0.250 hitter, for example). If someone were able to develop a method to raise his individual performance by 5%, it would cause a tectonic shift in the way baseball players are evaluated.

The same is true in business. Research has shown that companies that use data to drive their business decisions perform 5% better than their peers.<sup>1</sup> Consider that large and diverse industries—from insurance companies to



retail department stores—have profit margins of less than 5%. A 5% performance increase in one of these companies would result in a profit roughly double that of its competitors.

As a result, many companies now try to use data-driven decision making throughout their operations. Probably the best example of this comes from big-box retailer Target.<sup>2</sup>

Target is a master at using analytics in their business. They have a dedicated statistics department whose sole purpose is to mine the mountains of data they've assembled across their stores to find new insights they can use to sell more products. This data isn't just a list of the things you've bought from Target. It's also demographic information: age, gender, marital status, number of children, home address, and so on. Even activity from their website is incorporated into customer models.

The big issue for Target is that in most cases our purchasing patterns don't change very much. We have a regular routine of going to the grocery store for food, going to the mall to buy clothes, and so on. Target, however, sells everything from electronics to food to furniture. They needed to change customers' habits so that when they think of buying any of those items, their first impulse is to head to Target.

Unfortunately for retailers, influencing someone's shopping behavior is incredibly difficult. These behaviors only change at a few key times throughout our lives, and other than that they are essentially locked in. These key times center on a few major events, such as moving to a new city or having a baby. From the data retailers collect, it's hard to predict if a customer is going to move. Maybe a customer buys some luggage or some bungee cords to strap it to his car, but even if that purchase indicates to

retailers that the person is moving (which it probably doesn't), they still wouldn't know where the customer was moving. This means retailers can't give the person coupons to get him to come to their store, because they have no idea if the store is 1 mile or 100 miles away from his new home.

Instead, most retailers focus on the easier problem of predicting births, which means recognizing that a customer is pregnant. The reason Target in particular took this approach is that as soon as you have a kid, your mailbox is inundated with coupons from virtually every retailer within a 20-mile radius because birth records are public. Retailers constantly poll those records and use them to send out mailings in the hopes that their coupon will be the one to bring you into their fold. Of course, with so many mailings the chance that a particular retailer will be picked is quite slim. Instead, retailers want to get ahead of the game. If Target could figure out, months before their competition, that you were going to have a child, they would be assured of a captive audience for their products.

So, Target's statistics department dove headfirst into this challenge. It was a relatively straightforward analytics problem, because the public birth records delivered hard data on what the statisticians were trying to predict. They found that analyzing purchases in 25 product categories provided extremely high predictive accuracy, with their algorithm's estimates coming very close to actual due dates. After developing this model, Target could then offer coupons throughout a woman's pregnancy that were targeted for her specific trimester (lots of vitamin supplements during the first trimester, for example), in addition to the all-important behavior-changing coupons that were sent right before the baby was due.

In fact, these models actually became *too* good. Some people, for various reasons, wanted to keep their pregnancy a secret. Target learned this lesson the hard way when their algorithm identified a particular individual as pregnant, triggering the flow of coupons to her house. Unfortunately, she was still in high school. After receiving the mailing, her father visited the local Target. He was not pleased.

“My daughter got this in the mail!” he said. “She’s still in high school, and you’re sending her coupons for baby clothes and cribs? Are you trying to encourage her to get pregnant?”

The manager apologized and was able to defuse the situation. He even called the father a few days later to apologize again. The father, however, had a quite different tone this time around.

“I had a talk with my daughter,” he said. “It turns out there’s been some activities in my house I haven’t been completely aware of. She’s due in August. I owe you an apology.”

The algorithm Target had developed was so good that it could recognize pregnancy even better than a family member who saw that girl *every day*. This is the power of analytics—providing a nearly superhuman ability to understand and change the world around us. Although these analytics aren’t perfect, they are orders of magnitude more effective than the overly simplistic methods of the past. This is why so many companies, from Target to Netflix to Amazon, make analytics a central part of their corporate strategy.

This data-driven approach, however, isn’t regularly applied *inside* companies. There just hasn’t been a good way to measure how people actually work. Surveys and interviews are fall-back approaches, but they become

invalid and fantastically inaccurate in a wide variety of circumstances—for example, when an employee has a bad day, forgets something, has just eaten lunch, and so on.

The beauty of Target’s approach is that they used data on behavior (in this case, purchasing decisions) to make predictions. To extend this approach to the workplace, you need data on how people are actually behaving. As Target showed, digging into this real-world data can open up amazing opportunities.

## **TELESCOPES, MICROSCOPES, AND “SOCIOSCOPIES”**

New data can fundamentally change the way people view the world. When we look at the world through any particular lens, we are bound to create theories that deal with reality at that level of detail. When our ancestors saw points of light in the sky, they assumed that they existed as points of light orbiting above on a complex set of spheres. When they were able to look through a telescope and see that in fact some of those points of light appear larger and even have other celestial bodies orbiting them, they had to reconsider their model of reality.

New methods of observation have systematically reinvented fields across the scientific landscape; for example, the telescope revolutionized the study of astronomy, and the microscope revolutionized the study of biology and chemistry. However, social science has never experienced a revolution of this sort. Researchers still use pen and paper surveys, human observers, and laboratory confederates to attempt to untangle the myriad phenomena that constitute our society.

The lack of effective measurement tools isn’t unique to social science. Nearly every scientific field has at some

point dealt with a paucity of data. Astronomy is a great example. For millions of years people looked up at the sky to observe the stars, but there was astoundingly little hard data on celestial movement until only a few hundred years ago. The primary issue was that people who actually wrote down their observations would only do so for short periods of time, using dead reckoning to estimate the movement of the stars.

As astronomers tried to develop models to explain celestial movement, the lack of data meant that testing any model was essentially impossible. Traditional astronomical models always broke down because of the phenomenon of apparent retrograde motion—the appearance of some stars (actually the planets in our solar system) moving in one direction on some nights only to switch direction in following nights. Today, we know that this is because all planets orbit the sun, and because each planet orbits the sun at different speeds they can appear from Earth as if they change direction.

Aristotle created a model that seemed to fit with these observations: one with the Earth at the center of the universe and with stars arrayed on a series of circular “celestial spheres” that spun around our planet. It took almost 2,000 years for an alternative model to be proposed. Interestingly, it was data, not the relative simplicity of these new models, that changed our view of the universe.

### **Brahe and Kepler**

In the mid-sixteenth century, Copernicus had unveiled his new theory of planetary motion, placing the sun at the center of our solar system. This was a drastic change from the previous model which had Earth at the center, but this theory found little acceptance because his hypothesized circular orbits didn't fit the reality of elliptical orbits.

Soon after this, a Danish nobleman named Tycho Brahe took it upon himself to assemble the most complete astronomical record in history. Tycho spent years of his life in a custom-built observatory that allowed his assistants to record his nightly observations of stellar and planetary positions. This massive compendium provided Johannes Kepler, one of Tycho's assistants, with a dataset that allowed him to clearly show an elliptical orbit around the sun. Kepler's model demonstrated unprecedented accuracy in predicting the movement of celestial bodies, which led to broad acceptance of the heliocentric model.

It's no coincidence that Kepler's model emerged directly from Tycho's observations. Earlier astronomical observations had been limited to sparse records from a smattering of individuals in different parts of the world at different times, and never in an observatory that allowed for much more than educated guessing.

These problems are similar to the ones that social scientists are grappling with today: Studies are qualitative, observational, and limited to small pockets of what individual researchers can directly observe. Many researchers point to the rigorous training that they go through before making those observations as evidence of the strength of social science research. However, this argument merely ignores the problems that confront the advancement of work in this field.

## **UNBIASED?**

Social science has given organizations some powerful tools over the last century. Its findings have become cornerstones in much of the world of work, from product development to organizational design. Social science measurement tools, however, were initially devised decades ago. Surveys, human observers, aptitude tests, and controlled laboratory experiments are the tools of the social science trade. While certainly useful, each of these tools has some fundamental weaknesses.

Everyone is familiar with surveys, and you've probably been asked countless times by store employees to fill out an online survey about your experience. How often do you actually fill out those surveys—once a month, once a year, never? Maybe only people thrilled with their experience answer the survey. Maybe only people who had a terrible experience or people who just feel a sense of responsibility to answer respond. This sample is clearly biased, because stores are only getting data from a small fraction of their customers, and the vast majority of typical experiences are left out. However, even responses from typical consumers can be biased. If you had a bad day, your answers tend to be more negative. If it's a beautiful day outside, your responses are more positive.

Researchers try to correct this bias problem by using observational data. Highly trained ethnographers and anthropologists integrate themselves into an environment and collect unbiased data on the activity they observe. This method runs into two major issues: individual differences and scale.

Different observers naturally see different things. Even with thousands of hours of training, observers can differ in something as simple as classifying what constitutes a conversation. On top of this challenge, having more than

a few observers in one environment at the same time is impractical, so anyone trying to understand the behavior of thousands or millions of individuals would be out of luck.

Until recently, this methodological approach was essentially the end of the story. Simply no tool existed that would enable the understanding of human behavior on a massive scale at any fine-grained level of detail. Ironically, a revolution in social science data collection didn't come from a desire to collect data. It came from a new communication tool: e-mail.

## **DIGITAL BREADCRUMBS**

We all leave vast traces of digital breadcrumbs on our computers: contents of documents, program usage, and most notably the information sent to other people through e-mail messages. This is a treasure trove of information for researchers, because it essentially composes a log of a person's activity throughout the day. Accessing most of this information would require a program to be installed on each individual's computer, constantly logging every keystroke and program action and uploading this information to a server.

E-mail is different. When you send an e-mail from Gmail, for example, your message first goes to Google's outgoing e-mail server, which then sends it on its way across the Internet. This activity is logged by the server and is how Google is able to save your e-mail in your Sent folder. When you receive an e-mail, it is also first logged on Google's servers before you even see it. In most e-mail setups, messages remain on the server even after you download them.

Think about what this information represents: a digital contact list that contains information on everyone with whom you've ever communicated, and even information



on what you communicated about. Researchers have recently begun to capitalize on this data and show its true value. For now, suffice it to say that because people frequently collaborate using electronic communication technologies, analyzing this e-mail data is critical for understanding how organizations really work.

## **“SOCIOSCOPE”**

Electronic records have only one flaw: They are completely disconnected from reality. The people whom you talk to and spend time with are not necessarily the people you e-mail. Most important events happen in the real world. Corporate mergers don't happen through IMs (instant messages). People don't take coffee breaks with colleagues a continent away. These moments are central to everyone's daily lives, and they are completely absent in digital breadcrumbs.

Soon after the advent of e-mail, however, a technological explosion of a different kind enabled a similar lens into the real world: the massive proliferation of sensors.

When most people think of sensors, they imagine being strapped into an EEG with electrodes attached to their head, or full body suits with cumbersome helmets that track every movement. What they often forget is that everyone already carries around dozens of sensors every day.

Most people carry some ID cards in their wallet. Regardless of whether the cards were issued by a company or school, most modern ID cards have an embedded RFID (radio frequency identification) chip. This chip allows people to tap their card onto a reader to open a door. This same sensor could also be used to track a person's location by placing RFID readers throughout an office. The readers would constantly send out requests for the RFID card to send its ID, and by observing which

reader detected the card, a computer could recognize where the person was located.

In sensing terms, this RFID device is very simple. It has just one radio, and it provides a rough estimate of location. What if you augmented this ID card with some additional sensors? What things could you learn?

### **Infra-red (IR) Devices**

In the mid-1990s, scientists began to experiment with sensing devices to answer these questions. Most of these applications focused on enabling people to keep a personal record of whom they interacted with at large events such as conferences or company meetings. This tracking was accomplished mainly by using a basic infra-red (IR) transceiver to recognize when two people were facing each other.

An IR transceiver is a common device that functions in essentially the same way as a TV remote control. If one person wearing an IR transceiver faces another person wearing the same device, a detection registers. Seeing enough of these detections indicates that two people are likely talking to each other (mostly because standing and facing someone for a few minutes and not at least saying hello would be awkward).

## **Accelerometers**

Other scientists used ID badges in the medical field. Instead of IR transceivers, they added an accelerometer (a motion sensor) to the traditional RFID badge to look at how the movement of people changed over time. For example, research with accelerometers has been used to study people with degenerative diseases, such as Parkinson's or ALS (Lou Gehrig's disease). These diseases cause physical tremors and a decline in motor function. Data from an accelerometer allows for precise measurement of disease progression and can gauge the effectiveness of different treatments.

Different accelerometers work in different ways, but the general idea is that they have a chip with three microscopic weights inside, one for each of the three spatial dimensions ( $x$ ,  $y$ ,  $z$ ). Acceleration causes the weights to shift, and the degree to which they shift indicates how fast you're accelerating. If you've heard of an accelerometer before, it's probably because it's the same sensor that the iPhone and other devices use to let you interact with the device by moving it around. The accelerometer tells your phone that it's been tipped on its side, shifting the screen to a landscape view.

## Microphones

Microphones have also been added to ID badges, especially in the medical field. Vocera Communication's communicator allows physicians to talk immediately to other medical staff using voice dialing phrases or names, especially helpful in situations where knowing where other people are can be difficult. Of course, microphones can also be used to record what people say, but more recently scientists have used microphones to analyze sound in real time. Researchers from Dartmouth used audio data from cellphone microphones to recognize everyday locations, such as cafeterias, offices, or the inside of your car. The idea is to listen for unique sounds, such as the clattering of plates or the click of a car's turn signal, to determine where a person is.

## Sociometer

In the early 2000s, researchers at MIT's Human Dynamics group began combining multiple sensors into a single device. The idea was to make a general ID badge that would be able to measure all the different signals—IR, motion, and sound—at the same time. This kind of badge could do things that no device had been able to do before. For example, if you want to know exactly when two people are talking to each other, you really need an IR transceiver, a microphone, and a proximity sensor.

This general-purpose sensing device became known as the *Sociometer*. Originally, it contained only an IR transceiver, microphone, and two accelerometers. The Sociometer was essentially a gray box the size of a paperback book strapped across your chest—needless to say, not something you would want to wear through airport security. Despite its shortcomings in form factor, this device was the first of its kind—one system that incorporated the critical sensors necessary to understand many aspects of human behavior. As with most prototype devices, using it outside of tightly controlled

settings was difficult. Initial experiments took place in the lab and then transitioned to limited field trials within MIT. Sandy Pentland's book *Honest Signals* describes these experiments in great detail, but I summarize the most relevant ones in this chapter.

### **Predicting Speed-Dating Outcomes**

Researchers at MIT initially used the audio processing technology of the Sociometer platform to examine behavior in controlled environments to demonstrate the future potential of this technology. A microphone recorded high-quality audio so that researchers could determine what aspects of speech are most important when trying to predict different outcomes.

Perhaps stereotypically for nerdy engineering types, the MIT researchers studied a situation that was most challenging to them: dating. Knowing the right words to say doesn't guarantee a date with someone; rather, the mood and the chemistry between people are important. Can these things be quantified?

Researchers took these sensors to local speed-dating events to answer that very question. For those who aren't familiar with the concept, speed dating operates on the principle that after five minutes people know whether they're compatible. Central to a speed-dating event is the seating arrangement. Women sit at tables arranged in rows, and men rotate from table to table every five minutes. At the end of the event, the romantic hopefuls check off boxes to indicate who they would like to go out with on a date and hand these slips to the organizers. When there is a match, the organizers send both people an e-mail with their date's contact information.

In this experiment researchers recorded dozens of these five-minute interactions and attempted to predict whether people would choose to go out on a date.

Researchers didn't look at the content of the conversation, only *how* people were talking—their “social signals.” Social signals are the unconscious messages that people pass to one another when they're talking. Things as subtle as a slight change in tone, an interruption, or a raised eyebrow are all social signals that convey important information beyond the content of conversations. Using complex algorithms, researchers were able to automatically calculate the tone of voice, changes in speaking volume, and speaking speed of study participants. It turns out that with only these features, not looking at any content, the researchers were able to predict who would go on a date with about 85% accuracy. Incidentally, it turned out that only the woman's voice features were predictive, probably because the men seemed to be interested in everyone—perhaps not the most startling discovery, but one for which we now have scientific backing.

These results were encouraging because they surpassed the state of the art in behavioral measurement up to that point, which mostly consisted of researchers' painstakingly coding recorded audio by hand. At the time, however, it was unclear if the experiment result was an aberration or representative of the power of this method of data analysis. Also, although speed dating is of interest to many people, it's somewhat separated from the larger impact that researchers envisioned for this technology. So they turned their attention to something that's of vital economic importance: salary negotiation.

### **Negotiations Broken Down**

In general, salary negotiation is difficult to navigate effectively. From a simplified viewpoint, employers want to pay the lowest amount possible but keep prospective employees from walking away, while employees want to maximize their salary while keeping the employer from balking at a ridiculous wage.

Traditional theory holds that the most important advantage in a negotiation is information. For example, if you're an employer who wants an employee to start on June 1 and you learn that she wants to start on June 1 as well, you have an advantage. You can say you want her to start on a different date, and then "concede" that she can start on June 1, but she'll have to give up some of her signing bonus.

This theory vastly discounts the effects of social signals. A dominant individual with the same information should reach roughly the same outcome as a shier person. Non-theoretical experience, of course, would dictate otherwise, and this study set out to examine precisely this issue.

To control as many variables as possible, researchers at MIT set up a laboratory study on salary negotiations. The experiment duplicated what you would see at most companies across America. A job candidate meets with a recruiter to negotiate a compensation package, with eight key areas on the table: starting date, salary, job assignment, company car, signing bonus, vacation days, moving expense reimbursement, and insurance provider. For each area, the researchers assigned participants a specific target number as well as a number of points for different outcomes. For example, a candidate who got a 10% signing bonus would receive 4,000 points while the recruiter would receive 0 points. On the other hand, a 2% bonus would translate into 0 points for the candidate and 1,600 points for the recruiter. Participants saw only their own points schedule; and if they came to an agreement, participants were paid at the end of the study based on the number of points they received.

When the participants sat down to the table, they turned on a small recording device. Researchers automatically extracted social signals from this audio data so they

could study the data's predictive power. They even raised the stakes. These negotiations typically went on for about 40 minutes, but researchers wanted to test whether the conversational style at the beginning of the negotiation would predict the results at the end. Astoundingly, the social signals (in this case, specifically modulation in volume and speaking rate) from the first 5 minutes were responsible for about 30% of the final salary.

This result was another powerful illustration of the importance of these social signals and the ability of wearable sensors to capture them. To get a sense for the magnitude of this result, this research indicates that if you are looking for an entry-level software engineer position, just changing the way you talk to your prospective employer would give you a 30% greater chance of pulling in \$90,000 versus \$65,000.

Overcoming the instinctive belief that the content of the conversation is what matters most can be difficult. Certainly, if President Obama delivered a speech expounding on last night's episode of *Survivor* instead of one on health-care reform, the public would be puzzled to say the least. However, as long as people stay on topic, the non-content cues are influential.

A great illustration of the impact of social signals is how people can appreciate foreign language films. Imagine that you're watching a film in another language and you turn off the subtitles. You can't understand what they're talking about, but you get the sense from their tone of voice, posture, and gestures that one character doesn't like another, or that these people are having a heated discussion. The signals you're paying attention to are exactly the same ones that these sensors are measuring.

Overall, the results from these initial studies were considered astonishing. A computer and a few clever algorithms had managed to predict the outcome of



complex situations with startling accuracy, previously thought to be solely the province of human beings. Overstating how important these findings were is difficult. *For the first time, human behavior could be objectively measured outside of the laboratory.*

## **ENTER THE BADGE**

This leap forward in measurement technology embodied in the Sociometer platform enabled researchers to ask fundamentally new questions about how people work: Do bosses dominate conversations with their subordinates? What does corporate culture really mean? Scale and level of detail ceased to be limiting factors when observing behavior.

With this new technology, data collection is no longer the bottleneck for social science. Within a few months of deploying Sociometers and their technological descendants, researchers collected more data than had been assembled throughout centuries of observational methods. Instead, the limiting factor for sensor-based data collection became technology adoption.

The original Sociometer was heavy and awkward to wear. The Sociometer also didn't provide study participants with any direct benefit beyond the general social good they would accrue for contributing to the advancement of science. It would also be months before they could receive feedback on their own behavior. Combined, these drawbacks put a heavy burden on participants, and made it difficult to envision widespread acceptance of this technology.

To combat these drawbacks, researchers integrated display functionality into the next version of the Sociometer system, dubbed the UberBadge. The UberBadge vastly improved the form factor of the Sociometer, taking the same sensing devices and packing

them into a badge the size of a wide wallet. The badge also included an LED display on the front, allowing researchers to display scrolling messages. This helped users get some benefit out of the badges—such as displaying the length of a conversation or how many people they met at an event—and being able to wear it around the neck made them much easier to use.

By changing the way people wore the badges, researchers had found an avenue to broad adoption. However, with these early sensing devices, privacy was a major concern. These badges collected the actual content of conversations. It's safe to say that most people don't want to wear a device that records everything they say. It's also against the law in most states.

The rapid reduction in sensor size and power consumption, as well as gains in battery life, provided the solution to this privacy problem. With extra power, future versions of the badge could process audio data in real time, recording only *features* of conversations—volume, pitch, and emphasis—a few times a second instead of the *content*.

This newest device, the Sociometric Badge, is the size of a deck of cards and weighs about as much as five U.S. quarters (see [Figure 1.1](#)). The badge incorporates all the sensors of the previous devices: a microphone, IR transceiver, and accelerometer—and has the addition of a Bluetooth radio. The badge can collect data continuously for about 40 hours, or one work week, without needing to be recharged. With the data analysis algorithms built into the badge, it could save the equivalent of one work year of behavioral data onto a 4GB SD card.



**Figure 1.1. The Sociometric Badge**

You can think of the Sociometric Badge as the natural evolution of the company ID badge. No longer just a tool to open doors, this new kind of ID badge enables you to understand yourself and your company at large through data-driven reports and feedback. As shown from the examples in this chapter, this sensor technology has amazing potential. From gathering five minutes of data

with the badge, you could figure out not only whether you'll win a negotiation, but how well you'll do. With this badge deployed across millions of individuals at different companies in countries all over the world for not minutes but years or decades, imagine what we could learn about to help people collaborate more effectively and create better organizations.

The opportunities offered by using the badge technology not only can revolutionize our understanding of organizations and society at large, but can also be used to create organizations where privacy is a thing of the past, and managers watch every movement, every conversation, looking for inefficiencies. Ironically, this means that data abundance, rather than scarcity, becomes the biggest hurdle to overcome.

### **BIG DATA = BIG BROTHER?**

Sensing data can be a major threat to privacy. Whether the data is from cellphones or web browsing histories, the potential abuse of this massive trove of data is an important concern. At the same time, awareness of this issue is alarmingly low, which means that people often don't understand the power of the data that they make available.

This problem is magnified with the Sociometric Badge. Companies can already legally

- Watch employees via CCTV
- Log keystrokes
- Take screenshots of employees using their company computers
- Read employee e-mails

Exposing additional sensitive information from the badges, such as location and who you talked to, could lead to egregious abuses. This data could allow companies to determine when you're in the bathroom, how much time you "wasted" talking to your friend in another department, and so on. Under current U.S. law, this kind of monitoring is completely legal.

This is a major failing of the U.S. legal system. Overreaching corporate monitoring should not only be morally distasteful, it should also be illegal. Most countries in Europe and Asia ban this activity, but they go so far as to prevent most analysis of this kind of data. To reach a productive middle ground, individuals and companies need to agree on steps to take when dealing with this extremely sensitive data.

The projects described in this book adhere to the "new deal on data" championed by MIT Professor Sandy Pentland. The core concepts of this new deal boil down to these three points:

- Data collection is opt-in and uses informed consent.
- Individuals control their own data.
- Any data sent to third parties must be aggregated.

The following sections examine each of these rules individually to help you understand why they're necessary for reasonable application of sensing technology and "big data" analytics in general.

## **Opt-In**

As mentioned previously, companies already collect a lot of data without your *informed* consent. For example, when the organizations I've been part of collect data with the Sociometric Badge, we spend weeks answering questions from participants, explaining what data we collect, and even give them consent forms that have our actual database tables. If people don't want to participate, we also hand out "fake" badges that don't collect data but otherwise look and act just like normal badges. This prevents those uncomfortable with the technology from being singled out, and in general makes everyone more likely to participate. Participants can also opt-out at any time. In practice this happens very rarely, because after a few days' time people essentially forget that they're wearing the badges.

Taken together, these steps help assuage people's concerns and help us consistently achieve more than a 90% participation rate in all of our projects. Compare that to surveys, where researchers are ecstatic to get a 50% response rate.

With such high participation rates, the data itself becomes even more valuable; and whenever something is that important, everyone is going to try to stake their claim to it.

## **Data Control**

Modern companies are extremely protective of their data—as they should be. Google's entire revenue stream, for example, is dependent on the data created by its users. This protectiveness extends to corporate e-mail, where courts have continually reaffirmed the rights of companies to read their employees' e-mails as long as they are accessed through company servers.

The sensitive nature of Sociometric Badge data points to the necessity of a change in this model. Without individual control of data, companies would be free to use your data any way they saw fit. For example, this kind of data could predict health risks (depression can be predicted from changes in communication patterns) or your likelihood to leave the organization (people getting ready to quit start to withdraw socially before making the announcement), leading your superiors to pass you over for promotion or diminish your role. If individuals control their own data, then any potential abuse can immediately be avoided by individuals denying access to their data. In the case of the projects described in this book, individuals can delete their data at will to prevent access to their information.

Overall, there generally are no good business reasons for companies to control the data of individuals. Knowing where Bob is at 2:30 on Tuesday, for example, doesn't tell you about productivity. Companies should care much more about the general patterns and aggregate statistics that describe how different teams and divisions are collaborating and what behaviors and interaction patterns make people happy and effective. These aggregate statistics are also the only way to preserve privacy.

### **Data Aggregation**

Anonymizing data from sensors is essentially impossible. Mathematically, it's incredibly unlikely that someone would go to the exact same places and talk to the same people as you. Even if someone took a notebook and simply wrote down some of the times that a target person talked to others, then that someone would know whether he had the target's sensor data.

The only way to deal with this problem is to aggregate data. Instead of allowing everyone to see information

about each individual, the data is averaged over groups. This allows people to compare different teams and see how their own behavior stacks up in their group, but prevents anyone from identifying a specific person.

In my experience, companies usually aren't too concerned by this restriction. People still get their individual data and can use it to improve. For example, they could see that they're not interacting enough with another team on a project, or that compared to the happiest people at their company they tend to go to the coffee machine less frequently. The organization sees the aggregate data and general trends, which it can use to identify behaviors and collaboration patterns that make people and teams happier and more effective. This approach gives everyone what they want, even reducing liability for companies in case their servers get hacked. Because they don't have individual data, even someone with malicious intentions couldn't use the data to discriminate or spy on a coworker or employee.

To a lesser extent, companies today actually struggle with data anonymization problems. How does an organization deal with salary information? What happens if you submit a complaint about a coworker? Creating an organization that is open in its approach to these questions is critical not only for gaining widespread acceptance for this technology, but also for building a successful organization.



## **TRUST AND TRANSPARENCY**

At the core of the precepts outlined in this chapter are the importance of trust and transparency in organizations. If you don't trust the people you work with and work for, you're going to be unhappy, unproductive, and generally looking to jump ship for another job as soon as you can. If organizations instead position data collection policies to increase trust and transparency, employees learn how to improve and be happier, and companies can vastly increase their success.

People also shouldn't be overly distracted by the privacy concerns associated with the widespread adoption of sensing technologies. As discussed in the coming pages, this technology has the potential to bring about radical, positive change in the way people work, from changing what it means to have an org chart to making management focus on people first. Ethically applying this technology and realizing these amazing possibilities is up to us.

In reality, however, the things that actually make people effective at work aren't new. They have ancient origins, millions of years in the making. Even the concept of an organization has roots that stretch back for millennia.

Before we start looking at where we're going, in the next chapter we'll take a look at where we've been.

## **2. Evolution, History, and Social Behavior: Our Wandering Road to the Modern Corporation**

In his seminal novel *I, Robot*, Isaac Asimov spun tales of a future where humanoid robots were an integral part of our society. They cared for, worked with, and were controlled by humans. Robots had many different functions, but they all had one thing in common: the three laws of robotics.

These laws were designed to protect the robots' human creators:

- A robot may not injure a human being or, through inaction, allow a human being to come to harm.
- A robot must obey the orders given to it by human beings, except where such orders would conflict with the First Law.
- A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws.

Supposedly every other aspect of robot behavior was governed by their individual programming as long as it complied with the three laws.

However people noticed that robots had some other process guiding their behaviors. Muses one of the story's protagonists in the film adaptation:

Why is it that when robots are stored in an empty space, they will group together rather than stand alone?

One could ask the same question of humanity. Why is it that two people in an empty room talk to each other rather than stare mutely at the floor? Why is it that we choose to work together rather than to work separately? Are these behaviors learned in our recent history, or are they something deeper, something more fundamental about being human?

Although there are certainly some general rules governing our behavior, fortunately or unfortunately we don't have anything like the three laws of robotics to help people make sense of human groups. We need a basic understanding of how people evolved biologically and culturally to work together in order to uncover general principles around how people collaborate. These patterns will help identify what aspects of behavior are really important for collaboration and what data will be useful for analyzing today's organizations.

## **BACK TO THE FUTURE**

Since our pre-human ancestors climbed into the trees, we've been working in groups. Even for these ancestors, groups provided some fundamental advantages over individual action, the most obvious one being that you can better defend yourself when you're part of a group. Simply more fists and weapons are available when you're with others. You can also spread risk across many individuals in a group. When foraging for food, for example, your individual probability of success is fairly low. If you're in a group that shares its food, however, even if you're mostly unsuccessful, you'll still be able to survive. Lastly, you can do bigger things when you're in a bigger group. It might take three individuals to lift a rock that obscures a treasure trove of ants or other insects. Looking at our pre-human, chimp-like ancestors, then, seems like a perfect place to start in our investigation into the history of groups.

## IN THE SHADOW OF MAN

Let's turn back the clock about three million years. Humans, *homo sapiens*, didn't exist. In fact, most species that we know today didn't exist. Our evolutionary ancestors of that time looked a lot like chimpanzees, from their sloping foreheads to their diminutive size. While fossil records are fuzzy at best, our ancestors come from one of the species from the genus *Australopithecus*, a group of short bipeds that could nearly chew through rock. Intellectually, however, their relatively small brains indicate that they were cognitively on par with modern gorillas and chimpanzees.

Our ancestors spent most of their days foraging, hiding from predators, and sleeping. Importantly, they were also able to stand upright. This one difference is believed to be one of the main reasons for our ancestors' success, because it allowed them to walk and use tools at the same time.

We also know that these ancestors lived in groups. Considerable debate still exists about exactly how large the groups were and how they behaved. We really only have fossils to go on. Luckily, present-day analogues can provide some insight: gorillas, bonobos, and chimpanzees.

### Gorillas

Most of us have seen gorillas in the zoo or on one of the many nature programs that populate the Discovery Channel. Despite their massive size, these ground-dwelling behemoths are primarily herbivores. Their large gut enables them to wolf down anything from fruit to pith, the woody stems of some plants.

Because their diet can accommodate most available food sources, gorillas don't have to spend a lot of their time foraging. Gorillas typically travel around an area not

more than a few miles in diameter, and on any given day they move less than a third of a mile. In contrast, the average human walks about five miles in a day.

Mountain gorillas typically live in small “troops” of 5 to 30 gorillas. As a group has to cover more distance to forage, smaller groups will gradually get larger. This is a direct result of the risk mitigation property of troops, because with more gorillas they can discover rich food sources more effectively. After a certain point, however, adding more gorillas to a troop has little effect on foraging efficiency.<sup>1</sup>

To understand that phenomenon, just examine the foraging process. Gorillas start off from a central point, going off in different directions in search of food. If they go more than a third of a mile without finding anything, then they’ll turn back. If there are too many gorillas, however, then this search becomes redundant. Different gorillas will be covering the same ground.

Gorillas could theoretically walk longer distances to find more food. However, the extra walking would increase a troop’s calorie expenditure, meaning that splitting into different groups would be more effective. In summary, for gorillas some benefit exists to being in a group, but after a group gets too big, those benefits decline.

Although gorilla and human societies are clearly not the same, their traits give us clues about how our ancestors might have lived and worked.

For us what’s interesting is that gorilla groups are most effective when they are relatively large, but not too large. There are simply no extremely large groups in gorilla societies, and this likely held for our ancestors as well. This evidence is also supported by some of our other ape relatives, such as bonobos.

## **Bonobos**

Bonobos (*Pan paniscus*) are one of our closest relatives in the animal kingdom, with our last common ancestor living some 6 million years ago. Also called the pygmy chimpanzee, bonobos probably separated from the common chimpanzee around 1.5 million years ago.

Bonobos contrast strongly with gorillas. They are much smaller, can form larger groups, and range over areas as large as 16 miles. This is necessary because they can't eat as wide a variety of food as gorillas, and so depend on high-calorie foods such as fruit and meat to survive.

Bonobo society is actually quite similar to that of humans. They form large groups, sometimes more than 100 members, but they can forage in smaller parties of only 6 or 7 bonobos.<sup>2</sup> These smaller parties often split off for days at a time, but they always come back to the larger group. This is a nice way to reap the benefits of large communities without exhausting the local food supply.

The local environment dictates how often this splitting occurs. When fruit is plentiful, bonobos stick together in one large group. There's no need for them to go their separate ways scouring the area for fruit without the inherent protection of the larger group. When food is rare, small parties fan out across a wide area to explore and report any discoveries to the group. These foraging parties typically stay constant over time, but they're not necessarily formed along familial lines. These small, cohesive foraging parties are essentially the core of bonobo social life. Interestingly, the society of their close genetic relative, chimpanzees, looks very different.

## **Common Chimpanzees**

Common chimpanzees are physiologically very similar to bonobos, separated by only 1.5 million years of evolutionary history. Chimpanzees also form larger social groups, and have wide home ranges of up to 40 miles. These groups can range from 20 to more than 150 individuals, although typically they are in the lower part of that range.

Compared to bonobos, chimps live in an environment where access to food is much less certain. They can still break up into smaller foraging parties, but they have to cooperate with the larger group to survive. Although starvation isn't a frequent occurrence in chimp societies, the dominance hierarchy is crucial in determining who gets food first, and therefore who is able to reproduce more easily.

Chimpanzees are also proficient hunters. They form complex hunting groups where different chimps take on different roles, constructing a sophisticated strategy for cornering small game. Some chimpanzees are assigned as chasers, who pursue the quarry. Blockers corral the prey until they reach the hiding ambushers, who catch and kill the animal. Importantly, food is shared not just among the hunting group but also with other nearby chimps.

This is a complicated activity, especially considering that chimpanzees aren't able to communicate with a higher order language. They need to be able to understand this strategy, to plan and execute and change their plans on the fly. We typically associate these activities only with humans and with language, but clearly our ancestors must have engaged in these activities as well.

Importantly, however, a hard cap exists on group size for all apes. You simply don't see apes in groups that are

much greater than 150 individuals. Significantly, this is basically the same as the cap for humans, what is known as the *Dunbar number*.

The Dunbar number is the upper limit on the number of people a human being can know “well.” This concept was developed by the British anthropologist Robin Dunbar, who surveyed groups across human history and found that the most cohesive unit of coordination peaked at about 150 people. Small villages and military units had this common upper bound beyond which cohesion and performance started to break down.

Humans can naturally have larger groups, and some have put the Dunbar number as high as 230. Nevertheless, it is not an order of magnitude above the group size for chimpanzees. Rather we can see a steady change from our common ancestor to humanity’s current state.

Somewhere along the way, these groups became organizations, but finding an exact point in time when this occurred is difficult. Is there a significant difference between humans roaming the plains hunting large game and chimpanzees hunting animals in the forest? Suffice it to say that sometime within the last thousand years people began living in large enough groups to form cities, and it was during that time that a group that could be considered sufficiently close to an “organization” was formed.



## YOU SAY “GROUPS,” I SAY “ORGANIZATIONS”

The definition of an “organization” is somewhat arbitrary—it has both similarities with and differences from a group. An organization is not simply a collection (or group) of people, such as everybody under the age of 25 or everyone who lives in an apartment building above the fifth floor. Clearly, when you think of an organization, the idea is that the people inside the organization are more connected to each other than one would expect by chance. In addition, this collection of individuals has to have a set of formal and informal processes that govern the behavior of the organization’s members. This distinguishes organizations as a subcategory of groups. In other words, all organizations are groups, but not all groups are organizations.

By this definition your group of friends is not an organization. They have no formal mechanisms for collective action. Although there will be informal consequences if one of your friends offends you, these rules aren’t written down anywhere. If they are, this is much more like a secret club, and you should seriously reconsider your choice of companions.

Of course, gray areas exist. Especially with the explosion of online communities, the boundary between groups and organizations has started to blur. As Tom Malone argues in *The Future of Work*, some of these online communities are most assuredly organizations. In his later work he singles out guilds in the *World of Warcraft* (WoW) as a prime example of what a modern organization can be.

For the uninitiated, the WoW is a Massively Multiplayer Online Role-Playing Game (or MMORPG. Say that ten times fast). In WoW, players from across the world create an online persona that battles virtual enemies to increase their power and in-game money. This is

primarily accomplished through quests, where you venture out for hours to eventually face a powerful enemy. Should you triumph, you are rewarded with valuable loot in the form of armor, weapons, and other virtual riches. As your character gets more powerful, these quests become increasingly difficult, to the point where you can't complete a quest by yourself.

This is where the WoW guilds come in. In most of these quests, the prize at the end is indivisible. That is, there is only one prize and only one member of the party can claim it. Guilds create a formal structure around this process, where loot is parceled out quest by quest to the different guild members who participate, ensuring that everyone gets his or her fair share. Guild members have to coordinate effectively to complete these difficult quests, and their online activity as well as the reward process is highly structured.

This certainly clashes with our modern notion of an organization: people sitting in an office in two-piece suits filing form after form. However, when you strip away the outer layers, WoW guilds look pretty similar to other organizations.

The Linux development community is a similar example. Linux is a completely open source operating system, one of the chief competitors to the juggernaut of this space, Microsoft Windows. Whereas Microsoft develops Windows internally through its staff of programmers and engineers, Linux is developed by a worldwide community of people who aren't paid for their effort. Although some formal processes are in place for Linux development—to be added to the core system code, one has to undergo a rigorous screening process—the notion of “employees” doesn't exist here. It is an organization, but definitely a non-traditional one.

The distinction further blurs when you look at other online communities, such as the community of eBay merchants. These merchants rely on each other for accurate ratings of buyers and sellers in order to conduct their business. Merchants who violate customer trust need to be punished by the community. Otherwise, they risk diminishing the value of ratings for all sellers, driving buyers from the site. Although one might consider the rating system a formal process, the consequences of this system are harder to define. Still, these sellers need to create a vibrant marketplace to attract buyers, and they rely on each other for selling tips and policing scammers. Is this an organization? It's certainly unclear.

Families are also difficult from a classification perspective. Although families live together and help each other informally, legal processes and protocols also exist around the definition of a family. If family members criminally abuse each other, a formal punishment is applied. Despite these conventional aspects of a family group, defining "family" as an organization is difficult.

All of these examples are to make the point that organizations don't all look or act alike. Similar to our biological and cultural socialization mechanisms, organizations evolved over time, and there's not a clear point that can be identified as the birth of the organization.

## **INDIVIDUAL < TRIBE < CITY-STATE**

Organizations are needed because they offer some fundamental advantages over more informal means of association. To get a sense of these advantages, look back at the ape troops discussed earlier. They are definitely groups, and although they have complex social hierarchies, there are no formal processes to speak of. Early humans lived in similar groups as well. Hunting in tribes that were made up of close relatives and families, technological innovation (that is, tool development) occurred at the pace of roughly one discovery every 10,000 years until about 8,000 BC.

This rate of discovery is essentially at a chance level because hundreds of generations were using tools with little improvement. As the human population increased, the chances simply became more likely that someone would think up a new tool. But something happened around 10,000 years ago. Humans started living together in groups that became too large to manage through informal means. For the first time in history, humans had crossed the Dunbar number. Codes of conduct had to be recorded, and rules had to be agreed upon. In short, people needed a government.

The concept of a government was a radical shift from the informal mechanisms which had dominated up to that time. From the first organisms to form in Earth's oceans billions of years ago, life had developed on informal terms. Groups of animals would herd and act collectively, but these actions were heavily rooted in biological responses, honed through eons of evolutionary development. With the rise of civilization, humans realized the need for order to support our burgeoning aspirations.

Civilizations started out on a modest scale, with around 10,000 people living in early city-states. These city-states

were foci of economic and agricultural activity, but tended to be fairly unstable. Smaller city-states would be subject to assault from larger neighbors, and, in fact, the first larger civilizations, such as Phoenicia and Babylon, were composed of a number of these city-states.

With so many people together in one place, city-states became places for the exchange of both goods and ideas, and this led to a much more rapid period of innovation. New technologies were emerging every hundred years or so, an order of magnitude faster than before. Recent work by Wei Pan and his colleagues at MIT have shown that the rate of innovation in cities is directly related to population density, which provides a clue as to why these early civilizations were so successful. They could create better technology, train better soldiers, and spread this influence to other affiliated city-states.

For city-states to run, however, they needed a number of basic services: roads, sanitation, and easily interpretable laws. The degree to which early societies were able to fulfill these needs had a direct impact on their success. The dominant civilization of the early historical era, Rome, provides a clear example of this relationship.

## **DO AS THE ROMANS DO**

Like Greece before it, ancient Rome was a historical juggernaut. The Romans had scientific prowess that was second to none, delivering innovations such as concrete, the aqueduct, and indoor plumbing. Their army laid waste to their contemporary rivals, such as Carthage, the Gallic tribes, and the Kingdom of Pontus. From humble beginnings in 800 BC, Rome blossomed into a massive empire that spanned all of Europe and into the Middle East.

A central pillar of Roman might resided in their military, which cultivated absolute group cohesion above all else.

Recruits were taken young, and joined together into groups of eight that stayed together for years. These teammates weren't just training partners; they also played and lived together. A major tenet of the Roman training regime was to instill in you not just how special you were, but also how special all of your teammates were. The idea was that by turning your organization into your family, legionnaires would fight fiercely to protect each other and not worry about failing to return home to loved ones. After all, their loved ones were on the battlefield with them.

These cohesive ties permeated not just the military, but the ruling class as well. Roman government was a family affair, with nearly all major leaders related to each other in some way. However, as the empire expanded, maintaining this cohesion couldn't be done through blood alone. New territories had to be similarly incorporated into the Roman fold, and this was done by literally developing a shared language. In their schooling the ruling elite spent nearly a decade studying the same four authors (Cicero, Sallust, Terence, and Virgil). Next they were instructed on proper language use, which meant speaking and writing exactly as the masters did centuries prior. Only the ruling class used such language, and it was immediately clear whether one was part of the "in-group" or an imposter. The cultural norms were simply too difficult to imitate.

Along with the empire's expansion came changes in the highest seat of power—the emperor. Although no emperor ruled in Rome's early history as a republic, later in its existence it became a critical role in the government. As the head of state, the emperor had to maintain close ties with regional governors because they had to understand how to execute the empire's policies while at the same time stem revolt from their domain. This meant that the emperor was often traveling from

city to city on official visits. As the empire grew larger, his absence from Rome grew longer and longer.

This travel soon became impractical, and it was deemed necessary, unofficially, to have at least two emperors governing different parts of the empire. However, because the empire was so large, emperors were still spending nearly all of their time traveling. Subjects all across the empire now considered themselves full Romans, with the inherent rights that came along with it. However, these different regions still had different customs, even different languages. Cohesiveness was threatened not only in the general populace, but in the governing class as well.

The fundamentals of Rome had changed. Although other factors were also involved, the Roman Empire soon unceremoniously collapsed under its own weight.<sup>3</sup> Still, the principles of centralized control, cohesiveness, and formalized procedures endured in governments and organizations, remaining more or less unchanged until the 1800s and the explosion of modern industry.

## **TALKIN' 'BOUT A REVOLUTION**

The industrial revolution had a profound impact on management. Although most of us think of the industrial revolution as a period of technological innovation, changes in management over this period also still endure. In many ways, the genesis of what we recognize as a modern organization developed during this period, and the basic inventions that were developed formed the foundation for modern society. Modern paper manufacturing has its origins in the industrial revolution, as does gas lighting and the steam engine. Although these and other inventions had lasting effects, the steam engine is what would directly impact management.

Steam power immediately changed the mining industry and revolutionized transportation with the locomotive and steamboat. This transportation innovation was particularly important because it allowed people to travel extremely quickly over large distances. Rather than taking weeks to travel across Europe, the journey could be completed by train in a few days. The Atlantic could be crossed in a similarly short period of time, enhancing the flow of goods and ideas.

Companies could actually collaborate with people in different parts of the world, but this also brought about new challenges. How can you transfer effective manufacturing processes to different plants? What types of organizational structures are necessary to manage a diverse workforce spread across the world?

As goods and raw materials could be transported in large quantities relatively quickly, companies that could mass-produce goods thoroughly trounced smaller and less-nimble competitors on everything from quality to price. The factory was central to this overall strategy. Whereas, in the past, manufacturing had consisted of a few highly trained artisans laboriously constructing goods, factory production was made up of an army of low-skilled workers who each were specifically trained to complete a single task.

Division of labor was crucial for the effectiveness of a factory. By dividing production into small, independent steps, companies could turn out huge quantities of high-quality goods with these low-skilled workers. However, companies up to that point had not been set up to optimize those kinds of organizations. Well into the 1800s, most people worked in some form of master/apprentice relationship. In order to learn a trade such as carpentry, for example, you would literally live with a master for years, sometimes decades, in order to



hone your skill. These businesses looked a lot more like art houses than companies.

New theories had to be developed to ensure that these factory workforces were as efficient and productive as possible. In the late 1800s, Frederick Taylor attempted to apply a rigorous analytical method to these manufacturing processes, developing a framework called scientific management—more commonly known today as Taylorism. His approach focused on measuring differences in performance between workers, observing how the most productive people did their job, and then standardizing that process and disseminating it across the organization.

Taylorism views people as cogs in a machine, with some cogs working better than others. In this model no room exists for a creative or knowledgeable worker. The goal instead is to squeeze the most amount of work out of your employees and ensure that inefficiencies are reduced as much as possible. This typically resulted in harder, longer work hours for the low-level employees and a huge amount of power in the hands of management.

Financially speaking, this approach made a lot of sense for factories of that time period. The vast majority of work *was* unskilled, and with a huge influx of immigrants into the West, creating a cohesive workforce would have been extremely difficult. When you have thousands of employees working on exactly the same process, discovering what makes people effective and transferring it across the organization is clearly important.

Chinks in Taylorism's armor became apparent almost immediately. While pushing relentlessly toward increased efficiency, companies ignored the physical and mental needs of their workers. In the United Kingdom,

for example, the Factory Act of 1819 magnanimously limited child labor to 12 hours per day. No minimum age was set for child workers until 1833, when children under the age of 9 were banned from working in the textiles industry.

Unfortunately, workers had no way to effectively protest these conditions. Many early attempts at strikes were easily put down by management. With a huge potential labor pool all clamoring for jobs, any workers who went on strike were summarily fired and replaced. Because these jobs were relatively unskilled, not many concerns existed about the cost of retraining.

This attitude galvanized workers to devise a response that would give them some leverage against management. Their answer was to form trade unions. The idea was that by banding together thousands of workers from a variety of disciplines, workers could effectively blockade companies that offered poor compensation or working conditions. Although unions were illegal in the early 1800s and severely discouraged later on, they gradually became a powerful force in organizational life.

This *détente* between workers and management continued for decades, rising in importance during both world wars and creating a manufacturing dynamo in the United States. People could look forward to working their entire lives for a single company, ensured of a job no matter the economic conditions. In fact, this system by and large still exists in some countries today, particularly in large companies in Japan.

From a practical perspective, this meant that you came to know the people you worked with remarkably well. Not only did you spend decades working with the same people, but people typically spent large amounts of their personal time with their colleagues. Blue-collar workers

were expected to join unions and participate in union events, whereas white-collar workers joined social clubs and fraternal organizations. Ironically, this arrangement mimicked the way that people had worked earlier in history. Like the master/apprentice relationship and hunting tribes, the vast majority of workers in the mid-twentieth century were still heavily engaged with their colleagues.

Throughout this time, however, blue-collar workers were still treated as interchangeable parts. Even people in creative industries such as advertising and research were managed in much the same way as factory workers. Managing to enhance individual creativity and increase job satisfaction was a relatively novel idea well into the 1970s.

This model started to shift, however, when companies in Japan started to outcompete their Western rivals. Toyota introduced their eponymous Toyota Production System (TPS) in the late 1940s, but it didn't rise to the attention of the international business community until the late 1970s. It was during this time that Toyota started to make major inroads into Western markets, eating market share from the likes of GM and Ford with superior quality cars and lower prices.

When managers and researchers looked for the impetus of this change, they stumbled upon the TPS. The TPS treats even front-line workers as an integral part of the development process. Workers are encouraged to develop their own methods and feed them back to the company. Toyota also urges their employees to think of themselves as part of a team, making sure that they're involved and care about the people they work with.

The Toyota Production System was subsequently adopted in many industries across the world. Although saying that the popularity of this system directly led to

widespread acceptance of the importance of collaboration would be an exaggeration, it was definitely a contributor. Companies started to think about the importance of getting people talking, of having a workforce that was constantly improving. Interestingly, this way of thinking didn't lead to more talking face to face, but heavier use of a new technology called e-mail.

## **NEW INFORMATION, NEW COMMUNICATION**

E-mail was invented in 1971<sup>4</sup> as a way to quickly exchange information over the burgeoning Internet. At first e-mail was limited to academic circles and could only be used for text communication. It wasn't until the 1980s that images and documents could be attached to a message, and that's when e-mail really took off. Prior to e-mail, the only way to disseminate information across an entire company was to send a memo. E-mail is nearly instantaneously transmitted and enables a rapid back-and-forth between participants.

The adoption of e-mail and IT systems in general in the corporate world led to a rapid increase in productivity. Erik Brynjolfsson from MIT showed that from the late 1980s to the late 1990s, every dollar companies spent on new IT systems such as e-mail increased that company's value by \$12 by changing how people could collaborate at a massive scale.

Around the same time, the use of the Web for business was exploding. In the early '80s, imagining the extent of the impact the Web would have might have been hard, but it was already having a profound effect on the way that companies worked. The Web truly democratized information gathering, giving employees sitting at their computers the ability to search through records and understand what was happening in their market in real time. This capability was one of the major catalysts for

the ever-accelerating changes that have occurred in the way companies work.

The proliferation of mobile phones built on this trend, and in the early 2000s the “Crackberry” addiction had the corporate world in its grasp. Working in concert with the remote work trend, cellphone-based e-mail became a staple of business in the U.S., but it also changed the way people work. Today, we can be “always on,” and never truly separated from work. Although this availability allows organizations and employees to be more flexible, it also means they start spending more time on cellphones than talking to people face-to-face.

Instant messaging (IM) also has had an impact on work styles. Whether it happens on cellphones or on computers, IM solves many of the issues associated with e-mail. It’s a synchronous communication channel, meaning that you’re engaged in a conversation rather than in letter passing. This feature has made it an indispensable communication medium, particularly in the technology community, where IM has been integrated into most of the software and technological development systems in use today.

IMs are also more expressive than e-mails. Where proper e-mail etiquette demands that you choose words carefully because they can be easily forwarded to thousands of other people, IMs are more ephemeral, and misspelling words and using emoticons are the norm. IMs are also much better than e-mail at exchanging nuanced information. Because any chat is a conversation, you can quickly ask for confirmation on a particular point and ensure that you’re on the same page. However, IMs are not so good at connecting people who don’t know each other or at coordinating more than a few people at the same time.

Until recently, air travel was the primary way to make these new contacts. Today video conferencing has been put up as a cheap alternative. Companies inherently understand that face time is important, but in a globalized world, being physically present everywhere you're needed is impossible. While in smaller organizations one-on-one video chats are fairly popular, in larger companies they're mostly used for meetings. They are definitely a step above telephone calls, because they can convey facial expressions and give you a sense of the environment. However, issues exist with communication lag and the inability to look someone in the eye when you're talking to them (you can look directly at the camera, but then you can't see the other person on the screen).

Some technological fixes are available for these problems. A great example is Cisco's telepresence solution. Its system is actually an enclosed room that consists of some chairs positioned around a half table attached to a massive screen. When the system is running, high-resolution cameras and speakers seamlessly connect you to an identical room in another location. The experience is quite remarkable, because it really does replicate the feel of a face-to-face meeting, minus the handshake. Unfortunately, this system costs hundreds of thousands of dollars and is still only good for scheduled meetings, not general socialization.

## THE ORGANIZATION OF TODAY

With the plethora of tools available today, people can work more effectively, communicate more quickly, and be flexible with the way they spend their time.

Companies today are organized to take advantage of these tools, which enables rapid change in the products and services that they offer. In many ways, this has brought about changes in the workforce as well. You no longer can expect to be employed at a single company your entire life, because your skills in fast-growing fields such as engineering, design, and software development will most likely not be applicable in 10 years.

With this change in the employee-company relationship, people have become incredibly mobile in their careers. Switching jobs every few years is now a completely normal occurrence, and in some circles staying in one company too long is actually frowned upon. The tight cohesiveness of workforces that was the norm in previous decades is to a large extent a thing of the past.

With this increased job mobility, an increase in geographic mobility has followed. Because people are moving jobs about once every 10 years, over a typical 40-year career you'll go through at least four jobs. This makes setting down roots in a city and expecting to stay there for your entire life difficult. In fact, over their lifetimes, U.S. citizens live in an average of three different cities.<sup>5</sup> Compare this change to just a few decades ago, when the vast majority of people lived in the city of their birth for most of their lives.

The geographic mobility issue is compounded by what academia frequently calls the "two-body problem." Whereas in the 1950s, '60s, and '70s rates of working women were relatively low, that percentage has skyrocketed over time, representing 47% of the U.S. workforce today.<sup>6</sup> Now all serious relationships have a

complicating factor: Both partners can find a job that requires them to move. Rather than having to concern ourselves with four job changes, now we're looking at eight.

Some people think this “two-body problem” is new. Indeed, career mobility itself is quite a new concept. However, families across history have had to contend with both a man and a woman, if not children, working to make ends meet. Prior to the twentieth century, men and women working in those low-paying factories and on farms had to work long hours so that their meager wages could provide for their family. Although a small number of wealthy individuals could support a household with only one partner working, this was the exception rather than the rule.

The period between approximately 1920 and 1975 was a singular moment in time when one family member was the primary caregiver.<sup>7</sup> This arrangement enabled men to socialize with one another after work, a necessary social glue that previously had been provided by shared experience at work and life together in villages in pre-industrial periods.

Now let's shift back to the present. Old social norms that value collaboration and relationships have been revived, but coordination of jobs between partners has gotten much more difficult. These conditions, in large part, provided impetus for the burgeoning remote work movement.

The growing power of information technology provides people the option of working remotely. At first making heavy use of e-mail, telephone, and quick in-and-outs on an airplane, remote work today consists more of video conferences and instant messaging exchanges. While making use of cutting-edge technology to communicate, our methods of actually managing companies still look



very similar to organizations from the 1950s. We rely heavily on formal organizational methods to deal with a workforce that has drastically more mobility, technical savvy, and a pressing need for collaboration to tackle increasingly complex work.

That's where we are today. However, this historical and evolutionary perspective doesn't provide insight into how organizations are actually run. Although we all work in organizations, most of us don't know how they're put together and what makes them tick.

This chapter has looked at how the concept of an organization developed over time, starting with informal groups, which grew into city-states and governments, and then more recently into the concept of corporations. Today, all three of these organizational forms still exist as families, modern governments, and millions of companies spread across the world.

Naturally, these organizations are all structured differently. People intuitively know that a school shouldn't be organized like a government, nor should a family be organized like a company. This book focuses on companies, but even in that specific case, what "organizing" actually means can get fairly complicated.

## **(IN)FORMAL PROCESSES**

Broadly speaking, there are two aspects to managing an organization: formal and informal processes. Formal processes are all the things that are written down that determine how the organization works and how things get done. They are codified and ideally executed according to a written plan. There's no room in these plans for variation between people or parts of the organization unless they are explicitly specified. Although this definition might be an idealized view of how companies operate, formal processes have been a major focus of management and management scholars.

Informal processes are everything else. They're the things you learn (or don't learn) by being inside the organization. Things such as culture, tacit knowledge, and social norms fall under the purview of informal process.

Let's focus on a few of the most important processes, the ones that most people deal with every day.

### **Lingua Franca**

Although it might seem trivial, as we shift toward a more global society, organizations have an important decision to make about what language they speak. While today English is essentially the international language, what language do people speak when an international company such as Google opens an office in a non-English-speaking country?

Adopting a lingua franca simplifies collaboration across cultural boundaries. Because everyone speaks the same language, you can naturally jump into conversations that you hear in the hallway or join another group's meeting. This ease of collaboration is extremely important as a company first moves into a new country, because a number of people from the company's headquarters are

usually present to ensure that the new branch setup runs smoothly and to train new employees. However, enforcing a particular language also slows communication between team members from the same culture because fluency levels will vary.

Conversely, allowing local languages to be spoken speeds expansion in new locales after the initial setup phase because new employees can be trained in their native language. It also grows the available talent pool, because even in highly developed countries reaching a business level of fluency in a foreign language is difficult. The challenge in these organizations comes from trying to integrate workers into the fabric of the larger company. Employees from different branches have to communicate through formal channels to get things done due to language difficulties, and people speaking different languages won't be able to informally chat around the office.

The lingua franca decision is often made by a strong collaboration between human resources departments and upper management, because these choices will drive the personnel dynamics of the company.

### **Dollars, Sense, and Workflow**

Human resources departments across the world exist for a few specific purposes: to hire, evaluate, oversee, and pay employees. Each one of these represents a formal process in an organization. While this list isn't exhaustive, these items serve as a good starting point for the purposes of this discussion.

Many people have a negative opinion of employee evaluation. The stereotypical view of evaluation involves employees nervously fidgeting as they wait for their boss to finish leisurely flipping through a performance report, at which point their boss rips into them and tells them

why they shouldn't be promoted, given a bonus, and so on.

However, evaluation isn't just an opportunity for determining bonuses. It's a way to help people figure out what needs to change to perform better and to understand what they're doing well.

This point is usually overlooked. Too often, "evaluation" is used as a euphemism for "criticism." This is unfortunate, because this is only part of what evaluation should be. A better term would be "feedback." Good feedback helps people identify the things they're doing wrong while at the same time pointing out strengths. For example, if you're a good organizer but have trouble responding to requests in a timely fashion, then moving forward you have a very clear action plan. You should take a more active role in management and group leadership, because you'll make the whole team more effective, but you should also make extensive use of your calendar to ensure you're meeting your communication requirements.

Continuing on this point, evaluation is also used to figure out how roles should change over time. Maybe your skill set is better suited for another division, or you've been identified as high potential and will start being groomed for an upper management role. These assignments can't be made on a whim. A regular, well-thought-out process should be in place for determining how to move people along in their career.

In most organizations the results of evaluation also directly impact how people get paid. Though it seems obvious that companies need to monetarily reward their employees, many careers focus relatively little on material rewards and instead make the organizational mission a reward in itself. This is particularly true in non-profit organizations. People in careers supporting

worthy causes such as suicide prevention and caring for the homeless don't bring home big paychecks, but because they are so passionate about the mission of the company, they're willing to tough it out.

Determining incentives, however, is not straightforward. You can pay employees with commissions, pay them hourly, or hire them full time and pay bonuses. The type of compensation you choose is inextricably tied to the type of work people do and the type of work you want them to do.

We think of hiring people full time for a fixed salary as the default employment arrangement for white-collar careers. Fixed salaries are designed to make people more committed to an organization and ensure that changing work demands don't become an issue. A company that hires a person full time is committing to his or her long-term development and signaling that this is someone they would like to be deeply involved in the organization. Although full-time employees aren't eligible for overtime, they're also not docked pay when things are slow. This represents a significant investment by the company, because if they consistently overestimate how much work needs to be done, the result is a lot of extra money spent on salaries.

Hourly employees, on the other hand, are much better for ramping up and down with demand. This pattern is common in retail during holiday seasons or at restaurants during high load times such as lunch and dinner hours. The downside of hourly wages is that employees aren't as ingrained in the organization because companies are wary of providing extra training to workers who won't necessarily be around long term. This arrangement also reduces the social integration of workers because they have to be focused on immediate output or risk losing their jobs. Schmoozing with

coworkers by the coffee machine, unfortunately, nearly becomes a firable offense.

Bonuses and commissions are mostly used as a supplement to full-time and hourly arrangements, although in certain industries such as consulting and upper management, commissions and bonuses can make up the lion's share of take-home pay. Bonuses fall into a few classes based on how they are awarded: individual performance, group performance, and company performance.

Many of us are familiar with the concept of individual bonuses. These bonuses are designed to incentivize people to complete their own work to the best of their ability and to go above and beyond the call of duty. Individual bonuses are typically based on an evaluation of your performance, either qualitatively by your superiors or through hard productivity numbers. A challenge with individual bonuses is that they tend to make people inwardly focused and disinterested in helping their colleagues, because the time they spend on those interactions doesn't show up in their paychecks.

Commissions are a special case of individual bonuses. A commission gives you a percentage or flat dollar amount for every sale an employee makes. This applies in retail stores where employees get commissions for selling merchandise, all the way up to partners of large consulting firms, who typically get commissions by closing big customer contracts.

Group bonuses are designed to get teams to collaborate and hit overall performance targets. This is often useful when rewarding an individual on his or her contribution is impossible because it's part of a larger product or service. By rewarding people at the group level, companies encourage people to work together to solve problems rather than look at just their own work. These

bonuses are often used in software development to incentivize teams to hit their delivery date. Although an employee's code might be only a small fraction of the overall software, he'll try harder to jump in and help other parts of the team that are falling behind to get the bonus.

The downside to these bonuses is that they can lead to free-riding because lower-performing employees get paid the same as the high performers. Lower performers can be content to coast by, knowing that someone else will pick up the slack and they'll still get their bonus. If this pattern of behavior becomes prevalent, it will severely demotivate the highest performers and further degrade group performance.

Company performance can also be used to determine bonuses. This practice is typically called profit sharing, and is designed to encourage collaboration not just across a specific team, but across the entire organization. Similar to group bonuses, the main idea behind profit sharing is that because your bonus depends on other parts of the company, you'll try to branch out and pitch in across a wide variety of areas to ensure that the company succeeds. The problems with these bonuses mirror those of group bonuses, because there's no good way to reward individuals based on their individual effort.

Even the type of pay people take home is a compensation lever. Rather than pay cash, companies could pay employees in stock. Startup companies usually take this route because they lack the cash to pay an employee's full salary, but it's also common practice for paying CEOs of large companies. By receiving stock rather than cash, employees are invested in the long-term future of the company, because if the company does well down the road, the stock will be worth more. This is an important

point for CEOs because it ensures that they don't sell off important parts of the company to make a quick buck while eviscerating the company in the long term. The downside is that employees usually can't sell this stock for a long period of time, so for lower-level employees being paid in company stock doesn't necessarily provide more incentive than a cash bonus or salary.

This discussion hasn't even gotten into complicated pay schemes. Suffice it to say that companies can mix these different compensation schemes and make bonuses and salary hikes dependent on certain benchmarks or performance goals, but at the end of the day, it has to be simple. The more complicated a scheme, the less likely an employee is to understand it, so it will be less likely to have the desired effect on their behavior. The takeaway is that evaluation and incentive mechanisms are organizational levers that can change the way people work.

Having a process for making these decisions so that you know you're rewarding the right behavior is important. That usually means that there should be a formal process around compensation decisions. Creating a workflow process around this and other organizational issues is a necessity if you're going to run an effective company.

Every meeting that pops up on your calendar is part of a formal workflow process. Workflow means going through all the items on a checklist and making sure that you hit them in order. Although in most cases workflow doesn't actually take the form of a checklist, most processes could be boiled down into this general framework.

Take budget planning as an example. The relevant people first need a brainstorming session to hash out the division's needs for the year. Team members are each assigned to manage the budget for different areas, so



before the next meeting they'll have to accurately assess the needs of individual areas under their purview. After a few iterations, the division will be ready to present its budget proposal to the higher-ups, which will have a similar process of their own.

Especially in modern organizations, managing workflow has become critical. With people working on ever more complex projects, it's necessary to set regular meetings and milestones and use reporting tools to make sure that everyone is coordinated. To ensure this coordination happens in a timely manner, an organization needs a defined set of people who can make these decisions. As in the budgeting example, defined contact points must exist so that things can keep moving forward. This is the purpose of the org chart, the company hierarchy.

When you think about the formal part of a company, the org chart is probably the first thing that comes to mind. Many factors go into figuring out the best way to structure these reporting relationships. Do you need to coordinate with different groups? How many subordinates can you reasonably oversee? This is one of the most important parts of the formal processes of organizations, and as you might suspect, there's not one "right way" to do it.

## **Choosing a Company Structure**

Making sure that the right groups are coordinating is essential for having a successful organization. These reporting relationships are a big part of that coordination. One of the reasons for the wild success of organizations in the early twentieth century was the hierarchies and systems of control they put in place. Knowing that a particular individual or group of individuals is ultimately going to have the final say is important because it helps you figure out who you need to talk to, who you're accountable to, and who to go to when you need access to resources.

There are roughly four ways to structure these reporting relationships. Companies can mix and match them for different parts of the organization, but doing so is not the norm because it makes understanding the structure and managing the overall organization considerably more difficult. The basic idea is to pick the organizational structure that best supports the overall organizational strategy.

### **Functional Management**

The functional management structural style organizes people around the type of work they do. Consider a global restaurant chain. Under a functional management regime, it would have a division for food procurement and distribution, a restaurant division that runs the individual establishments, a research and development division for coming up with new menu offerings, and a marketing division.

Functional management allows people to focus on their specific part of the business and tends to create economies of scale in terms of implementation and process optimization. In a functional organization, for example, all distribution activities are centralized, meaning that managers can figure out the best way to

optimize distribution across different locations. One potential issue with functional management is that it tends to create solutions that aren't tailored for specific markets. The only way different locations get different offerings is for that information to percolate up the hierarchy and then filter back down to R&D. Next these new innovations would have to go back up the chain from R&D and down to the restaurants for them to actually be implemented on the ground.

#### **Divisional Management**

Divisional management takes a different tack by organizing reporting relationships into self-contained units that include everything necessary to do a job. This structure is often used in industries that have to customize their products for different locations, like the restaurant and retail industries. A restaurant chain would look very different under a divisional structure. In this case, it would have a U.S. division, a European division, a Japanese division, and a South American division. Each division would have its own R&D, its own distribution channels, and its own marketing teams.

Divisional organizations tend to be much more flexible than their functional counterparts. Because they are specifically attuned to the needs and opportunities in their individual segments, different divisions can offer different products and services. Unfortunately, this often means a large duplication of effort across divisions because the company now has four R&D divisions, four distribution channels, and four marketing teams. Not only does this mean more staff, but also that coordinating campaigns and product development across divisions becomes extremely difficult.

### **Matrixed Management**

The matrixed organizational form tries to combine the best of both the functional and divisional structures. This structure is organized across multiple dimensions to try to ensure coordination across different organizational silos but still maintain flexibility. The idea is that instead of reporting to just one manager, you now report to both a functional and a divisional manager. In the restaurant example, this could mean that an employee might have a boss from Japan and a boss from marketing.

A major benefit of matrixed organizations is that they allow for cost savings by centralizing different functions but can quickly innovate in different areas by aggregating information from across the company. The cost of this system is higher in two areas: complexity and time. Matrixed organizations are much more complex than their functional or divisional counterparts. Some organizations even matrix across more than two dimensions; for example, product, geography, and function. This complexity makes changing the organizational structure after it's set up difficult.

As you can imagine, in a matrixed organization a lot of time must be devoted to communicating with bosses. This is not necessarily a bad thing, because coordination across organizational silos is usually extremely important. What this creates, however, is a lot of formal processing that has to occur before an initiative can start. Instead of a single boss giving the okay, now people from very different areas must be on the same page and approve the initiative.

## **Teams**

Teams are often put up as a lightweight alternative to matrixing. Although teams have existed for a long time, only recently have they become a critical part of organizational structure. Traditionally sitting outside of the org chart, they are nonetheless a critical organizing factor and exhibit similar properties to matrixed organizations. Teams are typically tasked with accomplishing a specific set of objectives and often have an internal organizational structure along functional lines, although the scale is obviously smaller. In some organizations teams work on a specific project, such as a new aircraft or piece of software, and can persist for years.

The teams referred to in this discussion are small teams, because if a team gets beyond roughly 20 people, it becomes in essence a temporary division. Teams can be effective because they enable people from different backgrounds to collaborate and understand the strengths and challenges of different parts of the organization. When teams break out from traditional constraints, their output can be much more innovative than that generated within a specific division. This uniqueness, however, can also be a source of trouble. Getting team members on the same page might take a long time, if they ever do, and many teams find themselves working through individual conflicts rather than working together toward their real goal.

## **So, We're Done Learning About Organizations, Right?**

What's interesting about the org chart is that most companies operate as if all communication occurs across its lines. From this perspective, if you don't directly connect with someone, you don't need to talk with him or her.

This is one area where traditional management theory breaks down. Many of us have worked, and we know that talking to other people on your team is also important. They don't report to you, you don't report to them, but you need to touch base and coordinate to be effective.

This coordination is an informal process. Your informal communication, be it chatting at the coffee machine or eating lunch together, are all important informal processes.

## **INFORMALLY IMPORTANT**

Informal processes are all about the culture of the organization. These aren't things that you'll learn about in a training manual. In fact, many of the things you'll read about informal processes in a manual might be completely wrong.

A big part of informal processes are social norms, which guide your behavior not just at work but throughout your life. For example, if your family spends lots of time outside playing basketball, then your family has a social norm around sports. Social norms at school could involve reading during free periods or making a habit of interrupting class when the teacher is talking. Simply put, social norms are the things you do because everyone is doing them.

These norms are extremely important, because they keep behavior predictable and, ideally, optimized to some desirable end state. You know when you come into work that people won't be sitting naked on their desks watching soap operas because there are norms against that. Similarly, you also know that your colleagues are going to get that urgent report done because the norm is to complete the work even if people have to do it from home.

These social conventions determine important things about the organization, like where people eat lunch, how employees talk to each other, and what “business casual” really means. What’s interesting about these norms is that they often emerge spontaneously. Although managers might try to shape them, doing it is notoriously difficult because quantifying these things is so hard.

For example, consider where people eat lunch. A lot of factors contribute to your decision about where to eat. If everyone eats at their desk, then chances are you’ll eat at your desk. If everyone goes out to eat, then you probably will as well. You might also go out to lunch because your friends do, or because food in the cafeteria is so good (or cheap—cheap food being a great motivator).

Ironically, the formality of a workplace is an important aspect of organizational culture. This appears in not only the way people talk but also in the way they dress. These norms are often partially formally specified, in terms of dress codes and gossip policies, but the way they actually manifest themselves is by and large an informal process.

Talking about personal lives at work can be a major point of contention within a company. Having a strong norm against discussing personal situations can ensure that messy personal issues don’t take over the office and helps people focus on their work. On the other hand, this creates barriers in the company that can negatively impact mental health and performance. For example, if someone were having marital problems, it would invariably affect them at work. Without being able to talk about this with colleagues, the person’s stress level could increase and have negative effects on the whole team.

The formality of dress can have a similar effect. Although suits and “professional” dress can promote a respectable atmosphere for clients, they also promote conformity. Researchers have found, for example, that pedestrians

are more likely to violate traffic laws if they see a person wearing a suit doing it versus someone in jeans and a t-shirt.

## THE SOCIAL NETWORK

The discussion so far has tiptoed around what actually constitutes the social fabric of an organization. This chapter has covered in vague terms what groups and relationships are, but really hasn't pinned this down into something measurable. Social scientists for centuries had the same problem, and it wasn't until the 1930s that a solution was posed in the form of an oft-abused term: social networks.

The social network construct is a way for scientists to get a quantitative understanding of the relationships between groups. An example can help explain exactly what a social network is and why it is such an important tool.

Imagine five people, represented in [Figure 2.1](#) with dots.



**Figure 2.1. Five people**

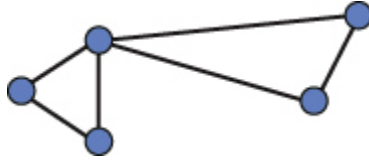
Now, suppose you want to show that one person is friends with another person. A simple way to do this is to draw a line from one dot to another as shown in [Figure 2.2](#).



**Figure 2.2. Two friends**

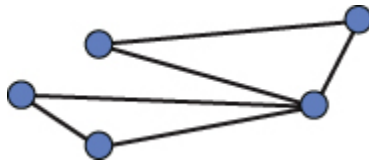


If you wanted to show not just one relationship, but lots of relationships, you would get a diagram that looks something like [Figure 2.3](#).



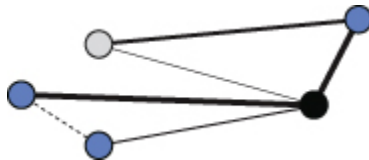
**Figure 2.3. Multiple relationships**

Now suppose you didn't want to look at friendships, but who talks to each other. In that case, the diagrams might differ from week to week. One week you could get a pattern like you see in [Figure 2.3](#), but the next week you could get something like that shown in [Figure 2.4](#).



**Figure 2.4. People communicating**

Taking this example further, what if you wanted to show not just who talks to whom, but also how much they talk to each other? You could do this by making the lines thinner or thicker depending on who was talking, as shown in [Figure 2.5](#) (two of the nodes are shaded to use in a later discussion).

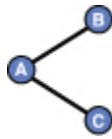


**Figure 2.5. Showing communication amount**

A few questions can be answered when looking at this diagram. The first is simple: How many people does each person talk to? You can answer this by counting the number of lines touching each dot. In a social network,

this is called the *degree*. The light gray dot has a degree of two, whereas the black dot has a degree of four.

Degree, however, is a simple measure for which you don't really need a social network. For more complicated measures, you need some way to mathematically represent a network. Luckily, these kinds of diagrams have been used in a field of mathematics called graph theory. In graph theory, dots and lines are represented in a matrix, which is essentially a table of numbers. To understand what this looks like, let's consider a very simple social network, shown in [Figure 2.6](#).



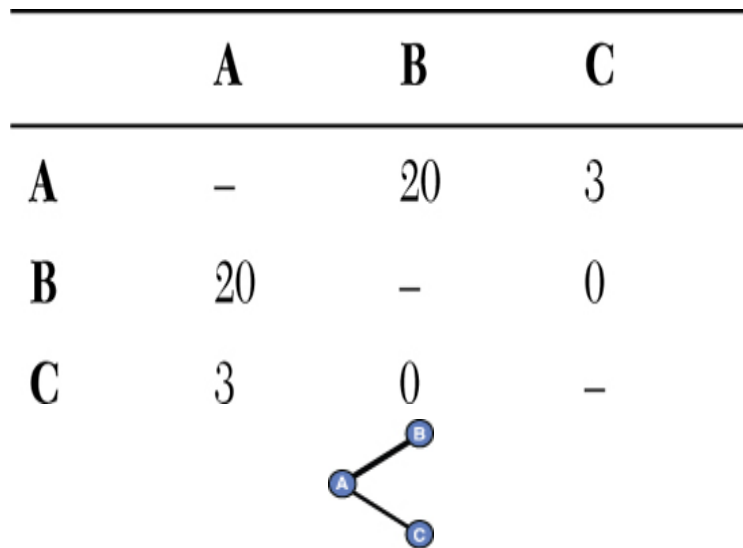
**Figure 2.6. Another simple network**

In this graph the dot (or *node* in the mathematical jargon) A is connected to nodes B and C. Mathematically, this is represented by the following matrix:

	<b>A</b>	<b>B</b>	<b>C</b>
<b>A</b>	–	1	1
<b>B</b>	1	–	0
<b>C</b>	1	0	–

In this example, the matrix is just the grid of nine entries in this table. Entry BA is 1, because you know that nodes B and A talk to each other. BC and CB, however, are set to 0 because B and C don't talk to each other. In this matrix, you don't pay attention to the entries AA, BB, and CC because that would represent someone talking to themselves (which, while humorous, isn't something discussed here).

Importantly, these entries don't have to be just one and zero. Suppose you want to show how much people communicated with each other? You could then have a matrix where the entries represent how many minutes each person talked to each other. For example, [Figure 2.7](#) would be represented by the following matrix:



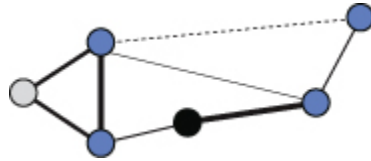
**Figure 2.7. A simple network with communication amounts**

In this matrix you can see that A and B talk for 20 minutes, while A and C talk only for 3 minutes. This representation makes an easy task of encoding not just who talks to whom, but also how much. Time, however, isn't easily captured here. To look at a network over time, you would actually have to look at many matrices, one for each time period.

With the matrix concept under your belt, let's see what you can do with this data. You now know about degree, and a computer can easily calculate degree from a matrix. It just counts how many non-zero entries are in that node's row.

However, a matrix allows you to do so much more. One major concept used in this book is *cohesion*. Cohesion is a way to measure how tightly knit someone's network is.

Conceptually, it measures how much the people you talk to talk to each other, placing more emphasis on the people you speak the most with. Take, for example, [Figure 2.8](#).



**Figure 2.8. Yet another social network**

Compare the networks of the gray and black nodes. The light gray node talks to two other people, who spend the vast majority of their time talking to each other or the gray node. The black node, on the other hand, talks to two people who don't talk at all to each other. The cohesion of the light gray node would be very high, while that of the black node would be 0.

The last big concept used in this book is the idea of *centrality*, specifically *betweenness centrality*. Take a look back at [Figure 2.5](#).

You immediately notice that there are two groups of people, and the black node is the only one who connects the two groups. This makes that person very important, because they're the only way for information to get from one group to the other. Later chapters will discuss the implications, but for now it's not hard to understand that people in these high centrality positions are generally more powerful, influential, and learn about things faster than other people.

Mathematically, you measure betweenness centrality by trying to make "paths" through the network. Imagine that the nodes represent cities and the lines represent roads between the cities. You can only drive on the roads that are already there, and for the purposes of this discussion consider the roads to all be equal in length. To

get from one place to another, you just need to find the path that takes you on the smallest number of roads.

Centrality measures what percentage of time each node is on that shortest path for every pair of nodes in the network. In the example, every shortest path from a node in one group to a node in a different group would have to go through the black node, and so its centrality would be by far the highest.

Applying this concept to organizations, you can make a social network diagram with all the people who work in a company. As you might imagine, the pattern of these connections has profound implications for how information flows and how work gets done. Studies throughout this book will use the Sociometric Badges, e-mail data, and other information to measure these social networks and investigate their relationship with outcomes that people care about, such as productivity and job satisfaction. After all, despite the discussion of these organizing mechanisms and informal processes, that's what you want to improve.

## **ORGANIZING THE PATH AHEAD**

This chapter covered the basics of formal and informal processes, but by no means was the discussion exhaustive. To adequately go into all that detail would take another book.

This chapter does, however, lay the framework for what's to come. Chapter 1 covered how data can correct some of the problems inherent in how we understand organizations today. Now that you have a sense of what fundamentally comprises a company, you can venture into the world of organizations armed with a better understanding of that nebulous concept and, more importantly, data.



### **3. The Water Cooler Effect: Why a Friendly Chat Is the Most Important Part of the Work Day**

After you get sensing data, what should you analyze first? You could go after org charts, meetings, or compensation systems, but investigating something basic would be better, something fundamental to what it means to be human—such as water. For example, look at the ubiquitous source of water in offices across the world: the water cooler.

Buying a water cooler is the single most important investment a company can make. Well, maybe that's overstating things a bit, but not by much (and no, this is not a commercial plug that Poland Springs<sup>®</sup>, makers of the finest water coolers available, paid for me to put in this book).

The reason that water coolers are so important isn't just that they slake our thirst for cool, refreshing H<sub>2</sub>O, but rather that they create a nexus of social activity in the workplace. Water coolers are where you bump into people in the office that you haven't seen in a while, and they're where you gossip about coworkers or talk about last night's game. They serve a crucial social function that desks and meeting rooms can't provide.

Although this discussion focuses on water coolers, really any watering hole in the office has similar effects. Coffee machines, kitchens, cafes, and recreational areas provide a similar environment that can greatly enhance social connectivity in the workplace.

Sadly, in the vast majority of companies the water cooler is an afterthought, relegated to some corner where there happens to be a spare power outlet. The location of the

water cooler isn't a topic of discussion at the higher levels of management, and usually is decided based on where there's enough space to put it, rather than using it to facilitate interaction.

This practice indicates a broader problem in workplaces. Companies rarely think about the things that aren't formal aspects of work, but spend years crafting org charts, setting up IT systems, and planning organizational strategy. They should be spending time doing those things. They're critical components for every major company in the world. The point is that communication and collaboration also need some attention.

## **TALK YOUR EAR OFF**

Organizations are a way to get people to collaborate with each other. Companies can make software, airplanes, and cutlery because they're able to get a group of people to work together on the millions of things that make up these products. People have just formalized collaboration into org charts, processes, and memos.

We collaborate by passing information to one another. We can communicate using e-mail, phone calls, or talking to each other face-to-face, but no one in the history of work has ever created an organization where people can collaboratively make a product with no communication. In some sense, you could argue that if people are "collaborating" on a product and not talking to each other, then they are actually making separate products that work in tandem. This is equivalent to a person who makes light bulbs and a person who makes a lamp. You can't use one without the other, but those people don't need to talk to each other to each make a fully functional product.



That's not to say that you need to talk with everyone at your company—far from it. If you work in a company with hundreds of thousands of employees, there's no way you can meaningfully communicate with everybody. You could send an e-mail to everyone, but you'll end up consuming hundreds of thousands of seconds for them to read that one e-mail. If everyone did that, no one would do anything but read mass e-mails all day. You could even try to communicate over the phone or face to face with as many people as possible, but at most you could have a meaningful conversation with about 100 people a day, which means that in five years at an average Fortune 500 company, you could have one five-minute conversation with every single employee.

Clearly, those two extremes don't make sense. So is it just the amount of communication that matters? That's also not the case.

Let's say you want to spend one hour of your day interacting with people. Reasonably, you should be able to use that time to talk with around 10 people. Which 10 people should you talk to? If only the amount of communication mattered, then you could pick 10 people at random from the company and speak with them every day. Obviously, in very large companies, that's pretty much a complete waste of time.

There's no way to start a conversation beyond idle chit-chat for people who don't share a common background. That's not to say chit-chat is always bad, but one hour of idle chatter every day probably doesn't make you any new friends or useful connections. You need to spend time nurturing relationships, finding a group, and communicating with your team so you have people with whom you can discuss deeper issues.

Leading thinkers and researchers are somewhat split on what this group should look like. You could have a core

group of people who are all tightly connected with each other, or you could cast your net widely and talk with people who run in very different circles. Welcome to the cohesion versus diversity debate.

## COHESION VERSUS DIVERSITY

In this book, *cohesion* refers to the way that the people you talk to, your network, are connected with each other. A cohesive network is one where the people you talk to talk a lot to each other. If you envision a network as a web, with dots representing people and lines representing communication, then a cohesive network is one that looks like a thick tangle of string.

Most of the time when I mention diversity, I'm not talking about it in the demographic sense. For the purposes of this book, *diversity* refers to your social connections; that is, do you only talk to people who talk to each other, or do you talk to people who are in very different places in the network? A diverse network looks like a star, with many different lines emanating from you at the center, while a cohesive network looks more like a web. [Figures 3.1 and 3.2](#) provide visual representations of what these different networks could look like.

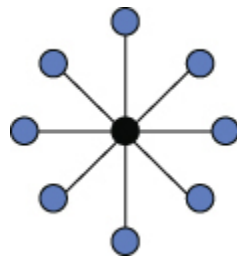
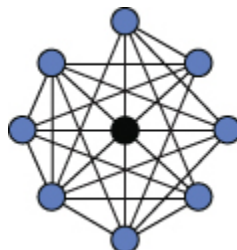


Figure 3.1. A diverse network



**Figure 3.2. A cohesive network**

The benefits of a cohesive network are best understood by looking at basketball, which is very much a team sport. Even if teams are able to cobble together players who look good on paper, there's no guarantee that talent will translate into actual wins on the court.

### **Can't Take the Heat**

The mismatch between individual talent and team success is particularly evident in the infamous case of the 2010–2011 Miami Heat team. After the 2009–2010 basketball season, a number of high-profile basketball players had forgone contract extensions to test the open market. Among the most valuable of those free agents were three players: LeBron James, Chris Bosh, and Dwayne Wade.

Depending on whom you ask, LeBron James is one of the five best basketball players to ever play the game. His immense size, speed, and accuracy make him one of the most dangerous players on the court. He's just as comfortable mixing it up with seven-footers around the hoop as he is pulling up and hitting a three-pointer from deep outside. Almost single-handedly he made the Cleveland Cavaliers, a perennial loser in the NBA, into a basketball juggernaut. However, he was never able to close the deal in Cleveland and win a title, in large part because the roster never had any long-term star players besides LeBron.

Chris Bosh was one of the most coveted big men of the offseason. Bosh does not have the same all-time great status as LeBron, but he is a huge scoring and defensive threat, putting up impressive numbers in his seven NBA seasons and making the All-Star team five times. Like LeBron, he had languished on the Toronto Raptors, barely reaching the playoffs and never making a serious run at an NBA title.

At the same time that Bosh and James were entering the market, the Miami Heat were fighting to keep Dwayne Wade on their team. Wade is considered to be one of the best basketball players of all time, slightly behind LeBron in the overall mix, with a playing style that combines blinding speed and deadly accuracy. He had already won an NBA title by teaming up with Shaquille O'Neal in 2006, but had struggled to maintain playoff relevance after Shaq's performance started to decline.

Miami wasn't content to just hang onto Wade, however. They wanted to create a basketball powerhouse, a dynasty that would deliver a run of championships to South Beach. During the offseason, the stars had aligned where they were able to pull off the deal of the century by signing LeBron, Bosh, and Wade to long-term contracts.

The NBA makes pulling off these massive deals routinely difficult due to its salary cap structure. Each team has only a certain amount that it can spend on player salaries, with few exceptions. This required the Miami Heat to shed nearly every player they had who were not named Wade and who had a significant salary attached. To understand the depth of these cuts, of the four players who started more than half of the Heat's games in 2009–2010, only Wade remained at the start of the next season. Including substitutes, these roster changes removed players responsible for 47% of the minutes played in 2009–2010.

So despite the fact that this was a massive acquisition of top-shelf talent, at the start of the season more than half of the Heat's players were new to the team. This was a group that was not cohesive, one that would have to learn quickly in order to succeed.

The Big 3, as they came to be known, of LeBron, Wade, and Bosh, started the season with great fanfare. LeBron announced his signing in grandiose fashion in a

primetime show on ESPN titled *The Decision*, proclaiming that he was “taking his talents to South Beach.” The ensuing media firestorm had LeBron defending his ego-fueled television appearance and Cleveland Cavaliers fans burning his jersey in the street. At the event where they were officially introduced to Miami fans, the Big 3 promised, “not one, not two, not three, not four, not five, not six, not seven” NBA titles, but eight.

Their first campaign for the NBA title got off to an inauspicious start. After their first 17 games, the Heat could only muster an unimpressive record of 9 wins and 8 losses. This had many calling for Coach Erik Spoelstra’s head. After all, how could a team with so much talent lose to a string of mediocre teams?

Those in basketball circles, however, were not fazed. ESPN analyst Hubie Brown stated: “Any coach realizes that when you bring six or seven new people to a team that is expected to play at a high level of execution, it takes time.”<sup>1</sup> The team was just not playing in sync; but this is something that develops over time. Players need to spend time in practice working with each other to be able to anticipate how they will respond in different situations. They need to understand the small signals that people pass between each other to convey their intentions without others knowing. All of these small things add up to big results on the floor.

Not surprisingly, things finally did start to gel together for the Heat. After their 9-8 start, they rattled off 12 straight wins, and they rode this success through the playoffs into the NBA finals, where they met the much older and heavy underdog Dallas Mavericks.

The Mavericks were the anti-Heat. Where the Heat were young and a team cobbled together less than a year earlier, the Mavericks were a veteran team, led by

perennial all-star Dirk Nowitzki. In stark contrast to the Heat, the Mavericks team remained mostly unchanged from the previous year, bringing back 10 players who were responsible for 80% of the team's minutes in the 2009–2010 season.

When you looked at the individual stats, however, the Mavericks shouldn't have stood a chance. On a per-game basis, the Big 3 of James, Wade, and Bosh outscored the top three players on the Mavericks by a significant margin, and as a team the Heat scored more points and gave up fewer points than the Mavericks. Strange, then, that many pundits and media outlets, from *Bleacher Report* to retired NBA legend Charles Barkley, picked the Dallas Mavericks to win. Amazingly enough, in the end it was those old Dallas Mavericks who triumphed.

This is a classic case of individual talent versus team cohesion. Miami was still improving, still getting to know each other on the floor. Dallas made up for its lack of heavy star power with a team-oriented approach. The general consensus was that Miami needed to play together more, to develop team chemistry.

The consensus was right. Miami won its championship the next year. Incidentally, that season the players who returned from the 2010–2011 squad were responsible for 81% of the team's minutes the previous year, slightly more than the former champion, the Dallas Mavericks.

### **Cohesion**

Cohesion doesn't just work for NBA superstars and pro sports teams. These same principles impact teams in our everyday lives. Normally, the results are just much harder to see and the teams are lower profile.

A major benefit of cohesive networks is that they create high levels of trust within the group. This trust comes

directly from the structure of interactions in these networks.

Let's consider a simple cohesive network, with four people who spend the vast majority of their time talking to each other. Suppose that one of those people wants to mislead someone in the group, maybe telling that person that she wasn't invited to an important meeting when in fact she was. In a non-cohesive network, or a dispersed network, it's entirely possible that no one would discover the deception.

This occurs because when you want to expose a lie, you need proof. Most of the time people are not looking for proof because the assumption is that everyone more or less tells the truth. Unless you are mistakenly forwarded an e-mail or bump into the deceiver at exactly the wrong time, you'll be entirely in the dark.

In a cohesive network, on the other hand, you receive a constant stream of information about your close contacts. People in your network are telling you about their work, what they did with other people, and so on. Because people in a cohesive network spend the majority of their time with each other, most of this information will be about your other close contacts. Similarly, you're constantly giving out information about yourself and what other people in your network are doing. If you're trying to lie, this means you have to constantly maintain the lie if you're asked about it. It also means that your lie will be thoroughly spread throughout your tight-knit network. If any one of those people discovers your deception, then everyone will know.

Very quickly you would be punished by the group, either through a stern verbal rebuke or by being ostracized. This makes the potential downside of lying very high, and especially for major issues, successfully deceiving the entire group would be extremely difficult.

Not surprisingly, when you're able to be open and trusting with a group of people, there are powerful psychological benefits. Stress in particular tends to be much lower for people who have cohesive networks. Job satisfaction also tends to be much higher for people in these groups.

The supportive effect of cohesive networks is analogous to its impact on trust. Instead of a lie, think about what happens when you tell someone in your group that you're having a bad day. One of them could even notice that you're feeling down. That information will quickly spread to everyone with whom you spend time. Pretty soon you'll have people consoling you, offering to take you out to dinner, or even just giving you a break on some of your work so you can take it easy.

You might be surprised that these interactions don't have to focus on work. In regards to trust and stress, in fact, it's probably better if people in these networks talk about their private lives in addition to their work life. This adds depth to the relationship, further enhancing trust and decreasing stress.

Some workplaces have taboos against talking about private lives, in a bid to keep things professional, but this makes a false distinction between work and home life. Having problems at home can affect you at work, and vice versa. When people go home, they think that discussing work matters is perfectly normal, but for a variety of reasons the opposite is often not true. However, not sharing information makes it difficult for people to support and work with each other effectively. Without having access to all the information, people at work might assume that you're lazy even though you're exhausted because your husband is in the hospital and you've been taking care of the kids yourself.



Sharing good news through these cohesive networks is also easy. If your work involves passing things off to people with whom you rarely speak, you probably won't see the fruits of your labor. This is particularly true in industries that don't make physical things that you can point to. If you're a programmer, for example, you might be writing one function of one program that is part of a larger system that makes up a piece of software.

By simply following the specs, you can make a passable piece of code, and if you really put your nose to the grindstone, you can produce some elegant code. After that code is integrated into the larger project, though, you probably won't have anyone thanking you for the extra work that you did. No one knows who was responsible for that particularly effective code. However, if you are in a cohesive group that is working together on this part of the project, you'll be personally thanked by grateful programmers who can appreciate how much work you put in.

This appreciation is another reason why job satisfaction tends to be higher for people in cohesive networks. After all, being happy at your job is much easier if you're working with people who help support you and also care about the work that you do.

Digging into this further, cohesive groups don't just have psychological and trust benefits; there is also a significant impact on communication effectiveness. As people in a cohesive network spend more and more time with each other, they also start to share communication shortcuts. In effect, they're developing their own language. This is not a language in a formal sense, but one in which people share common assumptions and are familiar with the same concepts.

Developing a common language is something that people do with every group with which we communicate. In

your family, when you refer to “Uncle Bob,” everyone knows whom you’re talking about. Someone who walks off the street into your house wouldn’t be able to engage in a discussion about Uncle Bob. She would lack that basic understanding.

This happens at a more complex level at work, and is particularly evident when you first join a company.

An internship I had at IBM is a good example of this phenomenon. When I first started, I had some sense of the work that was going on at the company, but I didn’t know about all of their activities. Needless to say, I was confused when someone came up to me and said the following:

“Are you on beehive? We could also use same time if you don’t want other people to know.”

If you’re an IBMer, you know what I’m talking about. *Beehive* is an internal social network at IBM, like an internal Facebook. *Same-Time* is the instant messaging program that IBM developed and uses internally. You can imagine my befuddlement when I was first confronted by this statement, but after a few weeks I was able to get some of the company lingo down. The point is that employees don’t just magically know this common language when entering a company. There’s a process of assimilating that information.

Company lingo is only one part of this common language. People also frequently refer to past events and organizational initiatives that you might not be familiar with. These events are typically unstated, so you find out about them almost by chance, or when one of your coworkers takes the time to explain each of these events to you. However, these events are so culturally embedded, so inherent to the organization, that realizing

that outsiders don't understand them is often difficult for employees.

In your everyday life, this can occur when you mix different groups of friends at a party. As the comedian Jim Gaffigan eloquently put it: "Don't be alarmed when you hear me speaking in a British accent." In his case, he was implying that one group of his friends knew him as British, whereas another group thought he was American. Although this is an extreme example, different groups of friends have different common events to draw on, and this can often be the cause of awkwardness when you have to constantly explain references that your friends make.

These references also take the form of common assumptions that people continually make. You might not hesitate to e-mail out a report to your whole group before your boss has a chance to take a look, but in some companies that would be frowned upon or even cause for dismissal. When talking about our work, we also make assumptions about our audience's perspective.

For example, when I was a graduate student at MIT, the idea that sensors and computers will be integrated into everyday objects such as wallets and light bulbs was very natural. We talked about these things every day, and people had long built prototypes that showed these applications were not only feasible but also very compelling. I always found it strange when a company would visit the lab and we would have to spend an hour explaining why/how you could do this. To us at MIT, it was self-evident, but to the outside world, the assumptions that we had made weren't clear at all.

A common language helps you predict how others are going to respond to you. Back during my time at MIT, a "deadline" was a fairly nebulous term that meant "have this completed in the few weeks around this date." If I

took this same attitude when I worked at Hitachi, however, I would have quickly been shown the door.

If you're at a large company, having a common language is critical. Even at an institution such as MIT, I was able to walk into a meeting with people from a different department and almost immediately be on the same page. Getting this language proficiency can take weeks, even months when entering a new company. In fact, in the business world the general rule is that when you hire a new employee, you have to expect him or her to be unproductive for three months. It's not that these new employees don't come in with the necessary skills; it's that they lack the language to communicate with others.

This same problem can pop up on a project where you're collaborating with people from different parts of the organization. For a project to run smoothly, you have to get up and running quickly. If you have to spend the first three months of a six-month project working through communication issues, you're going to be in trouble.

One of the problems with the shared context people develop is that the underlying assumptions might be wrong. Research in Motion's (RIM—the company that makes the BlackBerry smartphone) declining fortunes are a vivid example of this. Even with the wild success of the first iPhone in 2007, RIM clung to the flawed assumptions that everyone wants physical keyboards, that cellphone apps were a “fad.” These assumptions had been built over years of proven success. Everyone at RIM knew that the form factor of their phones was second to none. Everyone at RIM knew that you had to build better and faster hardware, but you could throw in the software and app ecosystem as an afterthought. Everyone at RIM was wrong.

These assumptions caused RIM's smartphone market share to plummet from a dominant 43% to an abysmal

12%. Why wasn't RIM able to quickly pivot and churn out an iPhone killer within a few months? After all, RIM had been making cutting-edge phones for years. Its technological innovations in software and hardware were unparalleled in the industry. The underlying issue was that RIM never questioned these basic assumptions, never allowed their context to evolve. With no data on which to base our assertions, people and companies are much more likely to go with their instinct, with what feels natural. At best, this leads to mixed results.

Enter the flip side of cohesive networks. They're also bad at a lot of things, especially when taken to extremes. As shown in the BlackBerry example, when you're in a closed-off network, discovering new information is incredibly difficult. Cohesive groups are also poor at influencing others. Because they're very inwardly focused, reaching out to different stakeholders to affect substantial change is difficult.

Diverse networks, on the other hand, are good at precisely the things that cohesive networks are not. They're structured to help us break out of old habits and change our perspective.

## **Diversity**

We're often exhorted to break out of our comfort zone, to have new experiences. I've always thought that was incredibly unspecific. For me, breaking out of my comfort zone could mean spending eight hours at my desk staring at a monitor or drinking coffee (not my cup of tea).

Breaking out is really about doing new things and meeting new people, and the benefits of that approach have been well documented. So, if breaking out is mostly positive and cohesion is mostly positive, which is the right approach? The simple answer, although many

researchers would have you believe differently, is that it isn't all or nothing. You can have a cohesive group that you spend most of your time with *and* have an extended network that you'll tap into occasionally to get new information.

Cohesiveness versus diversity is one of the most hotly debated subjects in social science. Without going into the nitty-gritty details, this debate kicked off in earnest in the 1970s with Mark Granovetter's seminal work, *The Strength of Weak Ties*. This paper showed that when you were looking for a job, the weak ties, or the people that you don't talk to very often, were the most important relationships to have. The more weak ties you had, the easier it was to find a job.

Later on this research started to bleed into the study of organizations, with people touting the benefits of weak ties even within companies. Other researchers, such as David Krackhardt, fired back with their own research, showing that in many cases weak ties in fact led to poorer performance. Krackhardt studied a firm that sold computer systems to business clients. He asked employees to fill out surveys about their different networks: who their friends were, who they went to for advice, and so on. It turned out that people who had very cohesive networks, especially networks where people were both friends and were relied on for advice, had much higher performance than those with weak ties.

The debate is by no means settled, but the pros and cons on both sides mean that people need a way to understand how the balance should shift in different companies. Different circumstances call for different patterns of interaction, but precisely defining when and how to shift the balance isn't possible with surveys. It is possible, however, with Sociometric Badges. These badges can shed light on exactly how organizational

initiatives, such as the all-important purchase of water coolers, play into these different types of networks.

## **BLUE-COLLAR VERSUS WHITE-COLLAR WATER COOLERS**

Understanding why the water-cooler effect is important is easy in creative industries. People in these fields intuitively recognize that interaction matters. That's why companies such as Google spend millions on creating a company culture that promotes collaboration and exploration.

The same cannot be said for blue-collar industries. Their mentality hasn't changed much from the days of the industrial revolution, with a focus squarely on efficiency and time management. Efficiency is very different from productivity. Conceptually, increasing productivity by 5% increases the size of the whole pie by 5%. When increasing efficiency by 5%, the size of the pie stays the same, but the slice of the pie devoted to worker pay shrinks by 5%. This increase is often much less valuable than increasing the size of the pie.

The reasoning for a focus on efficiency is that there is an assumption that people in certain jobs can't really be more productive. Packing workers are a prime example of this. Let's assume people are stuffing boxes as fast as they can, and on an average day an average worker can churn out 100 packed boxes. Let's say I discover a new way for people to pack boxes, and now the average worker can pack 105 boxes in a day. If the company only has to pack 105,000 boxes a day, then instead of 1,050 workers, the company would only need 1,000 workers to pack boxes.

Call centers work in a similar way. In a modern call center, often a few thousand employees sit in one huge room answering calls from customers. The company

wants employees to answer the greatest number of calls in the least amount of time possible. If it takes you less time to answer a call, then the company can hire fewer staff and become more efficient in general.

So how do you figure out how to answer calls more quickly? For a long time a lot of companies tried to solve this from the top down. Executives and managers would listen in on calls and work out strategies that could be disseminated to the rest of the organization. This method was okay, except that sifting through the millions of calls employees were making to discover successful strategies was often very hard. After all, you can't just organize calls by completion time. A problem that is inherently hard will take longer to complete than a call that involves an easier-to-solve issue. So, by trial and error, people sift through this data and sometimes come out with valuable insight. Other times they're left empty-handed.

As this practice indicates, call center management has not changed much since the 1960s. Call centers back then were organized a lot like small factories. They had about 100 people on the phones organized into teams of about 20 people, normally based on different specialties. When one person on a team was on a break, either for lunch or for a coffee break, no one else could be on a break. The reason was fairly straightforward: If 20 people went on a break at lunch, keeping up with demand would be impossible.

Fast forward to today. Now with thousands of employees, modern call centers no longer necessarily have to choose between call load and team break times. However, that's the way things have been done for decades, and there's no real incentive to change—or so everyone has been led to believe.



## **BANKING ON CHANGE**

Before diving into how my research group from MIT worked on this problem, I want you to imagine what working in a banking call center is like. You get in at 8:30, put on your headset, and immediately start answering calls. The first person who calls you yells so loud into the headset that you have to turn the volume down. His credit card just got denied, and how can you people run a business like this? He has thousands of dollars left before his limit! You apologize calmly and start looking into it, and for five minutes nothing but vitriol pours through the headset—and this goes on call after call after call.

Working in such a call center is stressful—monumentally so. Your entire day is people yelling at you for stuff that's not your fault. When you finally go on break, no one you know is taking their break. There's just a total lack of social support. It's no wonder that turnover in call centers is 40% per year.

Turnover isn't just a problem for the people who leave and have to find another job. It is psychologically draining to the employees who remain, because seeing your colleagues burn out and quit leaves you with one less person to talk to, one less person to go to for advice. Monetary effects follow as well. Every time a veteran employee leaves, the call center needs to spend months getting a new person up to speed. Not just on formal procedures such as how to answer the phone and how to use the computer system, but also acclimatizing the person to the culture of the organization (see [Chapter 2](#)). So not only is working at a call center psychologically difficult, but employees constantly head for the door, deflating morale and adding enormous cost to the company. Typically, companies spend 25% of a veteran's yearly salary to hire and train a replacement.<sup>2</sup> All of a

sudden, the toll this environment takes on workers has real economic significance.

One reason we know how much this costs down to the dollar is that call centers are some of the most quantified organizations on the planet. Call center managers measure how quickly people complete calls, how many times they put people on hold, how many mouse clicks employees use during a call, and they even record call content to analyze what went right or wrong. Employee breaks are similarly measured and planned. Precise breaks are allocated to individual employees to ensure maximum uptime on the phones while complying with federal work standards.

The issue of breaks is interesting because in the modern company they have traditionally been viewed with disdain or at least passive disapproval. In many companies, always looking busy is important. Not surprisingly, taking a break to schmooze by the coffee machine or water cooler can lead to negative assessments by coworkers. The common impression is that even the appearance of talking to a colleague about non-work-related activities means that you don't care about your job and must not be working hard enough. This perception turns the coffee area into a barren wasteland, perfectly clean, perfectly stocked, and completely free of socialization.

I've been to many companies where eating lunch at your desk was standard practice. Rather than communicate with coworkers, people felt more comfortable surfing the web and looking at cat videos on YouTube while slurping last night's leftovers. Not that looking at cat videos isn't hypnotic and fun once in a while, but I haven't yet seen a study that proves that extended cat video viewing is correlated with higher productivity.

Lunch is one of the most important times of the day, not only to physically recharge our batteries but also to take some time to network and communicate with others. This idea has been explored in depth in books such as *Never Eat Lunch Alone* by Keith Ferrazzi, which details how people who eat lunch with others advance faster in their careers and perform better in general.

Although to some having lunch with others might be viewed as an additional burden and detract from a much-needed physical break, this strategy ignores a perfect socialization opportunity. For those of us who simply can't make it through the day without reading a bit of trashy news or something else distracting on the web, taking that break separately from lunch is best. You can then preserve your opportunity for socialization but also take some time for yourself.

Both of these activities are part of your work. Communicating with others is work, as is resting your body. The benefits of both have been tangibly demonstrated time and time again, although mostly in the blue-collar workforce. Even at the height of the industrial revolution, when factory workers could be thought of quite literally as cogs in a machine, they still took breaks. Even Taylorist (see [Chapter 2](#)) managers who maintained strict work plans and provided only a few minutes each day for breaks realized that workers were much more productive if they had time to eat and take care of biological necessities. This cold, hard reality forced the hands of these calculating factory owners, and this influence is still felt today.

An interesting study on the benefits of breaks took place in a meat packing plant in the U.S. Initially, this factory implemented standard lunchtime and bathroom breaks for its employees. Like call centers, breaks were staggered so that no one on a team would be on a break

at the same time. Unfortunately, turnover and fatigue concerns plagued this plant. Researchers showed that creating breaks that were long enough to provide for cohesive interactions significantly reduced employee stress and might help stem the tide of defections and re-energize the workforce.<sup>3</sup> Other research on factory rest periods devised a cryptic name for this kind of break: “Banana Time.”

## **PEANUT BUTTER JELLY TIME**

The principle behind Banana Time was simple. Workers in factories undergo a ton of physical stress, but they also have a lot of time to think. Working in a meat packing plant can be a very mechanical activity; after you get into a rhythm, breaking out and experimenting with new ways of working can be hard. After all, if you can pack 200 boxes an hour and you went down to packing 50 boxes an hour while trying a new method, your paycheck would suffer. What if you were able to learn from the way other people were working, and you could copy their success and discuss new strategies?

The exchange of work-related information is a second direct benefit of breaks. Beyond the physical respite a break provides, it can also create a platform for ideas. People who have the same job but otherwise don’t communicate have the opportunity to compare notes at a high level. Technical terms that might be missed by those not on the front line can be freely exchanged during these breaks. No translation is needed because these people represent a cohesive group of workers.

This type of interaction is fundamentally different from a meeting, which filters ideas through management’s idealized view of work. Much like the Toyota production system provided through formal channels, breaks create an opportunity for front-line employee feedback to spread through informal channels. In the original

Banana Time study,<sup>4</sup> information sharing during breaks allowed new techniques to percolate through the worker network until these practices were recognized at the company level. These bottom-up innovations were then integrated into training programs and the standard processes of the company.

A complementary third benefit of breaks addresses the mental fatigue associated with these jobs. Previously, workers did not have the opportunity to vent to coworkers or socially support their colleagues. They were alone on the packing floor, grinding away for hour after hour, alone with their thoughts. This by itself can be quite taxing, because staring at raw meat for an entire day can do things to one's appetite, not to mention one's state of mind. Throw in personal problems at home or other things eating away at you, and one can easily see the strong negative impact on productivity and mental health.

On a break these topics are open for discussion. Rather than have to bear all of this stress and physical toil alone, people can complain to coworkers and vent a little steam, or bring up personal issues that have been weighing on their mind and ask for advice. The alternative is to let these problems fester, to let stress at work and at home build up until it's unbearable. Like a pressure cooker left on the stove, it's only a matter of time before this situation explodes, causing people to quit and remove themselves from the whole situation.

These personal discussions go hand in hand with work-related conversations. One is not necessarily more important than the other, but both types of conversations have tangible benefits. Work-related discussions transfer relevant information between employees and can lead to new innovations. Social conversations create trust, build rapport, and relieve stress.

At different times one or the other type of conversation can be more effective. If deadlines are looming and there's pressure to deliver results, sharing work-related information is probably more helpful. If workloads are piling up or it's a particularly stressful time, then social conversations will be more useful. By mixing and matching these conversations appropriately, people can achieve powerful results.

This makes it all the more puzzling that in spite of these benefits many companies have been pushing to reduce breaks. This is especially true in blue-collar work, where companies stick to government-mandated minimums and make sure employees know that they're on the clock whenever they're not doing physical labor. This mirrors the trend in white-collar work discussed earlier, but with the much higher probability of burnout in physically demanding, high-stress roles.

Interestingly, in call centers in particular, some people view turnover as a feature rather than a bug. This view treats people as replaceable cogs in the call center machine and argues that performance degrades over time, and therefore companies shouldn't worry about people burning out. This perspective was laid out in a study by Catriona Wallace from the University of New South Wales,<sup>5</sup> which showed that at one particular call center, productivity was negatively associated with tenure.

Without getting too much into the specifics, the idea is that people work less effectively as their stress increases. As already discussed, call centers are inherently stressful workplaces. Rather than attempt to devise policies to reduce this stress, under this "burn-out" strategy companies merely need to calculate when the loss in productivity due to stress becomes greater than the cost to train a new employee. At that point, it's time to either

get rid of that employee or crank up his workload to make it very likely that he'll quit.

This calculation makes a number of assumptions about call centers and businesses in general that seem suspect. First think about how a call center employee would react to being treated this way by an organization. He would immediately realize that there isn't a future for him in this company beyond a year of employment. Although that's not necessarily something to thumb one's nose at, it certainly affects how an employee will interact with a customer. Without the prospect of a continuing career or advancement, why would anyone go the extra mile for a customer? Simply keeping his head down and trying to deal with a difficult call by minimizing the time that he spends on it is much better than actually trying to solve the problem. This tactic decreases the time he spends on the phone, but it would have a huge negative impact on the customer experience and would very quickly start eroding a company's customer base.

On top of this reduction in customer satisfaction, there would be far-reaching effects on morale. When everyone an employee knows is being chewed out and treated poorly by the company, he will start to think pretty quickly about changing jobs. Eventually this toxic environment would lead to an acceleration in turnover, forcing the company to rotate in new employees faster and further increasing costs. Wallace assumes that these employees are low-skilled enough to not have many job prospects, implying that they would stick it out at a job they hate rather than look for other employment. This premise might be right up to a point, but at the very least, people would start looking for other positions almost immediately. Because a fraction of these people would be able to find at least some work, turnover is bound to increase.

When these employees walk out the door, not only do they take with them their individual contributions, but also the tacit knowledge that they acquired about how to do their job effectively. These are the little tricks about work that make things just a bit easier, the pieces of knowledge that slowly spread across a workplace. These tricks could be something as simple as how to circumvent a laborious part of a software program or as nuanced as how to deal with enraged customers screaming at the other end of a phone line. If employees are turned over too quickly, not only do they have less time to uncover these tricks, but a much shorter window exists in which they can share this acquired knowledge. Again, this turnover would exert strong downward pressure on performance across the whole call center operation.

Lastly, and very significantly, turning over employees quickly means that the company sheds any potential future leaders before they even get started moving up the ladder. CEOs from companies as storied as McDonald's, Goldman Sachs, and General Electric started in entry-level positions, rising through the ranks to become the captain of the ship. So not only are companies throwing away organizational performance in the mid-term, but in the long term as well.

## **BREAK VALUE**

To many companies, arguing about the value of breaks is a non-starter. They have been trained over decades to view performance and work as something that happens at a desk, and no amount of subjective arguments will sway their stance. To change this mindset, and that of the business world as a whole, tangible evidence is needed.

This evidence is something that call center employees in particular have been searching for. How could they



demonstrate to their employers that they should be able to take breaks with other people? Most of these workers understand all too well the stress of their jobs, and realize that if they don't have tools to deal with it effectively, they will end up burned out and be forced to quit. The conditions were ripe for a project with the Sociometric Badges.

My MIT colleagues and I were approached by Bank of America (BoA) to study precisely this problem of burnout and call center performance. BoA had an interesting issue related to call centers. For some background, note that this company has one of the largest financial call center operations in the country, with thousands of employees stationed at call centers across the United States at all hours of the day.

As in other companies, BoA standardized its call center operation. Its call center in Rhode Island had roughly the same org structure as one in California, the same IT systems, and the same training programs. Employee demographics were also quite similar, with most having high school diplomas and a few with college degrees. Everything that could formally be put into place was the same—and yet, performance was different. Despite all of the similarities between employees in different locations, something about these call centers couldn't be quantified with other methods.

The one possible cause of these differences in performance was culture. Some of these call centers must have different collaboration styles, different cultures, that cause them to be more or less productive. However, there isn't a general understanding of what the term *culture* actually means quantitatively.

The study took place at one of Bank of America's call centers. Our goal was to measure how people interacted and behaved to understand what was making people

successful. These call centers typically have thousands of individuals, so instead of looking at everyone, we focused on a few of these teams. By concentrating on the differences across these groups in depth, we hoped to derive general lessons about productivity that could be disseminated across the company.

Notice that I haven't mentioned anything about breaks in this study. From Bank of America's perspective, breaks were not necessarily a consideration. Remember that call centers have been managed one way for more than half a century, and there wasn't a feeling that changes in this age-old break structure would bring any lasting effects. However, BoA knew that something with this traditional model was amiss.

To study these teams in detail, we collected not only badge data, but also performance metrics, demographic information, survey data, and e-mail records.

The performance metrics were relatively simple. Essentially, an employee's performance boils down to how quickly she completes calls on average. In the past some clever people had figured out that they could improve their metrics by hanging up on a customer right at the beginning (or middle) of a call. This would look like a short call from the company's perspective, and so would improve your overall performance numbers. These calls were naturally removed from any calculation of performance for the purposes of the study.

The demographic information we collected was also fairly basic: tenure at the company, gender, age, and a few other features. This information was collected mainly to identify whether any aspect or combination of aspects of particular individuals might lead them to behave in a certain way. For example, you might expect that someone who had been at BoA for a long period of

time would have a more tightly knit group of friends than someone who had been there for only a year.

These differences could be further explored with the survey data. Each year employees were surveyed by Bank of America about their stress levels, communication with managers and coworkers, and their overall perception of the company. Stress levels are particularly important at call centers because high stress is a precursor to turnover. If the bank noticed a particular team had higher stress levels than others, it would try to investigate the causes further. For our purposes, this stress data enabled us to investigate behavioral patterns that help mitigate these effects.

In addition to all of this data, we had a few other critical pieces of information. We knew when people took their breaks and when they got lunch. This was important because it enabled us to see what was actually going on during those break periods. Who were people talking to? What were they doing? By combining these different data sources, we were able to get to the heart of the problem: What is it that makes people effective?

## Study Setup

The study itself was composed of about 80 people across four teams at one of Bank of America's call centers. We collected data in four-week stages, because in our experience two weeks is roughly one "cycle" of behavior, and there are fairly stable dynamics at the four-week mark. These cycles occur because every so often people go on vacation or take off sick. When the people you communicate with aren't around, it naturally has powerful effects on the way you interact with others. Random external events can also impact behavior, such as a major sporting event or an international crisis. These events can significantly change people's behavior on a particular day. For example, they can spend the first hour of the day talking about the Super Bowl or a natural disaster in another country.

The groups studied were located in different areas of the call center, which itself was basically a huge single room with rows of cubicles for the roughly 3,000 employees that manned the phones. Some variation existed in this physical layout, however. One of the groups had cubicle walls that were below eye level and desks that were about one meter longer than other groups. The other three groups all had high cubicle walls that completely blocked their view of the other people on their team.

When we introduced the badges to participants, management had some trepidation as to what the reaction of employees would be. In particular, the potential perception of the badges as a "big brother" intervention was a concern. After presenting the study plan and the technology, however, we got an extremely positive response. For years employees had tried to convince their managers that their interactions with other workers were important, but they had been unable to tangibly demonstrate the benefits. They felt that this was a huge opportunity for them to show that value.

Bank of America was also focused on showing value. Although they were interested in understanding what unseen aspects of call center culture were responsible for performance differences, the company was more interested in improving them. They wanted to identify specific changes they could make to the way that their people worked and measure the effects of those changes.

This study took place in three phases: The first phase consisted of the initial measurement of the call center teams. After analyzing the data, we would propose and implement changes in work processes at the call center. The second phase was a normalization period of three months, where we would wait for the changes we implemented to become part of the regular process. The last phase was a re-measurement, where we would precisely gauge the behavioral and productivity effects of these changes.

You might ask why the second phase was needed. After all, the impact of a substantive change in the way people work should manifest itself almost immediately after implementation. Everyone has experienced this type of effect at one time or another. A good example is the transition from elementary school to middle school. Although most students aren't able to adjust to this transition immediately, after a few months they settle back into a state of normalcy.

Although behavioral dynamics such as movement and interaction patterns do tend to settle down, other changes can easily upset these dynamics. A major cause for disturbance happens when people are observed. This is experienced by many of us when we take our first driving test. The tester gets in the car with you, and all of a sudden your awareness changes. You might get nervous or suddenly forget months of parallel parking practice, and all because you're being observed.

This phenomenon is known as the *Hawthorne effect*. This effect was formally identified in the early 1930s by researchers studying the Hawthorne Works factory in Cicero, Illinois.<sup>6</sup> These researchers wanted to understand the effect of light levels on employee performance. They designed an elegant study where they would subtly change lighting levels each day and gauge the impact. At first they made the factory floor brighter, observing that performance went up very significantly. Next they turned the lights down, expecting to see a drop in productivity. Instead, they saw the exact same uptick.

Researchers were initially puzzled over these results. Then they hit upon the truth: The workers knew they were being observed, so they endeavored to work harder no matter the change.

In our Bank of America call center study, the three-month break period was put in place to avoid placing emphasis on any initial reaction the employees would have. Three months later, any change we made would have become normal practice. This would enable us to measure the actual effect of our intervention.

With this structure in place, we had only one small hurdle in front of us: deploying the badges.

## **Deployment**

You can't just roll into a company with sensors like the badges and say: "Here, wear this." Most people, including me, just wouldn't feel too comfortable putting on an unknown device that recorded "something" about our behavior.

With that in mind we visited this call center in the suburbs of a mid-size New England city. Standing up front were the badge team from MIT: myself, Taemie Kim, and Daniel Olguin. We were quite the international

team, with each of us from a different country—the U.S, South Korea, and Mexico, respectively. People filed into the meeting room where we would present our plan for this project, and their eyes strayed curiously to the small box hanging around our necks.

We explained how this project would work. In a few weeks, we would give everyone who chose to participate a Sociometric Badge, but anyone who didn't want to participate could wear a fake badge that wouldn't collect any data. As far as what data the badge collected, we described the different sensors and their functionality in detail. They could also find a description on the consent forms that we handed out, required by MIT's internal review board to ensure that people understand what they're agreeing to. No individual data would be shown to managers, and their names wouldn't be directly tied to the data collected on the badges.

When we returned, we had to set up the office for data collection. The wearable badge itself is quite easy to use. You simply flip the power switch and hang the badge around your neck. At night, you take off the badge, flip the power off, and plug it into a USB charger. To recognize location, however, we had to put base stations up around the office.

A base station is essentially a wearable badge attached to the wall. Every 10 seconds the base station sends out a ping over Bluetooth. When a wearable badge receives that ping, it can estimate the distance from the base station. By receiving pings from multiple base stations, we can triangulate the signal to figure out where someone is to within about one meter. In order to make these calculations, a researcher has to take a wearable badge and stand in different locations for a few minutes, measuring changes in the signal strength from the different base stations. This is essentially the same way

that phone navigation programs work, using Wi-Fi access points instead of Bluetooth.

With the call center thoroughly badged up and prepared, the data collection could begin.

### **First Results**

In the first phase we collected thousands of hours of badge data, tens of thousands of e-mails, and a plethora of productivity data. With this incredibly rich dataset, we could drill down to the millisecond level and understand the context of the behavior we were observing. At first we decided to look at broad trends and see what behaviors were predictive of important outcomes.

Examining the e-mail data, we saw something that at first was almost too perfect to believe. When we plotted the network of e-mail communication between participants, what we saw was almost link-for-link a mirror image of the org chart. There was practically no communication between peers who were on the phones with customers, or for that matter even team managers. All the real communication, if it was happening at all, was happening face to face.

This observation probably shouldn't have been too surprising. E-mail is good for communicating rote information, and so what we were observing was top-down dissemination of simple directives to the front-line employees. To exchange tips on how to deal with customers or to vent about difficult calls, e-mail isn't the appropriate communication medium.

Obviously, this result has implications for the future of call centers. Many companies, including BoA, have placed large bets on a distributed call center workforce. Buying desks and computers for employees, setting up a secure connection at their house, and letting them work



from home is easy enough. With no commute for employees and no expensive office space for the company, this would seem at its face to be an ideal solution. The results from the study, however, indicate that if there is any value in communication between employees, the IT tools that are typically available to call center workers are woefully inadequate.

So what about face-to-face interaction? This was, relatively, a much more active communication channel. Employees on the phones interacted with three other employees on average (actually 3.06), and these were almost exclusively other people on their team.

This data became more interesting when we mashed it up with performance and stress data. As far as general statistics are concerned, on average it took employees 263 seconds to resolve a customer call, only a shade over four minutes. Given my personal experience (and frustration) contacting call centers, this seemed exemplary, but the picture was not all rosy. Employees were under a moderate amount of stress, with the average stress rating coming out to 3.07 on a scale from 1 to 5. This might not sound too bad, until you realize that this is their level of stress *all the time*. We expected a result like this given the high turnover typical in call centers, but these numbers point to the substantial problems affecting these workers.

We then got around to testing our hypothesis and correlating these different data sources. Given the numerous arguments listed previously, we expected cohesion to be positively related to productivity and to be associated with reduced stress. Our hypothesis was not only confirmed, it found that cohesion was far and away the single most important factor in regards to productivity and stress.

This point is difficult to understate. To get a sense for the magnitude of the importance of cohesion in worker productivity, cohesion was about 30 times more important than experience. Put another way, having a network that's 10% more cohesive is equivalent to having an additional 30 years under your belt at a call center.

However, these positive benefits weren't confined to productivity alone. Cohesion was strongly related to lower stress levels, albeit not to the degree that we observed with productivity. That being said, high cohesion was responsible for reducing stress by around 6%. Clearly, it is a useful weapon in the war against burnout and mental fatigue.

We examined other factors as well: total amount of face-to-face interaction, network centrality, degree, and so on. However, none of these features were significantly predictive. This seems to be a story about the positive effects of cohesion. The question was: Where did this cohesion come from and how can BoA increase it?

We had to devise a strategy to distinguish interactions that increased cohesion from those that decreased it. Essentially, our program went over each interaction and measured what the effect of removing that interaction from the network would have on the overall cohesion level. We then overlaid these interactions with location and time information to see what places were hotbeds of cohesive interaction. By looking at this "heat map" of interactions and varying it over time, we were able to investigate what activities were actually leading to these important conversations.

The results couldn't have been clearer. Neither formal meetings nor people chatting at their desks encouraged higher cohesion. The vast majority of these interactions were happening away from the desks, during the brief

periods of overlap between the lunch breaks of employees on the same team.

This was completely counter to the management dogma on call center operations. The story had continuously been one of efficiency, of aligning work schedules, of reducing interaction. But we had brought hard, objective data to this problem, and had uncovered the harsh reality that people were just doing it wrong. To run the best call center organization, a company needed to encourage cohesion, and to do that it had to align breaks.

After the results of this first phase were shown to managers, they were floored. Mostly they lamented all that the company had lost by managing these groups in the traditional style for so long without checking their assumptions. Still, we needed to test whether or not this was a causal relationship. We needed to move into the second phase, giving people on teams breaks at the same time and observing the results.

### **Give Me a Break**

We changed the break structure for the teams we studied so people on the same team all had the same 15-minute coffee breaks during the day. That was it. Although we shared the results of the study with the teams, we didn't tell them who they had to talk to during these breaks. Our assumption was that if you're on a break with your team, you'll probably talk with the people that you normally talk to. This would by definition increase the cohesion of your network. Rather than forcing people to do something, we're setting up the environment in such a way that they will naturally interact in a way that will make them more effective.

From the bank's perspective, this intervention was free. It wasn't giving employees more breaks, just shifting when they took a break. Because the company has

thousands of other call center employees, shifting the load to other teams was fairly straightforward. This made it easier to convince BoA that aligning breaks was the right thing to do. Now all we had to do was wait three months to see the effects.

### **Final Results—Breaking News**

It was not without trepidation that we returned to the call center three months later to see what had happened. Did anything actually change? Were people interacting with their core group during breaks, or did they just bring coffee back to their desks and drink their java in solitude?

Few personnel changes occurred in the intervening period. Some people had left BoA, but overall the group remained more or less the same. We did note that the groups we had studied had low turnover. Over a three-month period, only about 3% of people had left the company, implying that the turnover rate on a yearly basis would be 12%, drastically lower than the 40% industry average.

This result was encouraging, and lent us confidence as we handed out badges for the final phase of this project. We were going to collect data for another four weeks, and at the end of it, we would have a definitive answer. Do breaks really make people more effective?

The results were clear-cut. Cohesion was up by 18% in the third phase, an extremely significant result. This is like adding 50 years of experience to each employee, a truly astronomical number. These teams had become far more cohesive than they were before, but at a certain level this result isn't surprising. We had set up the environment so that this was almost bound to happen.

The impact on the bottom line was equally powerful. The performance increases associated with this intervention would conservatively yield \$15 million in yearly savings on call center costs across BoA. Changing how people spent 15 minutes of their day yielded \$15 million.

This result is truly astonishing. When we talk about performance gains of this magnitude, increasing performance by double-digit percentages, the normal reaction from companies is “Wow, we have to change everything to achieve that kind of growth.” What these results show, however, is that companies don’t need to think about these massive changes to achieve huge gains. If instead they can find the social levers that people are responsive to, and act on them in the right way, they are going to get big results.

Overall, the study showed definitively that breaks matter as a way to increase cohesion. Not only do they matter, but they’re also crucial to the effectiveness of companies in general and call centers in particular. Rather than thinking of information exchange and social support as something that only matters in the most creative and high-level jobs, this study shows that it matters even in organizations as seemingly straightforward as call centers.

So what’s the most important place in the office? It’s not your desk or the CEO’s office or a meeting room. It’s the simple, inconspicuous water cooler.

## 4. The Death of Distance?: Measuring the Power of Proximity

With companies not just to a single location, but more and more frequently spread across the globe, how much does having a water cooler (see [Chapter 3](#)) really matter today? It's not hard to imagine that the water cooler effect will gradually fade in importance as workforces become more and more distributed and as technologies allow workers to collaborate more effectively across huge distances.

The revolution in communication technologies continues, slowly lowering the barriers to remote work. From e-mail to instant messaging to video conferencing, each has served to make collaboration over distance much easier than in the past.

For decades these communication technologies did not fundamentally change the way that people worked. Yes, now companies could have branches in different locations, and as an employee, you might be working with someone whom you didn't meet face to face, but you were still going to work in an office. You still commuted to work and had coworkers who were physically in the same place as you. In the 1970s, however, this model started to shift.

The term *telecommuting* was first coined in 1973 and encapsulated this change in work. Information technology had advanced to a point where some people could do their job from home part of the time. Particularly for people working in computer-intensive jobs such as software development or even factory management positions, telecommuting can be an attractive option.

One of the main benefits of telecommuting is that workers are able to balance their personal and professional responsibilities. If your child is sick and has to stay home from school, for example, telecommuting gives you the ability to work from home and take care of your child at the same time. As any working parent can attest, this benefit offers substantial relief from the frantic scrambling to find a babysitter that typically occurs in this situation.

Telecommuting was originally conceived as an occasional perk. If sometimes you needed to work from home, you could feel free to work a few days a month in your pajamas. Over the following decades, however, this model also started to change. Instead of people staying at home one day a week, this gradually stretched to two days, then three. Eventually, some organizations found it desirable to have people telecommute every day.

One of the places where telecommuting first manifested itself was call centers. In call centers, having employees talk to each other was never thought to be important, so having people work from home was a logical step. Physical space could be reserved for someone else.

Telecommuting also began to expand over time. Rather than having individual workers opt into these programs, companies began closing down entire offices and making whole branches of the company virtual. Now some companies just need to pay for an employee's Internet connection and office supplies. There are no leases to sign, no cleaning crews to hire. The reduction in employee commuting times also meant that people could spend more time with their family and even more time working if they so chose.

This change hasn't been confined to call centers. Organizations in nearly every sector are embracing what are being called "virtual organizations." Two guiding

principles of these organizations are efficiency and flexibility. The idea is that these organizations are efficient because moving physical bodies around wastes a lot of stuff: time, fossil fuels, and the monetary cost of maintaining a physical office. The average American spends about 50 minutes per day commuting. Splitting that time evenly between family and work would enable people to spend 5% more time working—not an insignificant number.

These organizations can also be more flexible because telecommuting employees are able to choose whom they spend time with. Because they can't bump into people in the hallway or be roped into lunch with coworkers, they can't be randomly "interrupted." Instead they have to rely on e-mail, the phone, and tools such as Skype to talk to other people. All of these tools are used in a completely intentional way, so telecommuters can set up meetings and calls only with those people with whom they absolutely need to communicate.

An interesting parallel to the telecommuting trend is *offshoring*. Offshoring generally involves taking a part of a company and placing it in another country, typically one where the cost of living is far lower than in the original location. Classic examples of this trend include transplanting call centers from the U.S. to India or moving software development to eastern Europe. Although these offshored divisions usually need to interact quite frequently with their onshore counterparts, the rise of remote collaboration technology has made offshoring a much more palatable option for business leaders.

The decision to offshore an operation is nearly always based on economic considerations. As education levels in the developing world have caught up to more traditionally advanced countries, there is no longer a



strong concern about a drop in production quality due to unskilled workers. In fact, because people in developing countries often have to deal creatively with challenging problems, their location can actually contribute to greater innovation.

An intriguing example of this phenomenon comes from the Nirma Institute of Technology in India. In the early 2000s, students in the computer science department of that university wanted to do research on virtual reality. Unfortunately, even the least expensive virtual reality gloves cost hundreds of dollars. This was well out of reach for the vast majority of students at the time. They had to develop a lower cost alternative to perform their work.

Playing around with a computer mouse, they hit upon the idea of attaching multiple mice together into a glove-like contraption. A string would attach to each finger, which would then attach to a mouse wheel. Bending the fingers in a particular direction would cause a corresponding movement of the mouse wheel, which would be fed to the computer. In that way the students were able to create an extremely accurate substitute for a virtual reality glove for around \$20.

Companies look at examples of this kind of ingenuity and realize that if they can get one of these students to work for their company at half the cost, they are probably getting a good deal. As this trend accelerates, suddenly companies are no longer considering offshoring one part of an organization but many. Most major organizations have operations on multiple continents and dozens of countries. IBM, for example, operates in more than 170 countries. Given that as of 2012 approximately 195 countries exist, IBM is about as “global” an organization as you can get. Most companies that make extensive use of remote workers and offshoring, however, don’t look at

the results of these changes beyond the immediate impact on their personnel costs. In order to determine the real effect of these practices, you need to look at some hard data.

## **SO, SHOULD I STAY AT HOME AND WORK IN MY PAJAMAS?**

The question on many people's minds is, "Should I stay at home and work in my pajamas?" I'm not exactly a morning person myself, and I have to say the temptation to walk around my house in slippers sipping hot cocoa is pretty strong. Besides a significant increase in cocoa consumption and the ensuing increase in my waistline, what's the downside?

First, let's talk about telecommuting. It represents a flexible kind of workplace, where you only stay home when going to work is very inconvenient. In general, few downsides exist for this arrangement. Sure, you might miss a few interactions at work, but from that perspective, a day at home telecommuting is essentially equivalent to taking one day of vacation. Ample evidence shows that vacation and recharging in general are good for worker performance, and if you had to go to work knowing you had five hours of errands ahead of you when you got home, you probably wouldn't be very effective.

Ideally, however, telecommuting should be used somewhat infrequently. The principle behind telecommuting is that you can work from home when necessary, but you're still coming into the workplace the vast majority of the time. By contrast, when people only work from home, they are completely cut off from the physical workplace.

Let's consider the case where you're the only person working from home while the rest of your colleagues

continue to go to the office. The time your colleagues would have spent interacting with you face to face is reallocated to

- Interacting with other people
- Communicating with you via other channels

The main interactions that are lost are social in nature: the bumping into other people and the schmoozing that happens before and after meetings. Because they're not strictly work related, these interactions are much less likely to be continued after someone becomes a remote worker. Communication that is necessary to complete specific tasks, however, shifts to e-mail, phone, and video chat.

So how does telecommuting impact individual performance? Let's look at the numbers. In the call center study from [Chapter 3](#), my team and I were able to measure the effects of face-to-face interaction, and we also collected e-mail data. E-mail was a perfect representation of the org chart. In other words, peers didn't communicate with each other electronically, and e-mail communication in general had no correlation with performance. Removing face-to-face interaction and cohesion from consideration in our model of productivity leaves an average call handle time of 297 seconds.

The average call handle time in the original dataset was 263 seconds, which implies that if we completely eliminated face-to-face interaction for an individual call center employee, we would expect performance to decrease by 12.9%. This is an incredibly significant effect. If we sent all call center employees home, we would have to hire 12.9% more people to handle the same call volume. At an average salary in the U.S. of around \$30,000, in a call center operation such as Bank of America's with more than 10,000 call center employees,

this translates into an additional expense of at least \$38 million.

This equation also leaves out the mental toll this action would take on workers. We would expect to see stress increase quickly as well, with a 13.1% increase in stress if we remove face-to-face interaction. Not only would removing this interaction make a hard job even harder, but it would contribute to turnover and further add to the cost of running a call center operation.

These costs have been examined in creative industries as well. For better or for worse, some teams are required to be entirely virtual. If you're trying to run an international advertising campaign, for example, you need people on the ground in many different countries collaborating with each other. In general, these teams are far less effective than co-located teams (teams in the same location). They trust each other less, and completing tasks takes them longer.

Elena Rocco from the University of Michigan designed an ingenious study<sup>1</sup> to test some countermeasures for low distributed team performance. Rather than only study whether face-to-face groups work better than remote groups, Rocco had one experimental condition where people met face to face before going off and working remotely. The idea was that by getting a feel for the other people on your team when you met in person, you would know how to respond to them better and interact on a deeper level when you were no longer co-located.

In her study, face-to-face teams were the highest performers, but they were followed quite closely by teams that met face-to-face first and then worked remotely. Groups that only worked remotely were by far the lowest performers. This study shows that getting everyone together in person before kicking off a project

is probably worth the cost of a few plane tickets, even though doing so is not practical in all circumstances.

Offshoring is a different beast altogether. When a company places parts of the organization in separate locations, collaboration within a division is not necessarily the issue. Rather, problems come from coordination between divisions. Language problems can, of course, contribute to these difficulties. At a basic level, if people literally can't speak the same language, then they will find collaboration challenging. Beyond that issue is the potentially acrimonious relationship that can develop between groups who are based in different locations.

Michael O'Leary and Mark Mortensen from MIT explored this problem by examining the configuration of groups that were collaborating in different locations.<sup>2</sup> Specifically, they looked at the number of team members in different sites and saw how this distribution related to team success. Their main hypothesis was that an imbalance in the number of people at different sites could cause individuals to identify as part of different groups, drastically reducing trust and productivity.

One might believe that the evenly balanced or far out-of-balance teams would have the most trouble. After all, two groups of equal size might both want to claim ownership of a project. On the flip side, if one group is vastly bigger than another, you would expect them to run roughshod over the smaller team. What the study found was a different story.

Groups that were relatively even were actually quite productive. Because the teams in different locations were of equal size, they didn't feel threatened by the other group. This enabled them to work out their differences equitably. In the very imbalanced groups, a similar effect was observed. In this case it was never a question of what

group was in charge, because the larger group could always override the smaller one. With that issue settled, conflict around project control faded into the background.

The worst teams had one group that was slightly larger than the other group. The minority party knew they were outnumbered, but resented the fact that they could be excluded from the decision process by the larger group. This often degenerated into pointless bickering, which had strong negative effects on performance.

Notice that this discussion doesn't even consider organizational structure. This is simply the number of people in different locations. The takeaway is that beyond the necessities of setting up meetings and creating an org chart that effectively ties in remote workplaces, social considerations have to be accounted for as well. You need to think about how to set up these remote workplaces in such a way that people feel like they're collaborating with each other rather than working at odds.

As discussed earlier in this chapter in the case of creating a virtual organization, meeting face to face before starting work on a project is critical. The same can be said of offshoring. If you want things to go well, if you want people to care about each other and think of themselves as part of the same team, you need at least some team members to meet face to face.

### **CO-LOCATED OFFICES: THE GOLD STANDARD?**

The discussion up to this point has implied that all face-to-face interaction is created equal. The Bank of America call center study (see [Chapter 3](#)) showed that's clearly not the case. Later chapters show further support for this idea as well. Different patterns of interaction have different effects on productivity and job satisfaction.

How do companies get the right people to talk to each other, or even get people to talk in the first place? Instead of focusing on using formal meetings to this end, this section looks at how to organize the layout of a workplace to make it more likely that the right people will talk to each other.

It should come as no surprise that you're not equally likely to talk to everyone in the office. After all, some office buildings house tens of thousands of employees. In these skyscrapers, companies can span dozens of floors that themselves can be thousands of square feet. As a matter of common sense, you are not likely to talk to someone 20 floors down from you. Conversely, you should be extremely likely to talk to someone who sits next to you.

Expanding on this theory a bit, the general idea is that the probability that two people will interact is inversely proportional to the distance between their desks. Because you can't walk in a straight line from one desk to another without having to jump over cubicle walls (or through them), the theory takes into account the distance you have to walk from one desk to another. To calculate this distance for our study, we drew lines across corridors and hallways, paying attention to the points of intersection between these different lines. These maps allowed us to automatically calculate the distance between people who sit on the same floor.

Dealing with people on different floors of the same building might seem simple at first. You could just add the vertical distance you need to travel on the elevator to get to the other person's floor. This distance, however, doesn't capture the actual amount of time needed to travel from one floor to another. If you take the elevator, you need to press a button, wait for the elevator to come, get into the elevator, press another button, wait for other

people's stops, and then finally get off on the right floor. Although people can take the stairs, the physical effort required often dissuades people from taking them even for a single floor.

These points lead to the conclusion that being on a separate floor is fundamentally different from being on the same floor. Even the difference of a few staircases should have a powerful effect on interaction patterns, one that's slightly different from the concept of distance.

This makes the company campus setup all the more interesting. Company campuses are made up of a number of buildings housing different parts of the organization, all grouped together in a single location. Some campuses can sprawl for miles, whereas others can be smaller and encompass only a few clustered buildings.

Campuses are particularly hot in technology companies, with juggernauts such as Google and Facebook buying hundreds of acres of land to build, in essence, a company city. Google's campus, for example, is replete with beach volleyball courts, bowling alleys, fitness centers, and dozens of cafes and restaurants that serve Googlers some of the finest "cafeteria" food in the world.

These campuses create a strong sense of community. People throughout Google and Facebook eat the same food, go to the same gyms, and play the same games. Beyond being fabulous perks, these shared experiences make relating to each other easier for people in different parts of the organization.

The question is: Do these campuses actually yield better interaction patterns? One of the major reasons companies invest in these campuses is that it's believed they promote closer collaboration between different parts of the company. Although the possibility for interacting face to face technically exists when you're on



the same campus, whether people can make use of this co-location to do more than simply organize meetings is an open-ended question.

An issue is that walking between buildings takes an order of magnitude more time than going between floors. You normally have to take two elevators or two sets of stairs in addition to walking across the campus to get to your destination. As such, it is incredibly unlikely that this will lead to serendipitous conversations. Even without looking at the data, one could be quite confident that people in different buildings on campus won't hang out in one another's coffee areas.

That's not to say that serendipity can't happen in company campuses. At company-wide talks or interest group meetings, bumping into someone who sends your thinking in a completely new direction and starts off a new collaboration is entirely possible. Indeed, this serendipity is probably the biggest benefit of company campuses. However, serendipitous interactions are probably not going to happen in the spaces between buildings because you walk with people you already know. This shifts the focus in company campuses from the actual office buildings to the event spaces and central social areas where people from other areas can actually meet.

Companies such as Google get this concept. The company offers a variety of classes and speaking events from outside researchers and personalities that pique the interest of different constituencies at Google, creating many opportunities for division-spanning collaboration to occur. Companies need to take these events into consideration when planning their new campuses. Otherwise, they risk creating a bunch of corporate islands that happen to be in the same pond.

As employees can move around within these campuses and the workforce becomes more mobile, even the one desk per person standard has shifted. The concept of open seating in particular has gained in popularity over the last decade, enabling people to choose their own desk on a daily basis within their team's area. One of the main benefits of such areas is that as collaboration needs change, people are free to rearrange their seats to sit closer to the people they need to talk to.

ESPN is one company that has embraced this model for its video editors. For those who haven't watched ESPN, they run live sports broadcasts and slick analysis and news shows that seamlessly intersperse commentary and event clips. They are a massively successful organization, holding a nearly insurmountable share of the U.S. sports market and commanding huge premiums in terms of cable fees and advertising prices.

While they have huge resources at their disposal, what always interested me about this organization was that they would have clips of some of the most obscure sporting events going on in other parts of the world. When I visited ESPN's headquarters, for example, I saw clips of professional Polish volleyball, African cricket matches, and minor league baseball games. When an interesting play happens in one of these matches, it's not unusual to see it fed to a number of the network's programs to be disseminated to the wider world.

I had always assumed ESPN had people watching major sporting events in the U.S., but I also assumed they were alerted to relevant plays in obscure sports by media partners in other countries. Wrong. ESPN has dozens of video editors, watching every single sporting event that is broadcast anywhere in the world every hour of every day. This means that if you walk into the editing room at 3

a.m. on a Tuesday, you'll find a bunch of editors sitting at their desks watching sports.

The reason that ESPN uses open seating becomes much clearer when taking into account this work style. If many sporting events are going on, then more people need to be sitting around watching sports. For major events, usually multiple people are watching from different angles. Having these people sit near each other is better so they can discuss how interesting a particular play is. Assigning people set desks at different time periods could probably reduce the overall number of seats, but the room would become significantly overcrowded during huge sporting events such as the Olympics or March Madness.

ESPN has even extended this model to their individual television programs. Each team responsible for a television program sits in an assigned area, a small part of a larger bullpen where the producers and editors for the shows are located. The desk areas rotate over time, so that the morning *Sportscenter* crew swaps desks with the 6 p.m. *Sportscenter* staff in the afternoon. Within each seating area, people can just log in to a computer and sit down wherever they want. This capability is particularly important when they need to coordinate with people on other shows. You want to check how the shows before and after you are planning on covering an event so that you make sure storylines aren't repeated ad nauseum and to facilitate unique takes on these events with your colleagues.

Intuition suggests that distance matters, and some of the world's most successful companies are embracing this fact. To discover the levers that really make these distance mechanisms work, however, we need to look at the data.

## MORE THAN A TAPE MEASURE

Looking at distance in office environments is in itself a fascinating and fast-growing research field, and has many excellent books devoted to that area of study. A great starting place on this topic would be *The Space-Organisation Relationship* by Kerstin Sailer.

There are many ways to look at distance data, but this discussion simplifies things a bit so that the numbers are easier to understand. In particular, our studies take into account four different distances between people:

- Next to each other
- Same row or hallway
- Same floor (or less than 50 meters apart)
- Different floor (or more than 50 meters apart)

These distances can, of course, be differentiated by counting the number of steps between desks and looking at big scatter plots; but what you'll see is that after you get past the same hallway, the effective probability of interaction drops precipitously.

The following discussion looks at two badge datasets, one from a German bank and another from an IT firm. In these studies we knew exactly where people sat, and for a four-week period we knew who spoke with whom. The next step is to see what fraction of these interactions occurred between people at different distances. Let's go over a simple example.

In Table 4.1, each entry represents how much one person spoke to another. For example, the entry in row B, column A indicates that B spoke with A nine times. In this example, let's say that A and B sit next to each other

(distance 1), but C sits in another row (distance 2). Let's group these interactions by distance.

Person	A	B	C
A	—	9	1
B	9	—	0
C	1	0	—

**Table 4.1. Quantity of Interaction**

As you can see from [Table 4.2](#), in this example people who sit next to each other always talk to each other, but only 1 interaction occurs at distance 2.

Distance	Interactions	Percentage of Interactions
1	9	90%
2	1	10%

**Table 4.2. Probability of Interaction**

In the German bank study data, we also looked at e-mail communication as it relates to distance. This issue is interesting because e-mail is not bound at all by physical constraints. E-mailing someone sitting next to you takes just as much effort as e-mailing someone on the other side of the world. If e-mail also falls prey to distance effects, however, then the implication is that to spur truly global communication, companies need to rely on other communication channels as well.

Some early work on e-mail communication and distance effects comes out of the University of Toronto. In their study, people in a pharmaceutical company were randomly assigned offices when they joined the

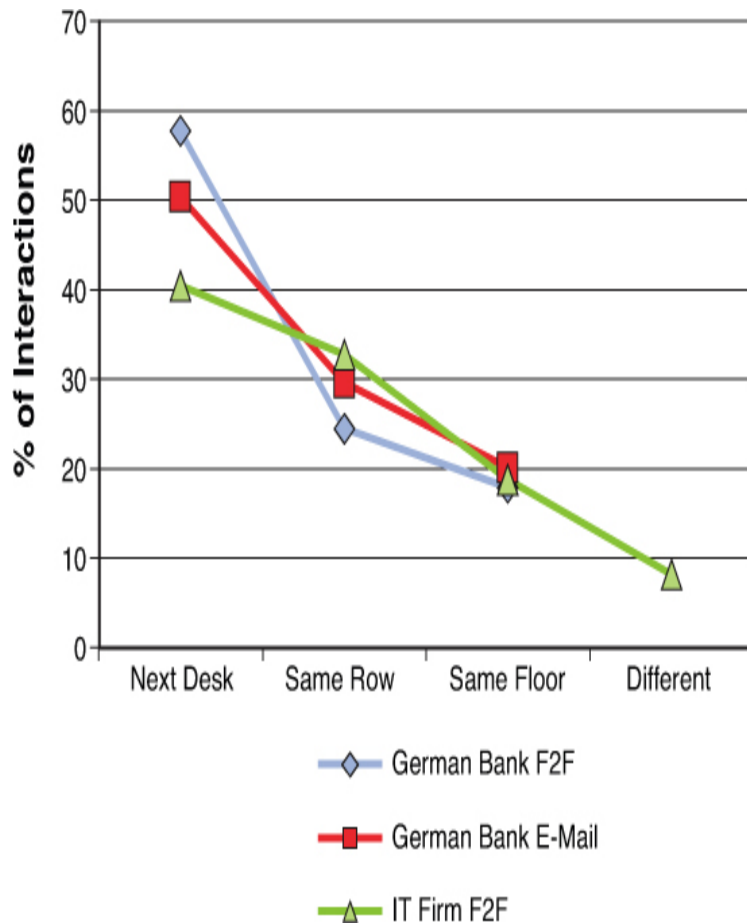
company. As a result, people in the same workgroup were now no closer than people from different workgroups. If distance influenced communication probabilities, then it must be due to distance effects rather than formal work needs.

As you might suspect, they found exactly what we are hypothesizing that we'll see with face-to-face communication: the greater the distance between people's desks, the less likely they were to communicate over e-mail.

Now you have a pretty good idea about what we expect to see when we look at this study data. So let's get right to it.

### **DISTANCE MAKES THE HEART GROW FONDER?**

Figure 4.1 shows the percentage of interactions against the distance between people's desks. Face-to-face interaction was detected using Sociometric Badges, and e-mail data was collected from company servers. Importantly, in the e-mail data we screened out mass e-mails because they don't really capture conversations between people, but rather something more along the lines of shouting through a megaphone.



**Figure 4.1. Communication-distance breakdown.**

Putting the data from both companies on the same graph reveals something interesting: the negative relationship between distance and communication is nearly the same for both organizations, even when we throw e-mail into the mix. These are two very different companies. One has individual engineers in the midwestern United States work on individual tasks, while the other has people working collaboratively on different aspects of financial products in Germany. They have employees from different cultural and educational backgrounds, different organizational goals and formal processes, and yet the distance between desks appears to be one of the main drivers of interaction.

Getting into the specifics, the downward trend observed as distance increases is not surprising given the previous discussion. The likelihood that you'll bump into somebody, the chance that you'll make the extra effort to specifically swing by someone's desk, gets drastically lower as distance between desks increases.

The decrease in e-mail communication, while in line with previous research, is still incredibly fascinating. What makes e-mailing people in different locations so difficult?

To some extent, the difficulty of cold calling explains this phenomenon. Although some naturally outgoing people don't have trouble calling up someone they don't know to ask a question, for many people this task is quite difficult. E-mailing someone you don't know can be just as awkward.

The German bank data allows us to test this theory. With the data, we're able to actually observe how much you e-mail people you spend time with versus people you don't spend time with and detect any differences. If our hypothesis holds, then the amount you e-mail someone should be strongly correlated with how much time you spend with that person.

An analysis of the German bank data provides results that at first seem surprising. In general, the amount an employee e-mails another person is not related at all to how much she talks to him face to face. Remember from the overall relationship between distance and communication probability, however, that the farther away people's desks are from each other, the less likely the two people are to communicate. Taken together, these results imply that people switch off using face-to-face and e-mail to fulfill their communication needs.



Think about this result with a simple example. If I talk to someone a lot face to face, it has no bearing on how much I e-mail that other person. But suppose I need to communicate 10 “bits” of information to that person. Let’s say that one face-to-face interaction can transmit 2 bits of information, while e-mail can transmit 1 bit of information. There are many ways that I can get to 10 bits: 5 face-to-face interactions, 10 e-mails, 3 face-to-face interactions and 4 e-mails, and so on.

Now assume that for different people I need a different number of bits. So for Bob I might need 10 bits, whereas for Alice I might need 15 bits. I could choose to mix these bits in different ways, with some bits being filled more by face-to-face communication but other bits being filled more by e-mail communication.

Drilling into the data a bit further provides some insight into how people might make these decisions. For one class of relationships—people who sat next to each other—the study results showed a correlation between e-mail and face-to-face communication. In that case, the amount of e-mail was strongly negatively related to the amount of face-to-face interaction.

This makes a lot of sense because if you sit next to someone, just leaning over and asking him a quick question is easier than sending him an e-mail. As someone gets farther away from your desk, however, the type of information you want to communicate likely plays a role in what communication medium you choose. As discussed in [Chapter 3](#), e-mail is excellent at disseminating easily codifiable information, whereas face-to-face communication is effective for communicating nuanced and complex information.

## **LONG TABLE, SHORT TABLE**

Seemingly lost in this discussion is how the actual furniture that populates offices impacts face-to-face interaction. There are many furniture choices in the workplace: cubicles, long desks, wall separators, private offices, and so on. From the previous analysis of distance effects, we can already make some strong predictions.

Long desks increase distance between people, and thus should have a chilling effect on the amount of interaction. Private offices increase distances even further. Smaller cubicles are positive from a distance perspective, but high cubicle walls could potentially make communication more difficult.

The question of desk size in particular is interesting because it seems like such a minor difference. After all, a six-foot-long desk versus a seven-foot-long desk doesn't seem like a big deal.

In our Bank of America project, we were fortunate to have groups that sat at desks of different lengths. One group had longer desks with low cubicle walls, while the others had traditional cubicles with smaller desks. The group with the longer desks had 43% less intragroup communication, while the groups with cubicles were internally very tightly connected.

These effects aren't only limited to desk size. Other seating areas around the office are also strongly impacted by distance. In a study at an online travel company, the size of the lunch tables was a strong predictor of future communication and individual performance.

At this company, people could eat lunch at their desk, in a small café area, or downstairs in the main cafeteria. Obviously eating lunch at your desk meant eating by

yourself, while the small café area had tables that could accommodate up to 4 people. The cafeteria, on the other hand, had tables that could fit up to 12 people.

After collecting badge and e-mail data for four weeks, we saw that, not surprisingly, after an employee ate lunch with someone, he was more likely to talk to that person during the rest of the day. Eating lunch together enables people to get a sense for what everyone is working on and what problems they're having. This deep knowledge is crucial if you ever have an issue with your own work because you'll have a strong network spread across a diverse group of areas, making it more likely that you'll know someone who can help you find a solution.

What was interesting, however, was that people who ate lunch in larger groups weren't going to the cafeteria with that entire group. The larger tables forced different groups to sit together, which caused smaller lunch groups to merge into a "super-group." This activity wasn't possible in the café, because the tables were too small.

These larger lunch group interactions directly led to higher group cohesion and consequently to higher performance. People who interacted in these large lunch groups were 36% more likely to interact with each other at some other point in the day compared to other groups, and they were also significantly more resistant to the effects of stressful events such as layoffs.

At the root of these incredible effects, however, was a simple element: a longer lunch table. The decision to buy those tables had a significant impact on this company and its employees. These results led one of my colleagues to suggest: "Maybe we should just duct-tape smaller tables together!"

## SO, WHERE SHOULD I SIT?

You might be tempted to think that you should sit in a desk that's in as central a location as possible. After all, according to the results of our study, if you minimize your distance to other people, then you'll maximize the likelihood of communication. This calculation is a little more complicated, though, because as soon as you are farther than one row away from another person, the likelihood that you'll interact nosedives. To talk to the highest number of people, you would actually want to be in as crowded an area as possible.

That assumes, however, that you just want to talk to *a lot* of people, rather than the *right* people. What you should be trying to figure out is whom you should be sitting close to, both for getting your job done and for making good connections.

Companies also need to think about the importance of office layout. Rather than sticking people into open desks just because they're open, managers need to consider the effects on collaboration and attempt to create a layout that makes it easy for the right groups to communicate with each other.

Beyond the layout of the space, furniture choices have effects as well. The size of your desk impacts not just how likely you are to talk to the people sitting next to you, but by extension the probability that you'll interact with people all across the office. Taken to the extreme, this means we should all sit in single chairs next to our colleagues to minimize the distance between us. This underscores the tension between the need to have a desk to get stuff done but also to create an environment where you're closer to the right people. Clearly, employees need some kind of desk in order to work, but maybe it's not the sprawling workspace in a private office that has been an ideal. Figuring out the right balance between desk

space and communication requirements is crucial to creating a workplace that fits the needs of employees and the organization.

Office furniture also includes common seating areas and cafes, which have become staples in the modern company. As our results at the online travel company show, the choice of a small, round coffee table versus a large, square lunch table takes on an added, serious dimension. These areas are foci of social activity, and ensuring that they not only look nice, but also have real, tangible benefits for the company is key.

Although the study found that larger lunch tables made people more productive, that will not necessarily be the case in other companies. When sitting down for lunch, you need to ask yourself: What kind of connections do I need to do my job, and what pattern of collaboration will be most supportive for me right now? Rather than sitting with your best friends, maybe branching out one week to sit with a larger group from another department makes sense. This would make talking with those people later in the week easier and would provide a window into other activities around the workplace.

Although in this chapter we've discussed increasing the likelihood of interaction, we can also use this effect to decrease communication between different groups when it's desirable. For example, the accounting division might not need to communicate much with the research division, so managers should try to put more space between these divisions to reduce extraneous communication. Because a workday contains a finite amount of time, spending time wisely and making sure the environment is set up in such a way that employees will naturally talk to the right people are important.

Distance is a natural lever that companies can pull to get predictable responses in collaboration patterns, but it

doesn't force people to behave in a specific way. If I want to talk to someone on another floor, I'm perfectly capable of taking the elevator and walking to his or her desk. However, when I'm simply walking around the office and not looking to talk to anyone in particular, I'm much more likely to bump into the people who are close to me. The role of individuals and company leaders is to engineer the environment so that those serendipitous interactions are as useful as possible.

This chapter covered a lot about remote work and telecommuting. A large, robust body of research indicates that companies need to figure out some way to get employees together face to face, because remote work tools just aren't cutting it. The more that employees can meet in person with their team, the more effective they will be and the better the team will perform. When making the decision to work from home, employees must weigh personal needs against the negative impact it will have on their colleagues and on them as individuals.

Although remote work is certainly a reality and will have to continue into the future, people need to pay a lot more attention to communication to make those arrangements work. Face-to-face meetings are an investment, not a cost; the small amount of resources that are put into physical space comes back many-fold in increased productivity and job satisfaction.

Companies should always look to physical space as a key part of their toolbox for changing patterns of collaboration and behavior. The actual layout of the office, the type of furniture, and the decision to let employees work remotely all have a profound impact on both companies' and individuals' success. Distance is not dead. If anything, it's more central to our lives than ever.

## 5. I'm the Expert: Why Connections Are More Important Than Test Scores

When I was in the fifth grade, I got blisters on my thumbs. The cause wasn't an overly exhausting rock-climbing expedition or working long hours at the wood shop. No, my blisters were caused by a far grander, nobler endeavor: I was playing video games.

Over the course of the year, I conservatively estimate that I played Nintendo for about 2,000 hours in total, or about 5 hours a day. During this time, my games of choice were *Final Fantasy* and *Contra*. It was while playing the latter that I developed the aforementioned blisters.

*Contra* is an action game where you control a commando fighting alien hordes. As you progress through a series of levels, you must dodge enemy fire and dispatch said enemies with your own attacks. If you're hit once by any enemy bullet you instantly die, and the fast-paced nature of the game means that to succeed you need to quickly change directions while simultaneously mashing the "fire" button.

After approximately 1,000 hours of playing *Contra*, I had become an expert at this game. I knew exactly how to react to my enemies, and I had learned the strategies for vanquishing the various bosses that appear throughout the game.

I had become the prototypical expert. I had mastered every aspect of a particular (if narrow) field, and I could perform at levels well beyond those of novices and intermediate players.

Throughout our lives we go through similar phases in many different areas, for most of us outside the world of gaming. We go to college and become experts in a field of study, we work for a company and become an expert in a technical area, we get married and become an expert on a particular relationship, and so on. This learning and evolving of our understanding is central to the human experience.

The way organizations have nurtured and helped us refine our expertise, however, has changed drastically over time, mostly due to the ever-increasing complexity of the type of work that we do. As a concrete example, compare a computer programmer posting from 1958<sup>1</sup> and one from 2012:



#### Computer Program'ers

Help develop large-scale computer-based systems at SDC

As a Programmer at System Development Corporation in Santa Monica, California, you work with Operations Research Scientists and Behavioral Scientists to develop complex computer-centered systems in a number of fields, including air operations.

As these systems are computer-based, programming is an essential function at SDC. Programming is not a service department at SDC.

SDC offer Programmers:

1. A wide range of assignments in the use of computers for simulation and control.
2. An opportunity to work on advanced programming techniques.
3. Advanced facilities, including 704's, 709's, and even more sophisticated computers.
4. A training program in the use of these computers.

One of the more interesting aspects of programming at SDC lies in the variety of data manipulation techniques. Assignments involve inputs such as magnetic tape data, keyed data, radar digital data, punched card data. Outputs include charactron displays, magnetic tape data, data link and teletype.

Positions are open at all levels. The positions call for at least some college math, a minimum of one year's programming experience (although your experience does not need to be on advanced computers) and strong profession interest in programming.

Travel and Moving Allowances to Santa Monica, California

For New York Interview contact Harold Willson at Plaza 3-4800 between 10 AM and 7 PM Monday, Dec. 1 through Thursday, Dec. 4. Collect calls accepted. If you are unable to contact Mr. Wilson while he is in New York, you are invited to send your resume to him at SDC in Santa Monica, California.

System Developm'nt Corporation 2500 Colorado Avenue Santa Monica, California

Although the job description itself looks humorous and quaint today, there are a few things to pay attention to. One is that almost no pre-qualifications are needed for a job that can be incredibly complex. Applicants essentially needed to take a few classes in programming and be interested in the field to qualify. Another is that the specifications even for a senior-level position don't require experience working in this field.

Now look at a recent job listing for an entry-level programming position:

Software Developer - Python - OOP Application Frameworks

SKILLS REQUIRED:

Computer Science, Object-Oriented Application Frameworks, iOS Development, Android Development, Python, OOP, Objective-C, Java, PHP

JOB DESCRIPTION:

Python Software Developer - Object-Oriented Application Frameworks

\*This position is located in Santa Cruz! Come work and play

Are you a Jr Software Developer with strong OOP experience and have mobile development experience? If so, we have an amazing opportunity for you to build a strong career in not only the hot mobile industry, but also the hot healthcare industry! You will work closely with the CTO on development of a cross-platform mobile framework, where you can learn tremendously.

Our startup team has tremendous growth potential, but also has the financial backing of our highly successful and established parent company in the medical technology industry.

Our new group is focusing on development of mobile applications that help clinicians improve patient care securely.

What you need for this position:

- Bachelor's in Computer Science or related degree
- Strong with Object Oriented Programming / Object-Oriented Application Frameworks
- Great with Python

Plus if you have programming experience with...

- Objective C and Java
- Mobile Development

What's in it for you:

- Great compensation (salary and equity package)
- Comprehensive benefits
- Significant learning and advancement opportunities
- Casual and collaborative work environment

So, if you are a Software Developer with strong OOP and Python experience, do apply today! This is an immediate fill position!

Must be authorized to work in the United States on a full-time basis for any employer.

From a skills perspective, the recent job posting is incredibly complex. The applicant needs to have trained as an undergraduate for four years to learn this field and have specific experience developing programs using the languages the company uses, which speaks to the larger

trend of the increasing need for training and expertise in today's world.

Imagine a programmer from the 1970s going to apply for a position today. He would be quickly shown the door.

On the other hand, a programmer from today could easily go back and win a position a few decades ago.

Today's novices are yesterday's experts.

This increasing reliance on expertise has caused a shift in the way that organizations and potential hires view their relationship. In exchange for an employee's devotion to a single organization, a company was obligated to train him and nurture his skills until he became an expert in his field. In the past, companies looked to acquire the best people who could learn the skills they needed to succeed, whereas today employers look for people who already have all the skills.

To a large extent, this trend is being driven by societal forces. As Chapter 3 covers, there are many good reasons to broaden one's experience and dip into many different fields. This type of experience enables workers to think creatively about problems and bring diverse perspectives into organizations. Unfortunately, it often means that companies won't worry too much about rewarding experts for the work they do by informally training other people. After all, if employees are just going to leave in a few years, why reward someone who's training them?

There are, however, some big exceptions to this rule.

## **THE (ELECTRIC) GENERAL**

Many companies care not just about educating their employees, but turning them into leaders. A few organizations excel at this feat to the extent that when one of their employees is hired as an executive at another company, the stock price of the hiring firm goes up by double-digit percentage points.

As of 2008, one out of every 27 CEOs of publicly traded companies had at some point worked in one of two companies: General Electric and IBM.<sup>2</sup> General Electric (GE) can count CEOs of Fortune 500 powerhouses such as Boeing, Pfizer, and Home Depot among its alumni. The basis for this success can be found in GE's dedication to nurturing its employees.

When GE identifies someone as a high-potential employee, they start rotating them through jobs in unrelated fields to build up their overall knowledge of the company. Current GE CEO Jeffrey Immelt, for example, started in the appliances division, moved to plastics, and finally ended up in medical systems. Even though training and integrating a new employee in these divisions takes time, GE strongly believes that this rotation is a key driver of their success.

Beyond changing team assignments, GE invests heavily in developing curricula and courses for its 150,000 employees. GE spends about \$1 billion (with a "b") annually on corporate learning initiatives, which involves about 9,000 people a year physically traveling to GE "schools" for training, while about 60,000 people a year go through formal channels to enhance their skills.

As an organization, GE puts its money where its mouth is in regards to learning. It has numerous formal training programs that connect employees with the experts they need to succeed in their careers.

Interestingly, in mid-2012 this philosophy began to shift.<sup>3</sup> As expertise becomes more and more important, GE realized that competing at the highest levels with employees who had very little experience in a single business unit wasn't possible. Although top leaders must still be exposed to different business areas, the expectations are definitely lower than they were just a few years ago.

Although GE by any measure has been wildly successful over the last few decades, the need to constantly innovate at increasingly faster intervals has led executives to strongly focus on expertise. By keeping people in a particular division for longer periods of time, employees are encouraged to develop practical work experience and deep connections that will lead to even greater learning.

The problem for GE as well as other companies is that expertise development is typically attacked at a formal level. Training programs work great, but the company must be able to identify and keep experts long enough to make the training pay off. For practical experience to matter, a company must make sure that domain experts are actually teaching their less-experienced counterparts. The following sections investigate not only how these exchanges can be measured via the Sociometric Badges mentioned in [Chapter 1](#), but also how you can reward employees for them.

## **THE IT FIRM STUDY**

Try to imagine a company where interaction between employees didn't matter. It would probably be a company

- Where many people worked on individual tasks that didn't require them to talk to each other

- Where most of the work people did was on computers and with people in other places
- A lot like the one where my team from MIT took the Sociometric Badges

The organization we studied sells multimillion dollar servers through a distributed group of salespeople spread across the country. These salespeople talk with clients to figure out what they need their servers to do and then submit these specifications to a computer system. This system automatically assigns this task to one of the organization's engineers in its Midwest office, who actually lays out the physical hardware and tries to anticipate other requirements for the system. When he's done with the configuration, the engineer sends it back to the salesperson for negotiation with the client.

An engineer is assigned these tasks on a first-come, first-served basis. After he finishes a task, he goes to the back of the virtual line and waits for his next turn. These tasks are all logged by the computer system, which knows exactly when he started working on a task, when he completed it, whether he made any errors, and even the difficulty level. These tasks take anywhere from five minutes to eight hours to complete, and although difficult tasks often take longer than easy tasks, that's not always the case. To give employees extra motivation, their bonuses are determined entirely by how many of these tasks they can complete each day. From the company's perspective, any time not spent working on a task is time wasted.

From this process one would assume that people don't talk to each other. Why would they? Every second spent talking to a coworker is dollars ticking off an employee's bonus check. There was a realization at this company, however, that something was amiss. Even though this division had only existed for a few months, some

employees with high formal skill levels were struggling while employees with less experience on paper were the highest performers.

The IT firm wanted to understand these dynamics better, because clearly skill and task data alone weren't able to predict performance. The social element was missing. That's when our team from MIT went in with the Sociometric Badge.

## **IT FIRM STUDY RESULTS**

We collected badge data for four weeks, accumulating thousands of hours of data. Over these four weeks, the division completed more than 1,000 tasks, which enabled us to build a performance profile for each employee by looking at how long on average it took people to complete these tasks.

In particular, the study focused on two types of behavior: individual behavior and social behavior. Individual behavior includes things such as movement levels, how workers tend to speak to other people, and how much time they spend at their desk. Social behavior, on the other hand, looked at who they spoke with and how well connected they were within the overall social network. Again, from the company's perspective, individual behavior and skills should be all that mattered. Any time spent talking to other people was essentially time wasted.

Imagine the company's surprise, then, when the strongest predictor of performance turned out to be whom an employee talked to. Specifically, how cohesive an employee's social network was had a major impact on productivity. In this case, the more the people an employee talks to talk with each other, the more productive the employee was. Also, it wasn't a small effect. If an employee spent 10% more time talking with

her core group of contacts, she made the company roughly an extra \$100,000 a month.

Those general results in hand, the next step was to understand what was driving differences in performance on specific tasks. Data from the company listed exactly who was working on a task and when they were doing it. This let us zoom in on the period of time that people were working on tasks and investigate whom they were talking to and how their behavior correlated with their performance.

Just looking at these patterns was extremely revealing. Plotting a social network diagram to look at who was speaking to whom when they were working on tasks revealed a bright center to this network. All communication paths eventually led to one of four individuals. Even more interestingly, the more central the person an employee spoke with, the more quickly she ended up completing her task. In fact, interacting with one of the four most central employees could cut task completion time by 66%.

These employees all had similar educational backgrounds and different levels of prior experience. They all had the exact same job title. From a formal perspective, they shouldn't have had any more or less of an effect than anyone else, but the badge data had revealed the informal experts.



## **EXPERT PUZZLE**

The study had uncovered not only an extremely accurate way to uncover experts, but also a method to very accurately predict performance on even short tasks. Although people at higher levels in the company had no idea that this expertise sharing was going on, these behaviors were central to the performance of the division. Even though exactly what these people were talking about during their conversations is unknown, the task data my MIT team collected strongly implies that it was work related. Remember, talking about something unrelated to the task only hurts an employee's performance and paycheck. Money can be a very strong incentive to stay on task. Beyond that, the predictive power of the results observed in the study only reinforces these findings, because they had a direct impact on performance for specific tasks.

These experts were spending a large portion of their time talking to other people. Perhaps it's not a surprise, then, that an expert's individual performance was only middle of the road. They were simply spending an inordinate amount of their time helping their coworkers.

Although for the organization this isn't necessarily a bad thing, it causes two problems. From the experts' point of view, they don't feel appreciated. Their guidance is helping to raise the performance of the entire division, but while their coworkers get rewarded, experts see no impact on their salary. They don't even get any formal recognition of their contributions from the company. It would be one thing if they got promoted due to their efforts, but their job title remained the same as everyone else.

The problem from the company's side is that without knowing it, management could easily cripple the performance of the entire division. Looking at the

performance numbers, upper managers could have easily reassigned one of these experts to another role, which would eliminate the performance boost he or she gave to coworkers. The company just didn't know that these people were serving a critical function. Similarly, these experts could finally say enough is enough and leave for another company where their work would be appreciated. Both possibilities would be catastrophic for this division.

## **BEING AN EXPERT EXPERT**

For this company and other organizations, a crucial first step toward fostering and retaining experts is to recognize their contributions. This could be as simple as a meeting where the team gets together and people publicly identify who's been helping them on their tasks, but even a little recognition shows that the company and their coworkers care about these experts.

That's not to say that experts should be rewarded with monetary incentives. The difficulty is that without the badge data, knowing the exact effect an expert has on other people is extremely difficult. Although ideally companies could reward that impact directly, there are some other ways to encourage the general behavior.

One particular change we recommended for the IT firm was in their bonus structure. At the time of this study, this department's rewards were 100% individual. Even if everyone else in the division did poorly, it had no effect on an employee's salary or bonus. The beauty of these experts, however, is that they raise the overall performance level of the entire division. So it makes sense that their overall performance should be an integral part of any bonus or salary discussion.

Rather than make salary and bonus entirely dependent on an individual's performance, we suggested making a

large component of the bonus dependent on group performance. This could take the form of an overall performance target for the division or simply a graduated bonus that increases along with overall performance. Although this system would help experts receive more compensation, it also invites free riding. After all, experts end up getting the same bonuses as non-experts. Someone could easily coast along, not help anyone else out, and still get rewarded for the efforts of others.

In organizations this situation is, to a certain extent, unavoidable. Even without a bonus, an employee can choose to go out of her way to help coworkers or take an individual approach and focus on her own work. The hope is that by formally recognizing the value of expert contributions, an employee's focus, group versus individual, will come into play when being considered for promotions or work assignment.

As this study demonstrates, informal instances of advice giving and coworker learning can have massive effects on performance. Unfortunately, most companies focus exclusively on promoting learning at a formal level. Companies such as GE invest millions of dollars in massive training facilities and course programs to help their employees develop. These programs are certainly valuable and end up building the base skill level of the workforce, but they are still just a base.

In the IT firm study, all the employees had the same base, but a variety of experiences nurtured the expertise of a few individuals. By promoting and valuing that expertise, companies can get a level of education in their workforce that is nearly impossible to obtain in the classroom. Problems in these domains are so intricate and complex that one person can't exhaustively cover them all, but employees probably know someone who can help solve them.

This insight offers an important view into how to grow experts in an organization. The results from the IT firm study show that the most valuable experts aren't just knowledgeable; they're able to share that knowledge with their coworkers. The highest performers in the IT firm were probably experts themselves, but because they didn't share their knowledge with anyone, they had a very small effect on the overall performance of the division.

Successful companies supplement their training programs and educational initiatives with efforts to encourage knowledge sharing. These programs cultivate base expertise levels and financially encourage employees to share knowledge. However, going a step beyond that and creating formal and informal frameworks would make it easy for people to discover experts. Many companies go the formal route, listing expertise on intranet profile pages or the like, but in nearly all companies these pages are completely ignored or forgotten. Also, an employee who can find an expert through these systems might not be comfortable contacting a stranger.

Publicly identifying and praising experts in meetings is a better tactic. Companies could identify who the highest individual performers are in different areas and encourage people to ask them questions, because if their individual performance is high, they likely have valuable information to share. More informally, during meetings people could discuss who they went to for advice over the past week and how it helped them in their work. You might hear a lot of the same names getting called out, but injecting new people into the mix can help expand the pool of experts.

This practice is a major cultural shift. In many organizations, an employee who publicly praises a

coworker for helping him do the job might be seen as weak. In fact, this is actually a sign of great strength. An employee can only do so much work alone, but people who are adept at finding and popularizing experts, and sources of knowledge in general, are essential for the overall performance of a group. In many ways, these people are meta-experts: experts at finding experts.

These meta-experts have the wherewithal to continuously discover new information and the ability to disseminate it to others. Experts have similar skills, but they also can't be afraid to advertise their experience. Compared to discussing advice one has received, this might seem like grandstanding. After all, an expert is announcing how much she knows and telling coworkers that they should look to her example for help in their work. Organizations need to shed that impression and instead realize that people need to communicate their skills. That is what ultimately drives performance in companies. It doesn't mean advertising one's self in a way that demeans colleagues, but looking for appropriate ways to share knowledge.

When we're particularly adept at certain problems, we must realize our power to help out coworkers. The potential for a positive impact is simply too big to ignore. On the other hand, acknowledging experts while also actively working to discover other experts is important. These experts are the tendons that span hundreds or thousands of individuals, ensuring that employees can continue running together as a whole. A company without those tendons, no matter how much it has built up its muscle, won't even be able to limp along.

## 6. You Look Like the Creative Type: Da Vinci versus the Hackathon

After building expertise in an established field, the next step in personal and corporate development is creating new expertise in an undiscovered field: creativity.

Creativity is the engine of the world economy. Every company is trying to come up with the next big thing, and the next big thing often doesn't look at all like the current big thing.

Take the fast-changing world of mobile apps. In the span of a few years, it went from having a few proprietary apps on feature phones put there by a wireless carrier to ecosystems with millions of apps developed by companies ranging from large multinational game developers to teenagers coding in their spare time. The top-selling app this week will not be the top-selling app in a month. It's hard to imagine that same kind of rapid innovation in slower moving sectors such as car manufacturing or even computer hardware, but this constant need for the next big thing is spreading across these industrial boundaries.

Different types of creativity exist, not necessarily in terms of artistic creativity versus engineering creativity, but along the lines of how *disruptive*, or revolutionary, the creation is. This axis goes from incremental improvements, such as a bigger screen on a smartphone, to major innovations, such as the invention of the airplane.

One might be tempted to say that disruptive innovation is better and more important than smaller improvements, but that's not always the case. When a company is trying to move into a new area or break out of an unprofitable business model, the key to doing it is

disruptive innovation. Plugging along with a broken model leads to being left behind by rivals. This was clearly the case with Nokia, which continued to churn out feature phones with uninspired designs long after the iPhone had disrupted the market.

Companies such as Amazon are fantastic at reaping the benefits of radical innovation. Releasing the Kindle, for example, represented a sea change in Amazon's strategy. No longer content to only sell content online, Amazon took the big leap and created their own eBook reader with a seamless online storefront that made purchasing incredibly fast and simple. Today, Amazon effectively owns this market, worth billions of dollars.

The first Kindle, however, wasn't that great to use. Buttons were in odd places, the screen took a long time to refresh, and the device itself was quite awkward and bulky. As soon as Amazon released the Kindle, competitors such as Barnes and Noble were fresh on their heels making similar devices. They even improved on some of the Kindle's mistakes. Amazon had to continue innovating, but not in the same way. They had to constantly improve the Kindle to make using it a better experience. This is where continuous improvement and incremental creativity come into play. This type of innovation is responsible for the long-term success of a company or product, but requires a completely different mindset.

For disruptive innovation to happen, breaking out of one's normal social circle and removing common assumptions are crucial. Incremental innovation, however, requires tight connections across a team that is working together to solve a problem. To be successful, organizations have to figure out how to effectively mix the two.

This mix strongly depends on what industry a company is in. In industries with longer release cycles, incremental improvement is paramount. Take the aircraft industry. Releasing a new airplane model represents the culmination of tens of billions of dollars of investment. Boeing's latest plane, the Dreamliner, cost a staggering \$32 billion to develop. Each plane they sell costs on the order of \$200 million, meaning Boeing will have to deliver more than 150 planes to break even in terms of raw revenue, not factoring into account opportunity cost or what their actual profit margin is on each plane. As of mid-2012 they have built a total of 18 planes. If Boeing were simply to switch gears and develop another new plane, they would very quickly be out of business. Instead they need to work on improving the Dreamliner, implementing small changes to make it more attractive to customers.

The pharmaceutical industry is at the other end of the spectrum. Incremental innovation can help create drugs that are combinations of previously released drugs, but these typically have low profit potential and don't fundamentally alter the market. Instead, drug makers are looking for that next home run, that next drug that meets a huge requirement in the marketplace and is radically different from anything else out there.

This task is hard to accomplish. Even the best pharmaceutical researchers only come out with a new drug once every 10 years. The rest of the time the compounds they work on never see the light of day, either because these compounds don't have the expected effects or those effects don't hold up under clinical trials. This makes gauging performance difficult and promoting effective development practice even more difficult. However, after a drug is released, the company's work is essentially done. It has to manage production and



distribution, but it can't make any improvements to the drug.

In most organizations, ensuring a balance between these different types of creativity is important. Organizations that can get this balance right are destined to succeed in the long term. Interestingly, one of the best examples of this comes from the world of entertainment.

## **CARTOON WARS<sup>1</sup>**

When you think of one of the most radically creative groups in the world, you might not think of South Park Studios (SPS), the company behind one of the highest-rated shows on Comedy Central. *South Park* is an animated show about a group of foul-mouthed fourth graders from the fictional Colorado town of the same name. The show has won a loyal following of millions of viewers, and critically it has garnered numerous awards, including four Emmys, a Peabody award, and an Oscar nomination for the feature film. *South Park* is probably best known for its crude art, liberal use of profanity, and explicit situations, as well as its merciless lampooning of pop culture icons.

The show is the brainchild of friends Trey Parker and Matt Stone. They made the original inspiration for the show, *The Spirit of Christmas*, out of construction paper and placed each individual frame by hand. Today their team of 70 uses off-the-shelf computers and digital editing tools to make *South Park* come to life—but Matt and Trey have retained their close engagement with the actual production of the show.

Production of an episode of *South Park* is unlike anything else in animated entertainment. An entire show is conceived, written, animated, recorded, and delivered to the broadcaster in six days. By comparison, an episode

of *The Simpsons* is produced over the course of six months.

Creating an animated TV show is a complex process. In general, first someone must come up with a storyline and write a script. That script is then taken off to the storyboard department, which mocks up scenes with quick drawings. Working closely with the director, storyboard rapidly iterates on new scene conceptions to ensure that the visual presentation matches with the overall vision. Voicing work typically occurs simultaneously, which feeds into the animation process. After storyboards are complete, animators can work on drawing the different scenes that make up the show, but they need the audio track from the voice actors so that they can draw the characters' mouths appropriately. Although production staff members try to keep scripts and scenes relatively constant after the script has been finalized and storyboards are approved, last-minute changes invariably happen. Scripts and scene edits can change in the last few weeks before production whether from a demand from a censor or simply a change of heart from the director. These changes mean that the staff often won't see an episode until the final cut is ready to be sent to the broadcaster to air. In South Park Studios this entire process is turned on its head.

At SPS, as with all television shows, everything starts with writing. This part of the process relies heavily on disruptive thinking. Each episode has to be original. The more novel it is, the more it breaks away from other shows out there and touches a cultural nerve, the more likely it is to succeed.

The SPS writing staff of seven sits together in a meeting room on Thursday morning, trying to get the seed of an idea for next week's show. The first part of the discussion starts out with people just throwing out ideas they think

are interesting even if they wouldn't be relevant to the show. In these discussions there aren't stupid or bad ideas, just unfunny ones. If an idea makes everyone laugh, then the team will keep pushing on that idea. By gauging the reaction of the team, they're able to figure out whether this idea is disruptive enough to be worth pursuing. The team comes to this decision mostly by paying attention to verbal and visual cues, not direct content. When the room gets energetic, that's when they know they have something.

Even though they have this egalitarian writing process, this team sometimes gets stuck. After creating hundreds of shows with very different storylines, coming up with wildly new ideas becomes increasingly difficult. That's when some of the writers will get up and start pacing around, trying to shake out of the funk through physical movement.

After the show concept is set, incremental creativity kicks in. There's not really any room for radically changing the direction of the episode, but there are slight refinements, both in terms of the dialogue in individual scenes to the look of the characters, that need to be iterated to create a polished final product.

At this point, script writing can start. While the writers are at work, however, the rest of the studio is also gearing up. Because episodes have to get completed in six days, there isn't time to separate the different aspects of production. Writing, animation, and voicing all have to be done as quickly as possible to make the Wednesday afternoon deadline, and that means constant overlap. To deal with that overlap, animators at SPS do everything.

Normally in animated shows, there are separate departments for storyboard, character design, and movie animation. Not so at SPS. Every animator has to be able to do all of these jobs and do them quickly. As the

director of animation Jack Shih says: “If it takes you four days to get something done, you can’t really contribute.” Animators are brought in soon after the scriptwriting starts. After a rough story idea is fleshed out, animators have to go to work on storyboards. These storyboards are fed back to the writers, who use them to go over the story and make any changes they feel are necessary. At the same time, animators are already working on creating new characters for the show and drawing up the different scenes. Of course, animators rarely work with pen and paper anymore, and animators at SPS are no exception. By relying on computer models, animators are able to rapidly make changes to different scenes without having to repeat work. The art director works with the individual animators to iterate on fine points of scene composition, after which the finished scene is assembled into the overall episode video track. This demonstrates incredible incremental creativity, as the animation team works within its constraints to continuously refine their deliverables.

During this time, the cast of *South Park* is busy recording dialogue. Interestingly, in this case the cast and the writers are one and the same, with Matt and Trey providing the majority of the voices. Because they’ve been working together for more than 16 years, they’re able to quickly communicate minute changes in the voice acting to make the dialogue more convincing. While they’re writing, they can also immediately pitch dialogue and act it out, testing to see whether it comes out funny. Again, this is a powerful example of making extremely creative incremental changes.

Trey Parker is the captain of this ship. If he doesn’t like something, it gets reworked by the whole team. Leads from the different departments sit together on a couch watching early cuts and quickly make determinations about what changes need to be made. This leads to a time

crunch in the last few days of episode production. People often spend 24 hours a day eating, sleeping, and working at their desk. Although this schedule creates an extremely stressful environment for the 14 weeks a year the show is in production, it also creates a strong sense of camaraderie.

It also makes both disruptive and incremental innovation that much easier. People have the comfort level with their coworkers that they're not worried about throwing around "stupid" ideas, but they're also able to get on the same page when they need to execute.

The results of this process speak for themselves—a show that's still fresh after 16 years on the air, four Emmys, and a workforce that's incredibly engaged.

Compare *South Park* to a show like *The Simpsons*, which has been running for an incredible 23 years. *The Simpsons*, produced by Gracie Films, is a traditionally structured animated show with separate departments for the different art functions. After an initial story brainstorming session, each episode is assigned to an individual writer. In 1990 when the show was just starting up, there was still a core creative team that was able to span the gap between different departments.

Today, it's a different story. After a storyboard is completed and approved by directors, it is transferred to a Korean animation studio that does the actual animation that appears on your television. Although the level of involvement by the directors and animators at Gracie is unclear, they're certainly not under the same roof, as they are in SPS, and executing rapid, incremental innovation would be difficult if not impossible.

These process differences have a clear impact on the success of these shows. When comparing the Nielsen

ratings of *The Simpsons* and *South Park*,<sup>2</sup> one must take a couple of things into account:

- Although the number of viewers watching *The Simpsons* has declined almost every year since its debut in 1989, this isn't just due to show quality. In 1989, the penetration rate of cable was very low, so grabbing a larger share of the market was much easier. That competition has increased over time.
- Before 2001, Nielsen-released ratings were based on the number of households that watched a show. Today, Nielsen releases the more accurate number of how many people actually watched.

To make these numbers roughly comparable, I multiplied the number of households by two to get a decent idea of how many people were watching *The Simpsons* (see [Figure 6.1](#)). This makes ratings from *The Simpsons* and *South Park* directly comparable.

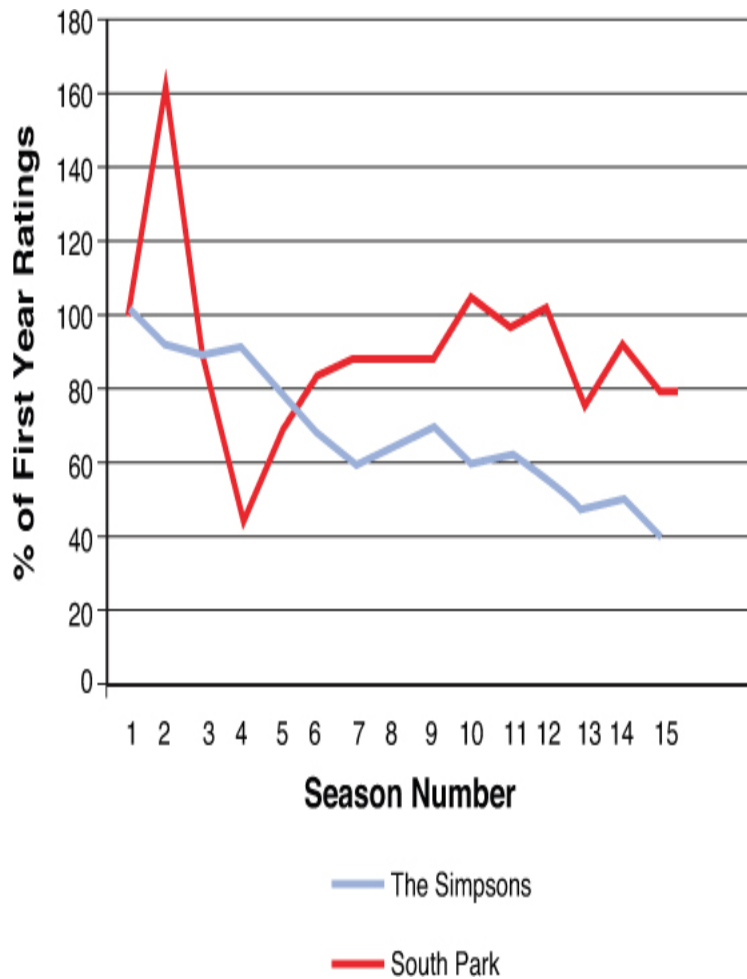


Figure 6.1. Simpsons Did It?

What's fascinating when looking at these numbers is how consistent *South Park* has been relative to *The Simpsons*. *South Park* has managed to retain viewers over the course of its 16-year run with little change in its ratings over the past 10 years. *The Simpsons*, on the other hand, exhibits a fairly consistent downward trend in its ratings, with an audience in 2011 (season 23) that is only a quarter of what it was when the show premiered in 1989. Considering that the viewing population grew by about 26% during this same period of time, this represents an even more precipitous drop.

All of this is to say that when it comes to creativity, *South Park* wins the cartoon wars.

## **LESSONS FROM SOUTH PARK: THE ROOTS OF CREATIVITY**

The case of SPS is compelling, but it is a one-off success. Pretty much every company in the world needs its employees to innovate, to be creative, be it in a more disruptive fashion or one that's more incremental. Creativity isn't included in school curricula or college requirements, however. Even intelligence tests gauge people's ability to process information and remember rules, not to innovate and think up new ideas.

This bias against creativity instruction bleeds over into the way organizations think about training. Training sessions are much more about specific facts or systems that employees need to know, not how to think. Although organizations know that creativity is important, they just don't have a solid model of what creativity actually looks like. Without that model, creating sustainable improvements in creativity is extremely difficult for organizations.

That's not to say that companies can't take lessons from SPS. Their model of rapid incremental innovation, breaking down organizational silos for disruptive show ideas, and close connections between coworkers sets it apart from other shows. This certainly seems like the secret sauce that makes the studio so successful.

As already mentioned, however, different organizations need different types of innovation, different types of creativity. Although inferring general rules from these examples is possible, getting into the data to see what is really making everything tick is necessary.

To tackle this problem, my collaborators at Arizona State (ASU) used the badges to look at researchers in different research and development (R&D) labs across the U.S.<sup>3</sup> Their question, similar to the one posed in this chapter,



was around what behaviors were actually driving creativity. After the relevant behaviors are known, they can be incorporated into training, management policies, and even the educational system.

### **Researching R&D**

R&D is the lifeblood of the modern company, not to mention a hotbed of creative activity. With few exceptions, major companies today devote a large fraction of their budget to an internal R&D division. Normally these labs are tasked both with creating improvements to existing products (the “D”) and coming up with completely new ideas that might or might not ever make it into production (the “R”).

Measuring return on investment for R&D is difficult, mostly because an investment made today might not pay off until 10 years from now, whereas other efforts can show up in a product in 6 months. So, sales numbers don’t really give a company much to evaluate. Even if they did, in the 10 years a company spends working to make an innovation become reality, it can’t use data from that project to improve the creativity of the workforce.

This problem is magnified at the individual level. When an individual researcher comes up with a new invention, it often has to be used in tandem with other technologies to be useful. How do you determine how big of a contribution that invention was?

As you can imagine, with such a big gap between measurement and reality, researchers have developed a number of tools to gauge creativity. Essentially these tools are all subjective, but by using a number of tools to triangulate measurements and testing across a variety of contexts, one can feel more confident in the results. Specifically, researchers use self-reports on creativity and have experts code daily logs of activity to assess how

creative someone was on a given day. Survey questions essentially take the form of “How creative were you today?” Activity logs, on the other hand, ask employees to write details about what they did during the day. These methods are really only applicable for research projects because these surveys and activity logs take a substantial amount of time to fill out.

Using the Sociometric Badges and the aforementioned evaluation tools, ASU researchers Win Burleson and Pia Tripathi studied three R&D teams in different technology organizations. The goal was to understand creativity in general and see whether the data collected with the badges could actually predict this nebulous concept.

The teams they studied had between five and seven members and were broadly focused on technology R&D. One team worked on software creation, while the two other teams were concerned with thinking up new systems that included both hardware and software. The workplaces for these teams were similar as well. Each team member had his or her own cubicle facing a wall, with the cubicles surrounding a central collaboration space. The idea behind this setup was to create an environment that facilitates close collaboration but also provides for individual space to focus on different work efforts.

The ASU team had a couple of hypotheses going into this study:

- During highly creative days, team members would interact more closely with one another. That is, the average amount of time people spent speaking with their coworkers would increase.
- On these highly creative days, people would also be much more physically active.

These hypotheses intuitively make a lot of sense and match the observations from SPS. When people are having a creative day, they're working very closely with colleagues and rapidly iterating on new ideas. The better the ideas, the more enthusiastic people become, which in real terms means speech and movement are much more energetic.

The ASU team set out to put some numbers behind these observations, finally injecting hard data into what has long been considered a "soft" metric.

### **Gauging Creativity: The Results**

After the ASU researchers analyzed the data, they were able to not only confirm their hypotheses, but demonstrate that behavioral data from the badges was extremely predictive of creative output. Specifically, the amount of time spent interacting with team members and expending movement energy was strongly positively correlated with creativity. When the researchers used this data to build an algorithm to recognize creative days, they were able to obtain greater than 90% accuracy.

This result is a major step forward because it means that your creativity can be measured just by looking at whom you talk to and how much you move around. While things besides creativity can obviously affect a person's movement patterns, these results indicate that those other factors don't have a consistent effect.

Some people don't even realize that they're being creative, as illustrated by the disparities between the expert and self-report data. This implies that behavioral data analysis may be a much more accurate and less time-intensive approach for measuring creativity.

This method would also be extremely helpful for understanding creative events. By automatically

detecting when people are creative, companies could better study the conditions that gave rise to that creativity. On a large scale, with organizations composed of hundreds of thousands of people, this action could yield creative iteration on many different processes to help spur creativity across the company.

This data also provides some tools to help people figure out how to get out of a creative funk. For example, rather than trying to work through new ideas on your own, engaging other people in discussion is best. This could be as simple as going to a meeting room and working on a whiteboard. Even scheduled brainstorming sessions can help.

Longer term creative success also depends upon people in different groups interacting with each other. If you only interact with people in your social circle, you end up speaking to people who all have the same opinion. The lack of these interactions is precisely what causes companies such as Nokia to ignore a major disruptive force in their market. As discussed earlier, although Nokia had dominated the cell phone market for some time, the strength of its organizational silos meant that until recently their dominance wasn't turned into a transformative opportunity to make smartphones central to the company's strategy.

Serendipitous interactions are incredibly important for making random connections that pay off down the road. You could meet someone working in a completely different area and find out that you're working on things that are actually quite related or could solve one another's problems. Longer-term studies are needed to determine the impact on the company's bottom line, but preliminary data shows that people who tend to have these random interactions perform better than people who don't (see [Chapter 4](#)).

Although interaction patterns and physical movement were both predictive of creativity, they need to be addressed separately. It's not surprising that you're more creative when you're more energetic and moving around. After all, when you're lying around on a couch and not lifting a finger, you're probably not being very productive or creative. An example of the importance of energy comes from the crucible of startup innovation, the hackathon. One of the hallmarks of creative software companies is the liberal use of caffeine-fueled 24-hour programming jams called *hackathons*. These events, at companies such as Facebook and Google, get a bunch of engineers together in a large room with plenty of computers, couches, pizza, and drinks, and encourage people to collaborate in small teams and build a working demo of the next big thing.

During a 24-hour period, programmers devise code and demonstrate a working application that builds on top of a company's infrastructure. This Herculean undertaking yields important innovations—Facebook's chat feature, for example—and at the same time builds social capital across the company. These are intense events, with people furiously coding to meet deadlines and quickly iterating on features to hack something workable and intuitive together. No wonder that the startup community has enthusiastically embraced hackathons as a major tool to promote innovation.

Hackathons are an example of the type of activity that is associated with higher energy levels and higher creativity. The results from the ASU study don't say that people should spend the entire day running around the office. Instead they're saying that rather than sitting still at your desk, you should try to walk around a bit more and get yourself amped up about the work you're doing. These tasks can be challenging, but that's another reason why events such as hackathons can be effective. They set

a cultural expectation for high energy and high commitment, and this activity is infectious. When everyone around you is energetic, you similarly become more energetic.

In contrast to these findings, in many societies the lone genius is often seen as the ultimate model of creativity. Leonardo da Vinci, Edison, these are the giants of individual innovation. Forgotten is the fact that these people lived in an extremely vibrant and collaborative community. Da Vinci traveled around Italy during the heady days of the Renaissance, interacting and working with many of the brilliant luminaries of that time. Edison's work developed during the boom times of the Industrial Revolution, and he similarly was heavily embedded in the scientific and industrial communities. Edison's famous work on the light bulb was actually a practical improvement built on top of existing technology, not something that he invented from scratch.

As the data from the ASU study shows, innovation isn't just about the individual. That's not to say that individual people aren't important. People actually have to work to be creative and make innovations a reality. At its core, creativity is about getting the right people energized to collaborate and make something great. The combination of different skills and the chaotic mixing of ideas is what generates innovations that change the world.

## **7. Tough It Out versus Stay at Home: Modeling Disease Spread Through Face-to-Face Conversations**

When you get sick, do you go to work?

Although on its face this is a simple question, it has a far from simple answer. What humans are instinctually driven to do isn't necessarily a product of an evolutionary response to disease, nor is it based solely on our upbringing. The culture of our company and country can play a huge role.

From a physical health perspective, obviously staying home is better. There are no debates. If you stay at home when you're sick, you are unable to infect anyone else. Many public health professionals would argue that by staying home you're making a positive decision for society. Fewer people get sick, fewer people miss work, and all it costs you is one day of productivity.

However, the actual cost might be far higher. From a productivity perspective, whether you go to work has a huge impact not just on yourself, but on your coworkers. As discussed in [Chapter 4](#), when you don't interact with people that you work with, everyone's performance suffers. A lack of communication also negatively impacts job satisfaction levels, and consequently, mental health outcomes.

Companies continually grapple with this quandary, as the following personal experience illustrates. A few years ago I took time off from my graduate studies at MIT to work as a researcher for a large Japanese electronics company in a lab near Tokyo. I had collaborated with some researchers from this lab, and in order for us to work together at a more meaningful level, I had to be an

employee. As an undergraduate, I had minored in Japanese, so I was also thrilled at the opportunity to return to Japan and shore up my language skills. I had worked in other labs in Japan before, and because I could speak the language, I felt like I was prepared for the cultural differences that awaited me there.

Japanese offices, and Japanese research labs in particular, are very different from those we have in the U.S. A typical lab has an extremely large bullpen area, with hundreds or even thousands of researchers sitting across straight rows of open desks. Desks might have a small cubicle wall, but if you stand up, you can easily see everyone in the lab.

Face time is also highly valued. Researchers arrive fairly early, around 8 a.m., but normally won't leave until around 8 p.m. Everyone eats lunch and dinner together in the cafeterias. The environment is designed to foster interaction and keep people at work for as long as possible.

One day during my time at this Japanese research lab, I got sick. Not the kind of sick where you have a light headache that you can quickly kill off with some aspirin, but the 101-degree fever sit in your bed wearing an oversize sweatshirt while watching *Law and Order* reruns kind of sick. My conundrum was that my team had a presentation coming up the next day, so I had to finish up the materials we needed to show our manager.

After seeing that I was looking pale and generally out of sorts, one of my colleagues came over to my desk to see what was the matter.

"I'm coming down with something," I told him honestly. "I've got to stay here and finish the slide deck, but I probably won't be able to make the presentation tomorrow." He looked at me very seriously.



“No, you have to go home right now,” he replied. I was a bit confused, and I thought that maybe I had made a mistake in my Japanese. You weren’t allowed to bring company computers home with you or e-mail attachments outside the company, so finishing up at home was out of the question.

“I really need to finish this by tomorrow, so I have to stay and finish it today,” I reiterated. He shook his head.

“No, you really have to go home right now,” and with that I was politely excused from the lab. In a mild state of shock, I took the train back to my apartment and considered how I should respond. I knew that I had to finish this presentation, so I figured the best course of action would be to arrive at the lab early the next day and leave myself enough time to complete everything.

When I arrived, I was politely told that I had to wait at least one day before coming back. They just wouldn’t let me back into the lab under any circumstances until they were convinced I was healthy. In Japanese companies, the desire for face time and even productivity is vastly outweighed by a mysophobia (fear of germs) that borders on the extreme.

For those of us from the U.S, this hard-line reaction to illness seems strange. Imagine telling your boss: “Hey, I know we’ve got an important deadline tomorrow, but I’m feeling under the weather, so I won’t be able to make it.” You would at least expect a bemused reproach, if not a downright reprimand.

United States workers doggedly insist on meeting professional obligations even if they have personal issues that could conflict with these obligations. When a child is born, parents aren’t guaranteed pay for the time they take off, and after 12 weeks, their employer could legally fire them if they haven’t returned to work. So it’s no

surprise that when we come down with an illness, employers are less than forgiving.

In a different personal example, I was on a business trip where I had to work while running a fever of 102 degrees for three days. Somehow I managed to be halfway productive, but for the week after I returned home, I was in a constantly weakened state, not to mention the fact that I probably infected a number of my colleagues. This would cause a ripple effect in terms of lost productivity. Instead of only one person out of commission for a few days, all of a sudden you have a dozen people working at vastly reduced effectiveness and feeling miserable in general.

It's easy to understand why companies cultivate a "tough it out" ethos. Unless you can work from home, your productivity when you're out sick is zero. As shown in all the studies mentioned in this book, even working from home isn't very effective because face-to-face communication with your coworkers dramatically improves your performance as well as that of all the people with whom you normally interact. If you stay at work, even though your effectiveness will be reduced, you can still take advantage of all the social productivity effects that the studies in this book uncovered.

So, which response is correct?

To answer that question, real-world behavioral data is needed to understand how diseases spread within companies, using methodologies developed by epidemiologists. This allows us to estimate how changes in behavior from disease responses impact productivity. Using data from the IT firm introduced in [Chapter 5](#), that's exactly what we did.

## **CORPORATE EPIDEMIOLOGY<sup>1</sup>**

The IT firm project is a great dataset for investigating the effectiveness of disease response strategies. Recall that in this study dozens of people configuring complex hardware systems wore Sociometric Badges for about a month. Besides the badge data, we also had hard productivity numbers, allowing us to create a very accurate model of performance based on behavior.

When people get sick, their behavior changes. To see what sort of effect this would have, we can modify the behavioral patterns extracted from the original IT firm data and observe how productivity would change. Specifically, we look at how the cohesion changes for each member of the firm, because that was the feature most strongly correlated with performance.

In this exercise we simulate people getting sick in the original dataset, simulate the infection spreading, and calculate the effect this illness has on performance. The goal is to see what happens if people change their behavior when an outbreak occurs. For example, if people go straight home when they become sick, we can remove their interactions from the original dataset for the days when they are “at home.” This changes the interaction patterns in the entire group, and using our performance model, we can see how this behavior change affects the bottom line.

To simulate the spread of the disease, fellow MIT researchers Manuel Cebrian, Riley Crane, and I collaborated with epidemiologists Leon Danon and Ellen Pollock from Harvard’s School of Public Health. One major aspect of this model was determining how to simulate disease transmission and recovery. Luckily, the public health field has studied these processes extensively. Transmission probabilities are derived from transmission methods and virus lifecycle estimates in the

academic literature (the now-famous  $R_0$  value popularized in the movie *Contagion*). Recovery times are also relatively easy to estimate. Researchers will observe infected individuals in controlled environments, typically a laboratory, and take blood samples over the course of a few days to see how long someone takes to recover.

We used a standard infectious disease simulation method called an SIR (Susceptible-Infected-Recovery) model. Each stage of the SIR model has different properties, and at any point in time any individual is in the S, I, or R stage. In the S stage you're not sick, but you might become infected (although for certain types of disease, not everyone is susceptible). After you're infected, you enter the I stage. At this point you can infect other people for a set period of time. Each time you interact with a person in the S stage, the simulation program picks a random number to determine whether that person becomes infected. In reality even after you contract the disease, you are not immediately infectious because the disease needs time to spread through your body. However, this doesn't make a big difference in the outcome of any simulation because for most illnesses becoming infectious takes only an hour or two.

After a few days, you enter the Recover stage. In this stage you can't infect other people or be infected, and this is the virtual analogue of the immunity you acquire after having been exposed to an illness. Many of us have experienced this in our own lives. After you have a fever, it's not uncommon that one of your family members will get sick as well. Even though other family members might catch the bug too, you stay healthy because your immune system has learned to fight off the disease.

In terms of hard numbers, interacting with an infected individual for one minute in our model gives you a 0.7% chance of infection. Full recovery after infection, on the

other hand, takes three days. These numbers are roughly equivalent to the epidemiological characteristics of H1N1.

Now that we have the data and the model, how do we start things off? In other words, how do we choose who gets sick first so that we can see how the disease will spread? The answer is that we don't. For every individual in the data, in the beginning of every day for a one-week period, we start a simulation with that person labeled "infected." This creates different paths of infection through the workplace, because we don't really know who is more likely to get sick beforehand. Each of these infection starting points is simulated a few hundred times. The reasoning behind this method is that depending on how lucky you are, different people will get randomly infected when simulating this epidemic. Even with real data, there is a chance that many more people will get randomly infected in a single simulation simply because the random number generator happened to pull the right numbers out of a hat. We need to average over these different simulations to ensure an accurate picture emerges of what we would expect to happen. Adding in the extra wrinkle that different people are the starting points for infections provides a robust view into the dynamics of this disease.

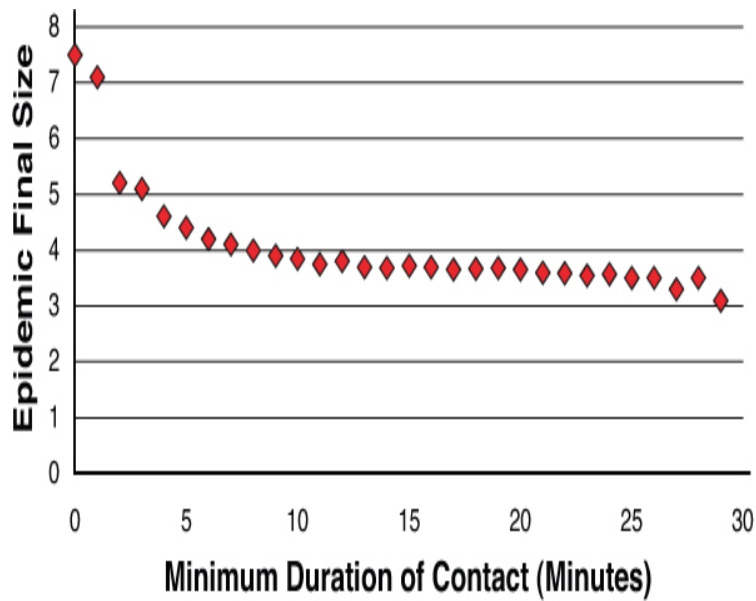
During the initial simulations, we didn't change behavior at all. We just wanted to see what the dynamics of the disease propagation looked like: Were certain individuals responsible for most of the disease spreading? Did certain types of interactions lead to the majority of infections?

What we observed was initially very puzzling. Although longer interactions did tend to lead to infections, the shorter interactions were responsible for the lion's share of disease propagation. It makes sense that longer

interactions would lead to infections. Mathematically, if an infected person talks to a healthy individual for more than 100 minutes, then a greater than 50% chance exists that the healthy person will become infected. Compare this probability to what happens if I talk to 20 people for 5 minutes each: The likelihood that I will infect a single person is the same—50%. The likelihood that I would infect a specific individual, on the other hand, is only 3.5%. However, if I infect one of the first people I talk to, then after our 5-minute conversation, we can both go on and infect other people. These dynamics are what caused most of the infections we observed.

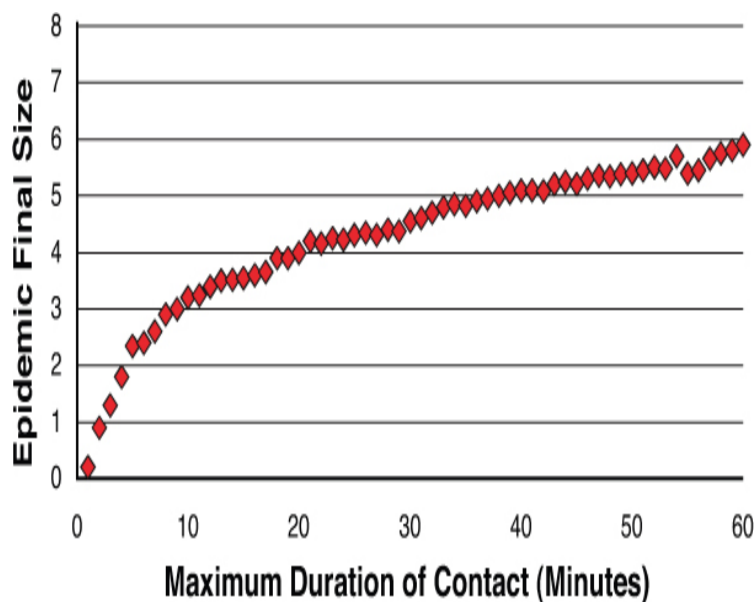
As we were wrapping our heads around this concept, we wondered what would happen if we were able to reduce those interactions. Rather than completely cutting off all interaction as we initially proposed, we wanted to investigate the effect of removing only these very short conversations. We didn't have a good idea of exactly what the cutoff should be, so we simply tried them all.

Figure 7.1 shows the number of people who got sick (the epidemic final size—vertical axis) as we put a higher and higher threshold on the minimum duration of a conversation (horizontal axis). So for the point of minimum contact duration of 5 minutes, we eliminated all interactions that lasted less than 5 minutes and repeated the simulation. As you can see, this 5-minute period seemed to be the perfect cutoff point, reducing the number of people who got sick by almost 50%. After this 5-minute period, only slight reductions occur in the epidemic's size.



**Figure 7.1. Reducing disease spread by removing short interactions**

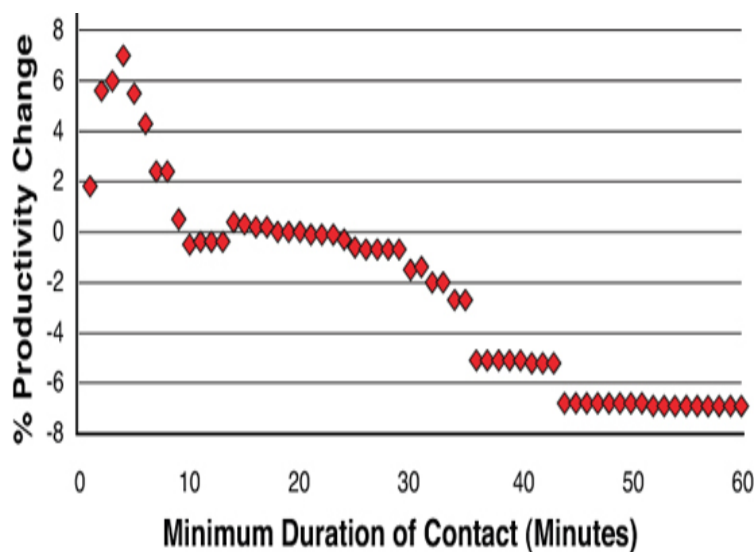
We also wanted to see what happened if we put a maximum threshold on interactions, eliminating only conversations that were longer than a certain amount of time. As you can see from [Figure 7.2](#), we don't observe a similar effect. To achieve a result equivalent to what we observed at 5 minutes in the graph shown in [Figure 7.1](#), every interaction longer than 25 minutes would have to be eliminated.



**Figure 7.2. Reducing disease spread by removing long interactions**

Still, the question about the effect on productivity remains. What would this kind of behavior change (that is, removing conversations of a certain duration) do to the productivity of the division? In these same simulations we also computed how the networks of the division changed. By speaking a little bit less, or not at all, to other people in the division, performance was substantively affected.

Figure 7.3 shows the percentage change in the division's overall performance that results from removing interactions falling below a duration threshold. The minimum duration of conversation numbers show a very interesting bump in productivity around the five-minute mark. According to the data, productivity would actually *improve* by eliminating these very short interactions.



**Figure 7.3. Removing short interactions improves productivity?**

Here is the disconnect between modeling and reality: Shorter interactions tend to be largely informal, such as bumping into someone you know in the hallway or chatting by the coffee machine. For people whom we are

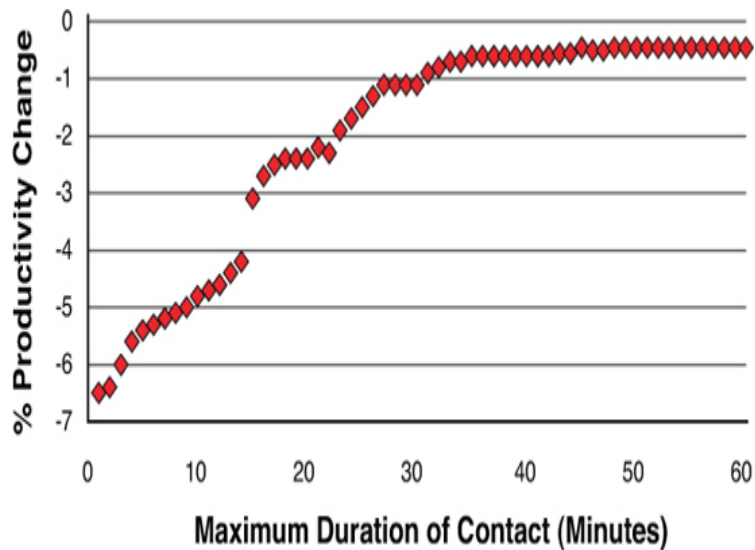


very close to, we'll have deeper conversations in addition to these short ones. People with whom we only casually chat, however, probably don't run in the same social circles, which is why removing those interactions would yield an increase in cohesion. This would imply that we should universally strive to eliminate these short conversations.

In the short term, there are certainly advantages to this practice. People would be able to spend more time talking to their close contacts, making it easier to communicate complex information and building trust. On the other hand, eliminating these interactions would slowly erode the connectivity of the overall division. After these weak connections are removed, the group would eventually become an echo chamber because group members would only be talking to each other. As we've already discussed, that would be a huge mistake.

Therefore, we should interpret these results more in the context of epidemic risk than as a general rule for how to shape communication patterns. The results clearly state that during high-risk periods, reducing the number of short interactions will greatly decrease the number of people who get sick and might even have some performance benefits. At the very least we wouldn't expect productivity to suffer.

Eliminating longer interactions, however, is a different story. As [Figure 7.4](#) shows, eliminating longer interactions has a consistently negative effect. This effect comes from the fact that you can spend long periods of time talking with the people with whom you work closely, and a reduction in those interactions will almost always decrease the cohesiveness of your network. For comparison, removing interactions longer than 30 minutes would result in a 1% decrease in productivity.



**Figure 7.4. The negative effect of removing long interactions**

Now that we know what effect these different interventions have on health and productivity, the question becomes how to implement them. The focus shouldn't just be on reducing the number of short conversations. Although this represented a nice tradeoff between health and performance, in some circumstances health concerns will preempt performance issues. In those cases reducing *both* shorter interactions and longer ones would be helpful in an effort to clamp down on the spread of a disease. This is when staying at home becomes an attractive option.

Many strategies are available for reducing the number of short conversations. As previously discussed in [Chapter 4](#), distance has a powerful influence on interactions. The closer you sit to someone, the more likely you are to speak with that person. This is especially true for short interactions. If you're going to spend an hour in a meeting with someone, the distance to his desk doesn't matter. Walking over to him or finding a meeting room is worth your while. However, distance has a huge impact on serendipitous interactions. When your desk is

physically closer to people you know, you're more likely to bump into them or engage in some chit-chat.

We can use this tendency to our advantage by piggybacking on current trends in the workplace, namely the concept of open seating. In open seating offices, no one has an assigned desk. Instead, different groups sit in different areas, and people in a particular group can choose any desk in their area either for a single day or for at most a few weeks. Instead of keeping groups together, mixing up the different groups would increase the average distance between people on the same team. This would mean fewer serendipitous interactions because you would be farther away from the people you normally talk to.

This seating arrangement wouldn't be the policy all the time, and would only apply during high-risk periods. At the beginning of an outbreak, companies could shift their work areas to "epidemic seating." This costs the companies practically nothing, doesn't inconvenience employees, and has a positive impact on health. You could also imagine some side benefits from this effort, because you might get to know people in other groups whom you don't normally talk to. We might think this would defeat the purpose of the new seating arrangement, but these would actually tend to be longer interactions because you have to introduce yourself at length. In any case short interactions will occur more infrequently than they would in a normal seating arrangement.

Another simple strategy for reducing short conversations involves keeping office doors closed. An open door makes it easy for people to poke their head in and say hello, which under normal circumstances would be welcome. By keeping office doors closed, someone can still easily come by, but it would be a more intentional

interaction, which would typically last for a longer period of time.

To make a major reduction in the number of short conversations, another effective strategy is to increase the number of long interactions. During high-risk periods, companies could schedule “Meeting Days” where every meeting for the next few weeks is crammed into a few days. This approach would create a large number of very long interactions, but would all but eliminate short conversations. If for various logistical reasons this is not possible to fully implement, even a partial shift of meetings to high-risk periods would have a marked effect.

Making small changes to reduce long interactions, on the other hand, is relatively hard. These interactions tend to be planned and more critical than short ones. Therefore, you have to change intention and formal processes more than changing the environment slightly to encourage certain behaviors. A simple step would be to eliminate meetings longer than a certain amount of time. You could also move meetings to video conference, but that would significantly degrade the quality of the meeting.

Given the impact on performance, however, reducing long interactions represents a fairly drastic step and would only be taken in extreme cases. In general, this means that the best way to eliminate long interactions is for people to stay at home. However, impacting the primary mechanism of airborne infections is also possible through cultural changes.

In Japan people wear surgical masks when they're sick so that they pass fewer germs to others. Because the mask blunts the velocity of expelled air and most infections are caused from talking to other people, this intervention would actually be quite effective.

Table 7.1 summarizes different strategies that organizations can adopt to combat disease while balancing the impact on productivity. Depending on the situation, a company might want to place more emphasis on health, but in another situation context may become more important. The strategies presented here shouldn't be viewed as a list of things that have to be implemented for every disease outbreak, but rather part of a toolbox that organizations can adapt to their specific needs.

Type of Interaction	Encouraging	
Priority	Productivity	Protecting Health
Reduce Short Interactions	Make seating changes, close office doors, schedule "Meeting Days"	Make seating changes, close office doors
Reduce Long Interactions	—	Cancel/reschedule meetings, have video conference meetings, send sick employees home
Cultural Changes	Wear surgical masks	Wear surgical masks

**Table 7.1. What to Do in an Epidemic**

Cultural changes such as wearing face masks are imperative for preventing the next pandemic from simultaneously crippling our health and economy. These cultural changes don't just need to feel good, they need to be based on hard data. Simulations help support these changes, but real data from actual epidemics is also needed to improve our responses. This chapter lists some effective strategies that take a unique approach to combating illness—and covering your mouth when you cough is also never a bad idea.

## **8. Why We Waste \$1,200,000,000,000 a Year: Mergers and Acquisitions, Corporate Culture, and Communication**

Companies don't grow to a massive size all by themselves. Nearly every company in the world with more than 10,000 employees (and many that are smaller than that) have either merged with or acquired another company, or many. This activity, called mergers and acquisitions (M&A for short), is one of the most important and difficult processes in business.

Every year, about \$2 *trillion* worth of M&A activity occurs. Some of this activity is truly epic in scale, with gargantuan deals such as AOL's acquisition of Time Warner for \$164.7 billion in 2000 standing out not just for its monstrous size but also for its monumental failure. Failure in M&A is actually the rule rather than the exception, with most estimates pegging M&A failure north of 60%. In fact, the three largest mergers and acquisitions<sup>1</sup> of all time either ended in breakup or resulted in financial catastrophe, costing the companies involved a combined \$466 billion.

These failures cost the world economy \$1.2 trillion *every year*, enough money to pay for the college tuition of every student in the United States and still have a bit left over to solve Greece's debt crisis. Wasting that amount of money is criminal and demands a solution.

Of course, companies don't set out to blow billions of dollars on a questionable deal. They spend a great amount of time researching and negotiating with potential M&A partners. Some of this work is done by M&A experts, who charge millions of dollars to investigate the financial performance and potential

synergies that could be realized through M&A. Many of these deals are years in the making, with a vast amount of careful planning and formal procedures put in place to make sure M&A goes smoothly.

Yet these plans fail repeatedly, and companies continue to follow the same doomed path as those before them. Business leaders mostly shrug and take the common refrain: “M&A is just hard.” This statement is fair enough, because many things are just hard. Building a supersonic jet is hard. Designing a computer processor with hundreds of millions of parts is hard. The thing is, those things still get done well, with vastly higher success rates than occurs with M&A.

My perspective on this problem is a little different. Consider the state of M&A: Thousands of some of the smartest people in the world work on exactly the same problem and consistently fail. Either M&A is impossible and companies should just resign themselves to blowing \$1.2 trillion a year, or they are focusing on the wrong things.

Let’s start with one particularly famous example of M&A: eBay’s acquisition of Skype.

## **I’LL CALL, AND RAISE**

Skype is familiar to many of us as the ubiquitous voice-over-IP (VoIP) program used for free video chat and incredibly cheap phone calls to anywhere in the world. Skype was founded in 2003 by a small group of European programmers who quickly built the software into a communication juggernaut. Today it has become a wildly successful platform, with more than 13% of all international calls being made through Skype.

Back in 2005, however, a potential suitor in the form of eBay appeared on Skype’s doorstep. This is the same

eBay that makes the overwhelming majority of its money from an online marketplace where people buy and sell all variety of products, from toothbrushes to TVs to entire towns. What connection does online communication have to a community of buyers and sellers, you ask? According to then eBay CEO Meg Whitman, it would allow for people to make much higher value, complex deals through their online marketplace:

Buying a used bulldozer, for example, could take a high degree of involvement from both buyer and seller because it's expensive and complex. Doing this entirely through e-mail or IM could be difficult. Using Skype will be quicker and easier and very cost effective.<sup>2</sup>

Okay, so one must assume that bulldozer purchases are not going to be that common on eBay. Although eBay has had its share of off-the-wall transactions, even from a cursory glance, it seems like there's not going to be too much natural synergy between these two companies. Strangely, however, analysts were by and large very positive about this acquisition. JPMorgan analyst Imran Khan wrote:

We believe eBay will leverage Skype's products to improve both customer service and buyer/seller communication. Also, Skype has various products in its pipeline which we believe will add more efficiencies to eBay's platform (e.g., video, which could be used for product demos).

Will Stofega from the research firm IDC echoed this sentiment:

Beyond adding an application for eBay customers, Skype entails a new revenue stream for eBay and another way of getting beyond the portal. They wanted to get into the game to become a more full service portal.



These reactions left me scratching my head. Were we looking at the same acquisition? Integrating products, especially ones that are as different as VoIP and an online marketplace, is extremely difficult. Besides both having a bit of messaging functionality, Skype is a completely different beast.

On top of that, Skype has its headquarters in Luxembourg, whereas eBay is based in San Jose. Despite the fact that eBay was buying a company that specialized in improving communication across distance, Skype can't fix a time difference of nine hours. This means that exactly zero overlap in workday occurs between the two companies, even assuming people come in at 8 a.m. Any integration is going to take a lot of late night/early morning hours and a lot of travel. As discussed in [Chapter 4](#), this is a recipe for a long, hard road ahead.

The analysts, however, were not looking at these obstacles. They were looking at the financials, at the long-term strategic implications of such a deal. As such, most of them didn't blink at eBay's offer of approximately \$3.1 billion dollars to acquire Skype.

Let's fast forward a few years to the fall of 2009. The acquisition of Skype by eBay has not gone well. There are no major joint product offerings to speak of, and Skype's revenue has failed to expand at a pace rapid enough to offset the huge amount of cash that eBay laid down for the purchase. eBay cuts its losses and agrees to sell 70% of Skype to Silver Lake Partners, a private investment firm. eBay's loss on the sale: approximately \$1.2 billion. For those of you keeping score, this acquisition is essentially equivalent to eBay putting \$300 million in a paper shredder every year that it owned Skype.

Given the challenges identified earlier in this discussion, these difficulties shouldn't have come as a surprise. Beyond the time zone problem, eBay and Skype are very

different companies. This might seem like a surprise to many, because they're both tech startups with employees that have relatively similar educational backgrounds. Beneath that, however, lie different norms around communication and information exchange.

As you might expect, employees at Skype like to use Skype—a lot. They assiduously update their status messages, save chat logs for later consumption, and generally thrive on quick long-distance communication. In addition, Skype the company focuses on remaining informal and decidedly free of jargon in its interactions. Rather than take pride in uber-geekiness, Skype takes pride in helping people communicate.<sup>3</sup>

eBay is very different. Compared to Skype's miniscule team of 150 programmers, eBay at the time had more than 10,000 employees working in sales, marketing, and of course, programming. Companies of this size often develop a more formal character, and eBay was no exception. In fact, eBay's executives went so far as to mock the "amateurish" board meetings at one of their startup partners, something that came to light after their bitter breakup with Craigslist.<sup>4</sup>

Although the lack of strategic synergies in actual technological offerings no doubt had a major hand in sinking eBay's acquisition of Skype, these cultural factors cannot be underestimated. In general, if a company doesn't communicate effectively, problems are bound to occur.

Ironically, Skype has recently been the subject of increased M&A activity from another tech giant: Microsoft. In 2011 Microsoft made a whopping \$8.5 billion offer for Skype, which was subsequently accepted and universally panned by analysts (perhaps wanting to avoid the same error twice).

From a cultural perspective, however, some hope exists that a Microsoft–Skype marriage could succeed. For one thing, Microsoft is a truly global company, with major offices in Europe and all parts of the world. This would make communication and integration of a new Skype business unit much easier than that attempted by eBay six years earlier. Of course, the formal/informal dynamic at Microsoft is similar to eBay's, so time will tell whether this acquisition adds to the ever-growing tally of losses due to M&A.

## **FIXING THE PROBLEM**

Apart from the financials and all the formal check boxes needed for M&A to be successful, companies can take a number of other steps to ensure a long-lasting relationship. Before even thinking about merging, understanding the cultures of the companies involved and how well they mesh is important. This is addressed in many of the preceding chapters in this book, so I won't rehash it all here. Suffice it to say that understanding whether the companies are socially similar, whether people communicate in similar ways, and how people collaborate is critical. Differences in one of these areas will require special attention, and if the separation is too wide, companies should seriously question the long-term prospects of this deal.

Suppose your company decides to go ahead with the acquisition. Teams are put together, merging the actual organizations into a single unit. This usually means redesigning the org charts, opening new offices, and changing everything around so that formally these two organizations are now one. What needs to be investigated, however, is whether this integration has actually occurred on a collaborative level.

If the new, combined organization is still acting like two companies, then a problem exists. This was, in fact, the

subject of a study done by my collaborator Sinan Aral from MIT.<sup>5</sup> Interestingly, this study was not about M&A at all. He and his co-authors were investigating how e-mail communication related to the productivity of individual workers. When they looked at the communication data as a network, they saw something extremely interesting. The organization looked as if it were split into two groups, with little communication passing between the different parts of the organization.

Curious, after the study was completed, they returned to the company to see how they were progressing. They were informed that things had not been going so well, and in fact the company had split up. Sinan already knew where they had split it: into the two groups that he had seen in the communication network data.

Clearly, attention must be paid to the social integration between merging companies. By observing how this changes over time, the M&A team can quickly intervene if it seems like the formerly separate organizations are not interacting effectively. If teams are separated over distance, then getting them together face to face after the merger can ensure that they're able to develop higher levels of trust, as discussed in [Chapter 4](#). Even better, mixing desks between the two companies can increase the number of serendipitous interactions across former organizational boundaries.

What causes these integration dynamics to arise in the first place? Of course, the cultures of both organizations play into it, as does physical layout and the formal organizational structure. However, the team that is in charge of the merger decides how to use each of these integration levers, and that's where responsibility ultimately lies.

The team responsible for merger integration is tasked with developing the processes and plans around

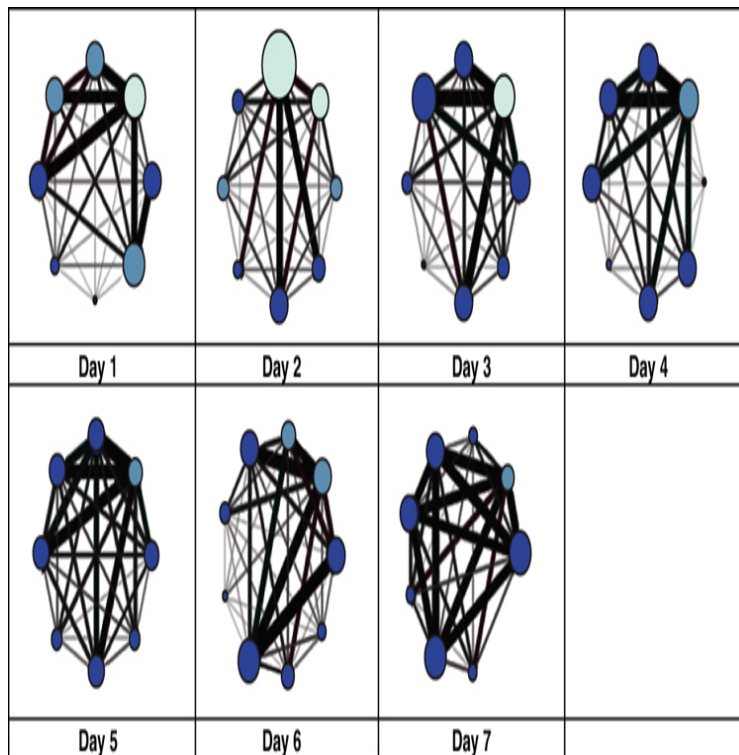
combining the two companies. As with other teams, a number of issues can emerge in terms of communication patterns. One person can dominate the conversation, people can interrupt each other, and so on. In M&A these problems are magnified, because the two organizations can have radically different cultures.

Some companies, for example, could have strong social norms around group debate, encouraging people to speak out when they don't agree. Other companies prefer to air disagreements in private, only discussing general ideas when in larger groups. If these two companies merge, their cultural differences could easily start them off on the wrong foot. This means that merger integration teams must be extremely sensitive to these differences. Before substantive discussions take place, frank and open discussion must occur about how each company operates. Having this open communication might seem like common sense, but cultural difference problems destroy group dynamics with surprising frequency.

This issue is best illustrated in a study we did using the Sociometric Badges in a collaborative engineering project with student groups from different countries. These groups of between 8 and 10 were responsible for building a Rube Goldberg machine, which would be judged by a panel of experts. The winning machine would then be placed in a prestigious science museum in Tokyo. Participants wore the Sociometric Badges throughout the week-long exercise, and groups received daily feedback from the badges on their communication patterns. Importantly, the groups were made up of both American and Japanese students, some of whom did not have a high level of English proficiency. As you might expect, this made communication difficult, even though the groups each had two facilitators who were fluent in both Japanese and English.

As the exercise went on, however, group dynamics gradually improved. After seeing their feedback, the American students realized that they needed to slow down and try to elicit more communication from their Japanese counterparts, and the Japanese students saw that they needed to speak up more. By the end of the week, the groups were collaborating extremely well.

Figure 8.1 illustrates how communication patterns changed for one of the groups. Each circle represents a participant, with the size of the circle indicating total speaking time. The color shows the interactivity level for each participant (black = interactive, white = lecture style). Interactivity here is defined as the amount of time a person speaks before someone else starts speaking. The lines represent turn taking—in other words who speaks after whom.



**Figure 8.1. Collaboration dynamics for an international student group**

As you can see from [Figure 8.1](#), on the first day the two Japanese students are barely participating (the two lower-left circles), and there is a strong clique of American students (four top circles). These dynamics persist for a day or two, but gradually they start to change. By the end of the event, it's clear that the students are all very interactive, participating frequently, and not engaging in the sort of cliqueish behavior that occurred at the beginning. The facilitators (the two lower-right circles) are also barely participating, which is a huge positive. We went on to validate these results in laboratory experiments, even giving feedback in real time to show how data from the badges could be used to seamlessly alter conversational dynamics in positive ways.

For merger integration teams, the message couldn't be clearer. These teams often don't have a common language, relying on translators to get the job done. But as illustrated by the study, that might not be enough. Even when these groups do speak the same language, each organization has its own communication styles that could wreak havoc on the delicate, complicated process of merger integration.

However, some companies have gotten good at M&A precisely because they pay attention to these issues. Google, for example, goes through dozens of acquisitions a year, and it has a great M&A track record, with an acquisition success rate of more than 60%.<sup>6</sup> Part of this success is due to its strong commitment to culture and its integration process, while another factor is its reliance on data to drive internal company dynamics.

You might not be surprised that when it comes to applying data to these issues, Google is at the forefront. They have a human resources division unlike any in the industry. Dubbed "People Analytics," (I approve of the

title) this group is made up of PhDs from top management schools, former consultants, and programmers. This background helps them apply an experimental and data-driven approach to company culture.

The People Analytics team analyzes internal e-mail communication patterns to try to understand how information flows within Google. It experiments with benefits, changing the way that some people are paid or the type of food they have available. It uses dozens of surveys sent out over the course of the year to see how these changes affect job satisfaction and performance. It even has a yearly survey called Googlegeist that assesses the engagement and happiness of Google's workforce.

The results speak for themselves. Google is able to recruit the best and the brightest talent, and in 2012 it was ranked as the best place to work by Fortune<sup>7</sup> (as well as in 2007 and 2008). Today it has grown into an Internet juggernaut with a higher market capitalization than Coca-Cola.

Google's success, however, isn't so easy to transfer to other companies. It has an HR group full of top-flight management PhDs and employees who are willing to devote a lot of their time so HR can collect data. This software company is also not averse to rapid experimentation, which is something that would be a bit more difficult to implement in, say, a major financial institution.

With access to even more data streams from devices such as the Sociometric Badge, however, companies can apply the Google approach in other industries and even improve on it. By putting a strong emphasis on culture and making use of electronic communication data, Google is able to cut the typical M&A failure rate by about 50%. Now imagine adding Sociometric Badges to



that equation. Suddenly there is a good chance to lower M&A failure to more reasonable levels, to use data to fundamentally reshape the M&A process.

The math is pretty simple. Bad M&A deals lead to losses of \$1.2 trillion a year. E-mail data is free, and even if every year companies bought sensors for every employee involved in M&A anywhere in the world, they would still come out with about 99.9% of the savings over the current miserable M&A performance. To deal with the ever-increasing complexity of M&A, and the world in general, using these sensors is a no brainer.

## **9. Attach Bolt “A” to Plank “Q”: Matching Formal Dependencies with Informal Networks**

Everything today is more complex than it was yesterday. Things just keep getting bigger, better, and more complex. It’s almost like a law of nature.

This complexity makes dealing with the world a challenge. Even after people master a task, something new gets added on or a new device comes out that makes what we have obsolete, forcing us to change. We have to be constantly learning, adapting, and coordinating to make sure we’re on the right track.

Things get more complex because the knowledge that we acquire becomes embedded in the things we make. After we realize how to get two computers to wirelessly communicate, for example, that functionality becomes embedded in every computer. We build on top of that, and now that functionality is an inseparable part of that product.

Unfortunately, people still have to know how all of those fundamental parts work. Someone must understand how to make that part, what it needs to work properly, and how to make it better. Think of a computer. The major systems that make up a computer are a screen, a keyboard, a hard drive, a motherboard, and an operating system.

When you buy a computer from Dell or HP, you buy this complete package. But Dell doesn’t actually make the vast majority of the computer’s parts. Dell has gotten good at putting those parts together, but each individual part is made by a different manufacturer. There are hard

drive manufacturers, operating system developers, processor manufacturers, and so on.

Taking the hard drive as an example, you can see that it's actually made up of many subcomponents. Hard disk drives are composed of magnetic platters that are encoded by a magnetic *write head* with the data you want to store. The write head looks kind of like the stylus on record players. The disks spin incredibly fast, up to 14400 RPM, and the write head moves at equivalent speeds. For all of this to work you need a processor to control the write head, a motor to spin the platters at particular speeds, and the actual platters themselves. Hard drive companies don't necessarily make any of these components themselves, but instead contract out the individual parts to third parties.

Following the chain down to the write head controller, you arrive at a computer chip company that manufactures these processors. These smaller processors are composed of a variety of circuits that create memory and calculation capabilities. These are typically all designed in house, so this is one end of the chain, right? Not yet! This company has to actually acquire raw materials, which means that they need suppliers for the silicon, copper, and other materials that they use. This normally requires the company to contract with a distributor, who will in turn have contracts with mining companies who actually dig up or chemically create the raw materials.

All of that complexity was just one path down the chain of production for a commonplace product. There are millions of these chains, which lead to networks touching millions upon millions of people.

So projects today are big. Really big. I mean really, *really* big. Small businesses that make furniture or craft goods from scratch still exist, but these products take months

or years to produce and can only be manufactured on a small scale. The massive chains of production just discussed touch people from all parts of the world in all walks of life, and it's clear that the drivers of the world economy are these big projects.

Building computers is relatively simple compared to some of the projects going on in the world today. These projects take place over even larger scales and have an even bigger economic impact, but they're also prone to many different problems.

Take, for example, Boeing's 787 Dreamliner, their airplane released in 2011. That plane has hundreds of thousands of parts. Every single one of these parts has to be designed, tested, and manufactured individually. After these parts are assembled into an individual airplane system, which also has to be designed, they have to be thoroughly tested again. When all the systems are put together to make a complete airplane, everything needs to be tested once again.

Boeing had 50 teams from 44 companies in 10 countries working to get the 787 off the ground. This feat requires a massive coordination effort, and positively dwarfs the organization of plane production only 40 years ago. In 1969 Boeing took 16 months to produce the first 747. The 787 took more than 6 years (2 years longer than originally estimated) and cost \$32 billion.

The 787 is undoubtedly more complex than the 747. Its fuselage is made of cutting-edge materials, it is 20% more fuel efficient than the comparable 767,<sup>1</sup> and a number of technological improvements make the cabin quieter and much more hospitable than in previous airplanes.

It's no coincidence that the incredibly complex 787 started experiencing problems only a few years after it

first took to the skies. A serious battery fire, in addition to other problems, grounded 787s across the world in early 2013. Although the exact cause has yet to be revealed, the root of these problems can be traced to the complex dependencies between technological systems.

Projects have gotten more complex because our power to execute them has increased dramatically over time. The Internet, computers, ubiquitous air travel, all have radically changed what's possible. That's not to say that there weren't massively complex projects before. Early examples such as the pyramids at Giza are monuments to the coordinated efforts of tens of thousands of individuals.

Previously, however, the interfaces between pieces in a project were much easier to define. When you build a pyramid, one brick goes on top of the other. Done. No changing requirements, no third party that you have to negotiate with, just put brick 1 on brick 2. Things gradually got more complex, with new technology incorporating an increasing number of innovations to become more effective.

Complexity really started to take off in the industrial revolution. At that time, companies manufactured steam engines, locomotives, and rifles on a large scale. These machines were an order of magnitude more complicated than what had come before, and required involved processes to manufacture them correctly. The concept of an assembly line developed, enabling rapid production of complex parts and machines.

Things changed by another order of magnitude in the modern era. No single person can make most of our complex devices by hand. In fact, no single person can make the devices that make our devices by hand.

This dependence on others makes coordination extremely difficult, and leaves traditional management techniques floundering.

We like to deal with complexity by making a comprehensive plan that everyone can follow. This lets us spend a lot of time upfront deciding how things should be and then executing it without the need to talk to each other. This was a fine way to do things when employees mostly worked on building cabinets or even clocks, where outside concerns were minimal and requirements didn't change much over the course of the project.

Today, things are constantly changing, and sometimes these complex systems just don't work the way they're supposed to. This leads teams to change their approach as well as the parameters of their system. When they don't communicate with the teams whose work depends on their own, bugs will invariably pop up.

Computer errors are a perfect example. Too many of us have had the experience of working on something only to be jarred out of reverie by a frozen computer. One reason computers freeze is that a single application doesn't understand what other applications are doing on the computer. If one application has control of file A and needs access to file B, it will ask for control of that file. If at the same time a different program controls file B and needs access to file A, the computer enters a state where neither program can run. Although this example is an oversimplification of what's actually going on, this same lack of perspective and coordination occurs in many projects today.

## **BIG PROJECTS, BIG PROBLEMS**

All of this complexity makes it easy for problems to pop up unexpectedly. These problems have a drastic impact, because a small delay in development and production could mean billions of dollars in lost revenue and extra expense for a company. Manuel Sosa, a professor at INSEAD, investigated this problem in the case of jet engines.<sup>2</sup>

The jet engine project that Sosa and his colleagues studied was quite complex. The engine itself was composed of eight subsystems and had a total of 54 engine components. One team was assigned to each engine component, and six additional teams were tasked with integrating these components into the overall engine.

Although these teams all had formal plans for how they would execute this project, they hadn't considered explicitly managing the interfaces between these different components. The researchers asked the teams to identify all of these interfaces to understand what the coordination requirements were.

In the next step researchers asked people whom they would communicate with over the course of the project. Although this is a survey-based method, researchers were asking about future interactions. If badge data had been available, they certainly could have examined who normally talks to each other to get a sense for where the bugs were going to pop up. Later sections discuss this topic in more detail, but there is definitely an opportunity to enhance this survey method with behavioral data.

Next they looked at where the gaps were. Specifically, they identified areas where many dependencies existed between teams but no planned communication was

identified. These gaps represented potential problem areas and needed to be dealt with to avoid any problems with development, but their causes are complex.

Organizational boundaries are a major source of collaborative discord and the gaps discussed above. Almost by definition, if you don't report to someone, then you don't have to communicate with him. Unless you go out of your way to communicate with him to talk about a dependency, a gap will result. Although formal structures are a blunt instrument for enforcing collaboration across boundaries, because your salary depends on effective communication with your bosses, you can bet that you'll make the effort to talk with them.

Of course, speaking with someone is difficult if you're not in the same place. This is often the case with teams working on complex projects, because if a team is composed of hundreds of people, then co-locating them is often difficult. Even if teams are on the same campus, they are normally on separate floors or in separate buildings. As discussed in [Chapter 4](#), this setup makes it unlikely that they will ever talk to each other.

The boundary problem can be attacked in a few ways. Creating new reporting relationships is certainly one way to go, and this approach is favored in many organizations.

Assigning a team to specifically coordinate interfaces between teams can also be effective. This is almost like a light form of matrixing, where some formal processes are in place for reporting to these integration teams. Using these teams might be preferable to modifying the org chart, however, because they are explicitly formed to coordinate and facilitate communication rather than to order around.



For these coordination teams to be effective, they need to be able to easily communicate with all teams involved, and that means they need face-to-face communication. For issues as complex as jet engine construction or computer chip design, rich communication channels are needed to keep everyone on the same page. Whether or not a company uses coordination teams, getting people in the same place at least part of the time is important.

As discussed in Chapter 4, research shows that the more time teams spend together in person, the better they perform. However, keeping the amount of travel reasonable is important. There are simply diminishing returns as these different teams meet more frequently, because eventually people will be spending most of their time traveling. They won't have time to get anything done. Still, the \$25,000 spent on a few dozen plane tickets saves millions of dollars on extra labor and time lost. Truly a no-brainer.

These priorities matter not just for financial considerations, but also for how communication time is allocated. Although the tendency is to focus most of our time concentrating on the hard problems, the interfaces that require a lot of coordination, too often the small stuff slips through the cracks. When Sosa and his colleagues looked at how people wanted to spend their time, they typically ignored communicating with teams who were working on non-critical interfaces.

Problems arise when these high-priority problems become employees' sole focus. By not spending a little time touching base with people on routine interfaces, you can bet that those interfaces will soon become far from routine if something changes.

A good analogy is how the Massachusetts Bay Transportation Authority (MBTA) deals with the crumbling state of its subway system. When it was first

built in the late 1800s, the subway system was a technological marvel, the first active subway in the United States. The system has expanded over time to cover most of the greater Boston metro area, and is the main mode of transportation for about 30% of Boston's commuters.

Over time the subway system fell into disrepair. With a massive load of debt hoisted on it by the state, the MBTA was faced with some harsh budgetary realities. It could fix critical problems and ignore the less-urgent ones, or it could take on a small amount of additional debt and fix the non-critical problems as well. It opted to focus solely on critical problems, and the result has been financial catastrophe. The MBTA has been forced to take loans against future revenue streams to pay for its yearly upkeep, and it is constantly on the precipice of going bankrupt. The situation is so bad that the MBTA actually employs blacksmiths to forge train parts that aren't made anymore.<sup>3</sup>

The issue with the MBTA's approach is that when you ignore one of these small problems for a few years, all of a sudden it becomes a critical problem. These problems then cost far more to fix. Because the MBTA does not have the funds to adequately deal with its problems, it falls further into debt. This is many times the debt it would have incurred if it had taken the up-front cost of fixing these smaller problems, but the focus on only critical issues obscured the long-term objective.

The general problem with how people prioritize in big projects is the tendency to focus on the big things and ignore the small stuff until they become big things. This is precisely where informal communication is critical. These small things aren't going to come up in formal meetings because they're not important enough to take everyone's time. But they are important enough for a

chat around the water cooler, and communicating information about these smaller issues will enable the company to head off future problems well before they occur.

This again indicates the importance of enabling informal communication between teams, whether it be through cultural or workplace interventions or communication tools that facilitate discussion. In general, however, the communication tools available today are not very good at this. Internal instant messaging programs and social networking services such as Yammer, which is like an internal Twitter for companies, rely on high employee adoption and a willingness to connect with people with whom a person doesn't normally communicate. That's hard to achieve, and a challenge most of these technologies don't directly address.

This communication is also critical for checking our common assumptions, which are another major cause of coordination headaches. We often make assumptions about how to proceed on a project based on what we've done in the past, assuming that everyone is on the same page. In projects that span millions of individuals with many different backgrounds who work on hundreds of different projects at the same time, this assumption is more often than not incorrect.

These assumptions can also pop up when people rely too heavily on standards. At the start of a project, team leaders will spend time planning and designing the overall structure of the final product. Eventually these specifications will get more and more precise, until they describe in detailed language how each component interface is expected to behave.

The problem is that components often don't behave as expected. Unforeseen difficulties can force a team to modify component specifications, and strategic changes

from the top can leave teams struggling to adapt their plans. Whenever these changes happen, the potential for error is introduced. While others are continuing their work and assuming that the old specifications still apply, other teams have completely changed their expectations and are working down another path.

As Chapter 3 touched on, one of the major benefits of a cohesive face-to-face network is the ability to build a common language and a common set of assumptions. In these larger projects, scale prevents that from happening. Having a cohesive group of 300 people, let alone one million people, is just not possible. This situation, however, indicates a huge opportunity for incorporating badge data into the larger organizational process, particularly when companies can pair this data with information from databases on dependencies in software and engineering systems.

## **CONGRUENCE, DISTANCE, AND SOFTWARE**

Software development is the king of dependencies. Unlike physical systems such as an airplane, there is no real limit on software complexity. Whereas planes are ultimately limited by how much stuff can be crammed into an airframe, a program is only limited by how big people's hard drives are. A typical program involves a continuously evolving set of billions of commands, and these commands interact with other parts of the computer that the software developer does not directly control. Not surprisingly, this can cause some problems.

Beyond the sheer scale of these programs, the way that they're constructed also makes coordination problems a very real possibility. At a very simplified level, a computer program is essentially a collection of modules that interact with each other. These modules can be large programs in their own right or small routines that perform the most rudimentary tasks.

Consider a simple program with two modules. One module raises a number to a power (call this POW), and the other module asks the user to input two numbers (let's call this INPUT). POW expects to receive two numbers,  $x$  and  $y$ , and then returns  $x^y$ . Suppose INPUT, however, thinks that POW will actually return  $y^x$ . This would most likely cause INPUT to completely fail or make substantial errors when it uses POW, all because two modules that depended on each other didn't know how to interact.

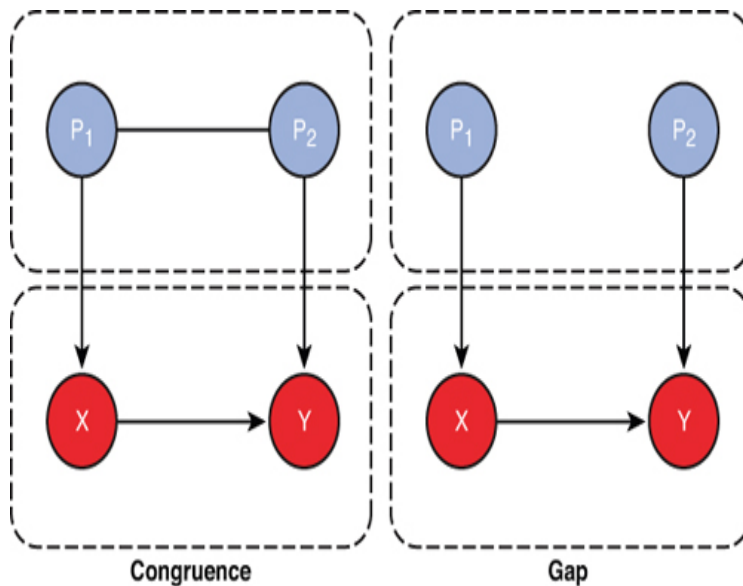
This example is extremely simplistic, and a straightforward problem such as this would likely be resolved quickly. In real software, however, the problems are much more nuanced, depending on the overall state of the program as well as the computer as a whole.

Given their importance, dependencies have been put center stage in the software development community. Dependency tracking tools have been incorporated into nearly all major development environments, which programmers use to create software, and for decades methods for automatically detecting dependency issues have been a hot topic in computer science.

More recently, the importance of communication has entered into this equation. Researchers and practitioners alike realized that using formal reporting tools alone didn't solve the need for interaction between programmers to ensure that dependencies are adequately covered. They even developed a terminology for these issues.

Dependencies can either be adequately covered by communication, or they can fall by the wayside. *Congruence* occurs when there is alignment between software requirements and communication patterns—that is, when there is communication between the programmers responsible for dependent code modules.

In contrast, *gaps* arise when there is no communication between these programmers. Graphically, the relationships look like that shown in [Figure 9.1](#).



**Figure 9.1. Programmers, code, and dependencies**

In [Figure 9.1](#),  $P_1$  and  $P_2$  represent programmers, and the gray circles represent different code modules. Lines represent dependencies/responsibilities for modules. In this case, because module  $X$  depends on module  $Y$ ,  $P_1$  is the dependent and  $P_2$  is the parent.

As you can probably infer from the earlier discussion, gaps are overwhelmingly associated with software bugs. In a landmark study, Marcelo Cataldo and his colleagues showed that congruent relationships resulted in 32% faster completion times as compared to other relationships.<sup>4</sup> When development cycles can stretch on for years, this represents a significant benefit of congruence.

## **DON'T FALL INTO THE GAP**

A decade ago the data needed to investigate congruence and gaps wasn't available, but today these dependencies are exhaustively specified by programmers. This is particularly necessary in massive projects, because having to coordinate with people that one has no direct contact with is likely. By providing a standard interface that others can plug into, a programmer can let other people know how his module will react to different inputs.

Communication, however, is not necessarily a normal part of the development process. In traditional software development, dependencies and modules are assigned in the planning stages of a project, and execution proceeds assuming that programmers will faithfully reproduce this master plan. This usually doesn't happen, however, because anticipating problems that can appear during development is nearly impossible for planners. Whether the changes arise from unrealistic response time requirements, aesthetic changes that occur mid-stream, or something else, they all require coordination and communication.

Lately, development environments have incorporated communication functionality into the overall program. This often takes the form of comment fields and instant messaging channels that developers can associate with particular pieces of code.

These tools have become even more crucial to use as developers are increasingly spread over larger and larger distances. Due to its perceived formality and the availability of cheap labor with equivalent skill sets in developing countries, software development is probably the most distributed white-collar profession.

Unfortunately, development across multiple locations has been associated with project delays and increased work for individual employees. This mostly results from the lack of face-to-face communication and differences in time zone, which makes having rich interactions with other people on the team difficult. These communication effects would, presumably, affect the prevalence of congruence and gaps.

Along with Kate Ehrlich and Mary Helander from IBM, I investigated precisely how co-located and distributed teams collaborate and how this communication related to gaps.<sup>5</sup> By collecting a rich data set not just on communication, but on the dependencies between different code modules, we were able to discover a number of ways that both co-located and distributed teams could improve their coordination.

In this project we examined a medium-sized development team of 161 programmers working across 20 sub-teams. Some people were on multiple teams, and some of the teams were co-located, whereas others spanned multiple locations. Importantly, all team members used English as their primary language.

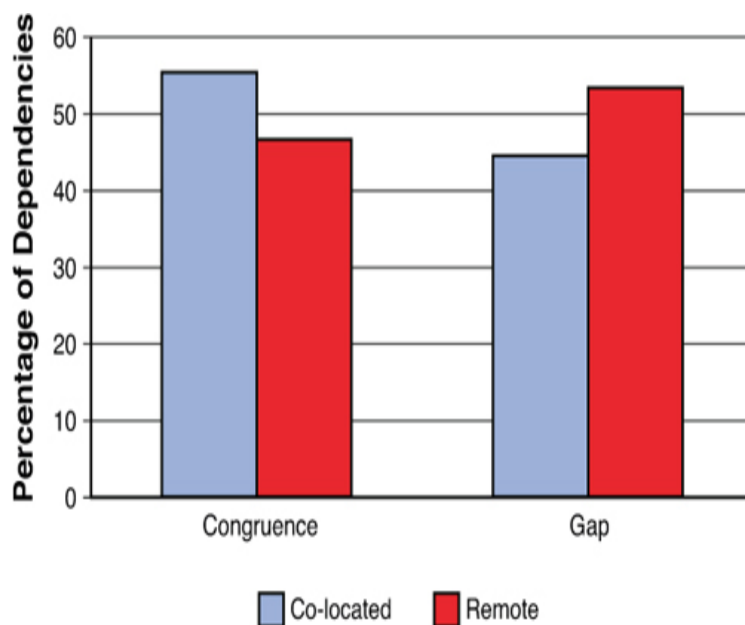
These teams heavily utilized a software development environment that recorded data on code dependencies as well as provided communication tools for people to comment on pieces of code or directly with each other. We scraped this data from the development environment, in total obtaining records on thousands of dependencies and tens of thousands of comments.

Overall, the average programmer had code that depended on 32.5 other modules in the project, with a high of 177 dependencies. Even the average number of dependencies is a lot to keep track of, especially because each of these dependencies can change at any time. While not all of these dependencies are crucial, it often



falls on the dependent to make sure that none of his interfaces with other modules has changed. This makes sense, because someone working on a critical module would have a hard time satisfying the requirements for the 100 or so modules that depend on it. However, it does mean that dependents need to keep on their toes.

A look at the breakdown of congruency and gaps revealed what we might expect. Gaps were much more common when dependencies spanned groups in different locations. In general much of the work in this group was done remotely, so there were actually 22% more dependencies in remote teams. [Figure 9.2](#) illustrates the results.



**Figure 9.2. Congruencies and gaps by programmer location**

For co-located groups, about 55% of all dependencies were congruent, whereas there were gaps for 45% of dependencies. Remote groups essentially flipped these numbers, with 47% congruencies and 53% gaps. This is an extremely large difference. These results imply that remote programming groups are 8% less effective than co-located groups. Also remember that in this case

everyone's native language was English. What would have happened if some of the groups had difficulty communicating in the lingua franca of the other groups?

To calculate the presence or absence of a gap, however, the study only examined whether there was *any* communication between the two parties relating to the dependency. As you might imagine, a single comment probably indicates a low level of coordination, whereas a high number of comments indicates that people are actively engaged in addressing potential issues. Because this is all electronic communication, nothing is physically preventing people from communicating. However, the numbers are pretty overwhelming.

The average dependency for remote groups received 8.4 comments. Co-located dependencies, on the other hand, had an average of 38.1 comments. In this team, face-to-face communication clearly bolsters the overall level of collaboration between coworkers. This enables them to not only address dependencies with more regularity than their remote colleagues, but also to address them more effectively.

## **KEEPING IN CONTACT**

The importance of congruence and gaps is impossible to overlook. Gaps have an overwhelmingly negative impact on performance by increasing bugs and slowing development time by more than 30%. This serious issue spans across many of the world's fastest-growing fields such as vehicle development, programming, and complex engineering projects. Making sure these groups address their dependency problems is critical for their success.

As these projects grow in scale, having everyone working on them in the same place can become infeasible. As the study results show, this is potentially a major issue. Teams working remotely need to place an even greater

emphasis on achieving congruence, and using lightweight digital communication tools alone might not be enough.

Collaborators need to actively set up video conferences, phone calls, and chat sessions to make sure that these dependencies are being addressed. Although this extra communication takes time out of the workday, spending an extra 5% of one's time talking with collaborators versus an extra 30% of one's time debugging seems clear-cut.

Organizations can also work to assign “brokers” who will actively try to connect distributed groups. These brokers are ideally people who travel frequently to different locations or are at least in close contact with relevant stakeholders. Their informal sense of who should be talking to whom and making the act of connection a part of their daily routine will pay huge dividends for the organization in the medium and long term. These introductions create congruence, which speeds development time for a particular project and creates relationships that span distance and organizational boundaries. As the examples in this book have illustrated, those relationships are the glue that holds companies together.

A last important note is that dependencies need to be matched by the physical layout of the workplace. Chapter 4 covered how distance is an important driver of communication; that result emerged at a different level in this project, which showed in striking relief the added importance of dependencies. By mashing these two findings together, companies can accurately choose an ideal workplace layout.

When companies decide which teams sit where and even what cities teams are located in, dependencies need to be a major consideration. Although at the outset of a project

knowing what dependencies will emerge and who will be responsible for which modules might be difficult, the general structure should be relatively clear. This allows companies to strategically choose team locations to drastically reduce the prevalence of gaps using the power of serendipity. In this case bumping into other people in the hallway or at the coffee area has an immediate impact on performance by helping people coordinate their work, to speak nothing of the long-term benefits of these interactions.

I don't want to imply that teams need to constantly move desks or transfer to different cities as their short-term dependencies change. That would be a logistical nightmare and end up costing an inordinate amount of time and peace of mind for employees. The major point is that organizational strategy at the macro level and dependencies at the micro level need to be manifested in the design of the workplace. Companies must strive to make this critical face-to-face communication as likely as possible, because as the study results emphasized, digital tools can't be relied on to bridge the gap.

If companies' collaboration methods don't change, projects such as the Dreamliner are going to get even longer and more expensive. In about 40 years Boeing went from making a new plane in 16 months to 120 months. Even at a much slower rate of change, in another 40 years it would take a company such as Boeing well over a decade and cost hundreds of billions of dollars to develop a new aircraft. Something has to change. The primary time sink in these projects is the need for congruency. Making changes such as the ones suggested in this chapter can effectively reverse this trend. That's not to say that Boeing's next aircraft will take 16 months to produce, but it could.

## **10. The Future of Organizations: How People Analytics Will Transform Work**

The modern organization is truly amazing. Thousands of years ago, humanity could do little more than produce a few simple sailing vessels, rudimentary weapons, and singular artifacts. Some of the organizations that produced these items, however, consisted of hundreds or even thousands of individuals.

Eventually, humanity gave birth to the formal field of management, which tries to guide the development of products and services under a more scientific framework. Companies have continually accelerated the process and scale of development. Emerging from that vast tidal wave of history and evolution and accident, the wave that finally touches the shore is the modern organization.

Over the last few decades, information technology has had a major impact on organizational design. By changing how people communicate, IT has enabled companies to consider new ways to collaborate at work. Before the Internet, collaborating on a document with a team in another city was unthinkable. Because experts can be anywhere in the world, however, collaboration through e-mail became a desirable option. The rise of mobile telephony and real-time video chat enabled companies to open extremely small branches all over the world, further relying on local expertise and rapid, rich communication between different teams.

Certainly, further advances in IT will occur, and they will have similarly profound impacts on the way people organize, but none of these tools are reflective. That is, they don't feed anything directly back into the organization.

Think of a company as a water system. The formal and informal parts of the organization are like the pipes. Some pipes come from informal processes such as bumping into people around the coffee machine, whereas other pipes represent formal reporting relationships. If you can structure the pipes correctly, the right amount of water will end up getting to the right destination. Otherwise, you'll burst a faucet in a house in Kentucky because you routed all the water for the state of New York to a small outlet, while other parts of the country experience widespread drought because you siphoned off too much water.

IT is like the pump. The better it performs, the faster it can push water around the pipes, and the quicker you can adjust to any change that emerges at the ends of the system. Better pumps might also lead you to build new pipes and remove old ones to take advantage of the additional pressure and speed that the new pump affords.

However, the pump will never tell you whether you laid your pipes correctly in the first place. Companies today have a very good understanding of the pump and what comes out at the end of the different pipes, but they have no idea what's going on inside of those pipes. This is where the next frontier of management lies: in using sensing to change organizations.

What this book has covered is how sensing technology, and big data about organizations in general, can have massive effects on the way companies are organized. From changing the org chart to changing coffee areas, no aspect of organizations will be untouched by the widespread application of this data.

Because this technology is so new, the scope of the studies examined in this book has been limited to single companies. I hope that by expounding on some of the

general lessons from these projects, I've been able to convince you of the transformative power of data, particularly communication data. This work will expand in the future—already dozens of research groups around the world are applying this sensing methodology in their work.

Imagine, however, that in the future Sociometric Badges and the other methods you have seen used in this book aren't just limited to a few companies and some academic projects. What if the Sociometric Badge became everyone's ID card? What if instead of thousands of people wearing badges, millions of people were wearing badges continuously for decades? What things could we learn about how to better manage companies? What new opportunities would arise?

## **BADGES, BADGES EVERYWHERE?**

Before getting carried away by possibilities, a couple issues need to be addressed. Is this vision of long-term, widespread badge use actually feasible? Will people really wear badges that can track their behavior all the time? For it to become a reality, two things are necessary: ease of use and privacy protections.

Ease of use is relatively simple to tackle, because electronics are always getting smaller, cheaper, and faster. Most company ID badges already have an RFID chip inside, which is essentially a very cheap sensor. Even the current version of the Sociometric Badge is getting close to these ID cards in size and weight, with the battery remaining the biggest bottleneck to further miniaturization.

Using sensors and calculating voice features takes power. This is why your cell phone runs out of juice more quickly when you turn on Bluetooth and GPS. When you transmit a signal over the air, you're effectively blasting

light waves in all directions. This is what the badge does to help detect conversations. On top of that, voice features are constantly computed when someone is speaking, requiring signal processing algorithms to run on the badge's processor. When someone isn't speaking, a lot of the processor's parts can be turned off, further saving power. The point is that all of this activity takes a lot of juice. The current version of the badges does pretty well: The battery lasts for about one work week without needing to be recharged.

Recent innovations in battery technology, from inductive charging to over-the-air power transfer, mean that in a few years the badges won't even have to be directly recharged. They can be charged simply by placing them on the table for a few minutes or even wirelessly beaming electricity from an in-office power station. With some clever engineering, the power consumption of these sensors could be reduced even further, until soon people are using these sensors as their regular ID badges.

The privacy portion of the equation, however, gets more complicated. When sensing technology becomes commonplace, the Sociometric Badge won't be the only option. Other companies could make similar devices with similar capabilities, but instead of adhering to a participant-centered version of privacy as discussed in [Chapter 1](#), some of them would likely have a different approach. If the badges are now your ID, after all, will people still have to opt-in to data collection, or would companies turn it on by default?

These questions are difficult to answer and indicate that strict legal mechanisms must be in place to ensure that companies don't have access to individual data. Although pockets in the legal community that are interested in establishing such standards exist, such as the Berkman Center for Internet and Society at Harvard, this



movement is only slowly gaining traction. Without these protections, sensing technology could create a poisonous work environment, one in which people are constantly worried about being spied on and monitored down to the tiniest movement.

This type of environment completely defeats the purpose of the badges and organizational sensing in general. The badges are designed to help make people happier and more productive, things that all companies should strive for. There's just not a good business case for checking what Bob was doing at 2:30 p.m. on Tuesday. Not only is exposing that information a huge violation of privacy, it also wastes the company's time. The things that all companies should care about are

- What makes people in this company productive and happy?
- How can the company change to make people happier and more productive?

Notice there is nothing about individuals, because that data is too specific to affect broad change across an organization.

The issue of privacy deserves a book in and of itself, so not a lot of time can be spent on it here. Luckily, some great work by the World Economic Forum, *Personal Data: The Emergence of a New Asset Class*,<sup>1</sup> outlines the challenges in this space and describes in detail the framework that needs to be in place for innovation to continue. It's heartening that governments and businesses at such high levels are paying attention to this issue and agree on the basic "new deal on data" principles.

You should feel more confident that not only will technology such as the Sociometric Badges become

widespread, but it will also be adopted in a privacy-preserving fashion. So what will happen after millions of devices are scattered across the globe? Let's take a tour of what this would look like, from integrating new employees to the fundamental building blocks of management.

## **MOVING TOWARD THE PEOPLE ANALYTICS SYSTEM**

Imagining the benefits of deploying badges across a Fortune 500 company with hundreds of thousands of employees is easy. In all the projects discussed in this book, researchers used natural variation in the way that people work and communicate to identify the things that make people effective and happy. After isolating these effects, organizational leaders can bring those lessons to the rest of the company in the form of a *people analytics system*.

Having hundreds of thousands of employees at the same company wear badges for years on end can multiply these benefits. Every facet of the organization can be analyzed and modified to be more effective. Although this book discusses many of those areas, these changes could be made at an even larger scale.

Let's now begin where all companies do: hiring employees. On-boarding new hires is one of the most difficult things that companies have to do, with the common statistic being that bringing on a new employee costs about 25% of that employee's salary. Using the badges, however, could affect this process at a basic level.

Consider training employees at a retail store. They have to learn the culture of the organization, how to restock the shelves, how to work the cash register, and how to interact with customers. Sensors could be injected into every part of this equation. Reading RFID tags on

clothing could help employees track their restocking speed (this technology is already used at many warehousing facilities), and cash registers could time transactions to give feedback on speed and errors.

The big payoff, however, would be in cultural integration and customer interaction. On the culture side, employees could look at how integrated they are in the social fabric of the organization. This would show how cohesive their group was, and the people analytics system would automatically suggest ways that they could change their interaction patterns. For example, if they're eating lunch alone, then going out to lunch with some of their colleagues might help build cohesiveness. This data could also find its way into shift scheduling, so that the right people are paired up with each other when they're taking inventory, manning the cash registers, or stocking shelves.

Improving interaction with customers would have a direct impact on their paycheck, because employees in many stores are partially paid on commission. Learning how the most effective salespeople interact with customers, in terms of tone of voice, volume, and speaking speed, would all be extremely helpful to new and veteran employees. Employees could work on voice pitch in real time by talking to the computer to gauge their speaking style, or look at feedback reports afterward to check their progress.

At its core, showing employee progress and disseminating best practices automatically would be a huge contribution of the people analytics system. Today these practices occur through an arduous process of trickle-up reporting. If an employee at one store figures out an effective way to interact with a customer, it has to first be noticed by his boss, then reported up to her boss, and up and up and up until it eventually finds its way

into the employee training program. After this practice is codified, however, feedback on how an employee matches up to that ideal is subjective or even non-existent. Most companies act as if employees are veterans after going through the training program, but of course there is normally a learning curve that continues for years—not to mention the fact that best practices can frequently change. If a store starts selling a new kind of product, it can take a long time for new best practices to make their way back up the hierarchy.

Beyond the individual level, communication data allows companies to look at how people work together and how to help them do that effectively. Even before putting a team together, however, companies could simulate how well they can expect employees to work together and what challenges are likely to emerge. As discussed in Chapter 3, communication dynamics are the lifeblood for team success. Some projects need a group with diverse connections to gather new information quickly, whereas other projects need tight-knit connections to execute tasks effectively. Companies could test out different team configurations beforehand to maximize these different traits and be more confident of their success. Data from sensors and digital communication records would help determine what tasks different teams would be good at, creating a sort of “team fingerprint” that employers could match with certain task types.

Another important benefit of teams is that they create long-term social capital. In other words, if you work on a team with someone, you develop a deep relationship with that person. Down the line you can call on that person if you’re working on another project that requires her expertise. Passing along information that’s relevant to you is also easy for her, because she knows what you’re interested in. Constructing a team fingerprint is then not just about how a team would perform on a specific

project, but how it would benefit the company down the line. Using sensor data to drive these predictions would make the team fingerprint a major driver of organizational success.

After a team is formed, giving members a sense for how their dynamics are changing over time is also important, particularly as it relates to different phases of a project. These dynamics could even be shown at the meeting level, using a real-time feedback system to continuously tune participation dynamics over long periods of time. People who tend not to participate in meetings could be visually encouraged to jump in by seeing their participation bar flash, while people who were overly dominating discussions could also be flagged.

In fact, my colleague Taemie Kim at MIT developed an early version of this system called the Meeting Mediator. Using data from the Sociometric Badge, this system showed participation levels and communication patterns for each meeting participant, encouraging dominant individuals to pull back and less talkative people to speak up. In a number of studies, from trust games to brainstorming tasks to decision-making scenarios, Taemie was able to show that teams who used this system trusted each other more and cooperated more effectively. Imagine the kind of influence this system would have if it wasn't just used as a one-off, but became part of a team's culture.

At a more general level of communication, the people analytics system could show a team's balance between exploration (communicating with people in diverse groups) and execution (having a tightly coordinated collaboration pattern). Depending on the needs of the team at any given moment, this data could deliver suggestions for how to shift this balance as well as make slight modifications to the work environment.

Teams that are actively trying to gather new information, for example, might be encouraged to ask for introductions from certain colleagues. The system could even start sending invitations for social events that other groups are holding if the data says this would be beneficial for all involved. The point is not to create awkward social moments where strangers show up uninvited, but to make people aware of opportunities to meet their colleagues in new ways.

With this proactive and intuitive organization, the formal org chart will rapidly fade in importance. Although in the past the org chart was useful to help channel communication and collaboration, with widespread adoption of sensing technology and communication data mining, the focus will change to creating an environment that nurtures the connections between people. To make this idea more concrete, imagine a company wants to open a new line of business. Previously this would involve creating an org chart, spending months figuring out who would fill out that organization, and developing a strategic plan to guide the new division.

That strategic piece will likely remain, but now imagine that this sensing-based organizational dashboard is deployed across the company. The people analytics system observed many new divisions open up over time, and has seen what factors lead to success from a collaborative perspective. After the basic team functions for the project are chosen, the system would know with a high level of accuracy how the different teams should be connected, how the teams should collaborate internally over the course of the project, and what factors allow those effective communication patterns to flourish. More importantly, this could also change over time. Rather than having a set org chart, collaboration patterns could rapidly change depending on issues that arise during the project.

You've already learned about some ways to affect communication patterns, but let's figure out how these would all connect to the people analytics system. One lever at our disposal is the physical office layout. As goals change, the system will know the office layout, in terms of social areas, furniture, and desk location, that will best achieve those goals. Coffee area and café locations are important drivers of collaboration. Desk location and even the type of cubicle people are in, as you saw in [Chapter 4](#), often influence who people talk to more than any formal requirements. Clearly, ripping out old cubicles and putting in new ones every week, or even every few months, is impractical. Coffee machines, however, are easily moved. Desks can also be changed every few months without much interruption, especially if they are on wheels.

Imagine that on Monday the system sends out an e-mail to a team member suggesting a new location for the coffee machine. Walking through the office in the morning and seeing the coffee machine cart migrating to its new home could become a normal sight. Imagining a "moving day" where people across the office spend a few hours swapping seats in a semi-chaotic game of musical chairs is also not difficult. This practice is actually not so different from what happens in offices today. Offices are frequently reorganized based on changing constraints. The difference is that with the people analytics system, data drives those changes, making internal migration a part of the corporate culture.

In offices with open seating, we don't even have to encourage internal migration. People already choose their desks every day, although normally their choices are based on gut instinct. The people analytics system could sit on top of this process and send everyone seating suggestions in the morning to optimize collaboration patterns. People could still choose whatever seat they

wanted, but now they could use hard data to make their decisions.

The sensing technology can also be incorporated into the environment itself. As an experimental project at MIT, Alex Speltz and I developed what we called an “augmented cubicle.” The cubicle itself had the same dimensions as a standard cubicle wall, but instead of being lined with beige fabric it was composed of a window shade sandwiched between two panes of plexiglass. The window shade was connected via a wire to a small motor in the base of the cubicle wall, which was in turn connected to a small computer that we could communicate with over Wi-Fi.

The motivation for building this wall was to make people more or less visible to others based on their social context. So if it seemed like one group in the office needed to talk more with another group based on project dependencies or long-term social capital factors, then at night a program would signal all the cubicle walls between the two groups to raise their blinds. When everyone came in the next day, you could walk by someone’s desk and easily see what they were doing and seamlessly start chatting with them. Of course, a manual option would be available to move the shade up or down when workers didn’t want to be disturbed, but in general most people stick with defaults.

The shades wouldn’t change more than once or twice a week, and they would only move at night. This practice would preserve a natural office environment while taking advantage of the rapid changes possible via a people analytics system and a bunch of motors. This concept might seem like one that’s far down the line, but the idea that an office could be reactive to its inhabitants in a non-intrusive way is a powerful one. Most likely this



approach will start working its way into all of our lives in the not-too-distant future.

Another lever to consider is communication tools. This book has examined some of the ways people can communicate today, but new channels are constantly added to our repertoire. Internal Twitter clients such as Yammer have started to gain in popularity, and consumer tools such as Google Hangouts are quickly making their way into the corporate world as well. Add these onto face-to-face, phone, IM, chatrooms (which are still refusing to go away), discussion boards, teleconferences, and wikis, and the number of communication channels starts to look overwhelming.

This extreme power of choice is not necessarily a good thing. If you work at a company where different groups use all of these different tools, then you might find it impossible to talk to each other. The marketing group might be composed of heavy IM users, for instance, while the finance people could be wiki devotees. Instead of making communication easier, the proliferation of tools can have the opposite effect.

This does not mean that more choice is always bad, or even the fact that certain groups use specialized communication tools is bad. For example, allowing software developers to communicate within their development environment makes them much more effective. It helps them coordinate with their colleagues as well as automatically recognize problem points in software projects. However, a data-driven approach is needed to help companies figure out what tools to use and how they best support different kinds of interaction. By plugging a people analytics system into these tools, companies could roll out new tools across the organization according to communication needs or move people to more effective media by merging other tools.

A people analytics system could also be used to modify how the tools themselves actually work. In a project that I did while I was working in Japan, your relationship to the sender would actually change how e-mail was displayed. For example, if increasing the diversity of your connections would be helpful for you, then e-mails from people in other social groups would increase in size, literally standing out from all the other mail in your inbox. This slight visual nudge would be a reminder that reaching out to those other people might be a good idea.

This feature doesn't just apply to e-mail; it could also be used to display people differently in chat windows and discussion boards. Teleconferences could be similarly altered by encouraging people who aren't speaking to participate by amplifying their handset volume or ratcheting down the volume of others. These changes wouldn't force a change in behavior by itself, but would help push individuals and teams to slightly alter their communication in positive ways.

The people analytics system could also send messages over these communication channels to shape the social structure of the organization. Some general parameters might exist for how connected the company should be—that is, how many hops in the social network it takes to get from one team to another. What if you could use a people analytics system to create those ties?

## AUGMENTED SOCIAL REALITY

A relatively simple way to create new relationships would be to ask for introductions, similar to what you can do on LinkedIn. The difference within an organization is that the system knows exactly whom you talk to, not just whom you explicitly connected with. The downside is that the user needs to know exactly who to talk to. For fresh perspectives or ideas, you need to talk with someone completely outside your network. Instead of cold-calling a stranger, a desirable alternative would be to have the system try to make those connections for you.

The basic concept here is fairly straightforward: Let's say I want to connect two people, and they have a friend in common. The best way to connect them would be to contact their common friend and say: "It seems like it would be helpful for your friends if you introduced them."

This method has a couple benefits over directly connecting these two people:

- The system would have a hard time figuring out whether the two friends would really hit it off (a lot of variables go into that); however, the common friend knows both of them, and probably has a good idea about their compatibility.
- To the people being introduced, having a common friend make the introductions seems like a natural social process. Friends get introduced all the time. There's just a little bit of data getting injected into the process.

This whole concept is called *Augmented Social Reality*. *Augmented Reality* refers to a field of wearable computing where programs overlay information onto video images from your phone or through special glasses. This practice has become popularized through

augmented reality apps such as Layar, which you can use to see nearby tweets or the Yelp rating of restaurants, all layered on top of the live video-feed from your phone's camera. Augmented *social* reality, however, is about using sensor data to turn everyone into a social connector by layering social context on top of our everyday interactions.

Some people are just naturally good connectors, but it's an extremely difficult skill to master. By creating an augmented social reality, a layer on top of our work lives that allows us to see who we should be introducing and how to interact with people, everything flows a lot more smoothly. This framework could be used to slowly stitch together far-flung parts of the company, socially knitting them together. By going from introduction to introduction, a system could introduce one team to another that's just a bit closer to a more distant team, then making another introduction that gets them a bit closer, and so on until the teams are finally directly introduced. This process is not going to happen overnight, but making it a part of the organizational culture, a normal tool that people rely upon, could profoundly shape the network into a much more effective whole.

A people analytics system would likely find its way into other organizational processes as well. Rather than giving formal groups bonuses based on performance metrics, people from other teams who informally participated in a project could be rewarded. HR evaluations, which typically use surveys and qualitative reports from managers, would naturally benefit from an infusion of behavioral data. Organizational strategy choices could be weighted by information similarity from different team members, so that people who have a more diverse social network would have a greater voice than people who were just participating in an echo chamber.

The list of applications goes on and on. In any case, one thing is clear: People analytics will radically transform the way companies do business. But for users, for workers, it will become familiar and commonplace.

## **ALL AROUND THE WORLD**

Up to this point, the book has explored the potential of this technology within single companies. This is a relatively straightforward application of the projects that we've described, but it's also limited in scope. Each company has its own way of doing things, and this is reflected in the behavior of its employees. If you walk into an IBM office, you can quickly tell that it's not an office from Google. Similarly, the people analytics system can gather behavioral data related to employees' productivity. This approach takes advantage of the natural variation within companies of collaboration patterns and behaviors to discover the most effective (and ineffective) ways to manage people.

What about the variation between firms? IBM, for example, could try to change the way it behaves based on how Google organizes its people. Today, this type of change happens from people reading news articles, case studies, and books like this one. These are all great ways to disseminate best practices, but making the change is an incredibly slow process. It takes years before people from outside companies discover new management styles in other firms, and it can take another few years before these styles seep into the popular consciousness.

One approach to help speed up this process is to create organizational benchmarks that use data from companies all over the world. One of the most popular benchmarks in this vein is Gallup's Engagement Survey, which consists of 12 questions that they have asked to millions of people in thousands of companies all over the world. Companies participate because they want to see

how they stack up against their competitors, and how they can learn from those competitors to improve on their weaknesses and capitalize on their strengths.

Now imagine this benchmarking method applied to the kind of sensor data discussed in this book. Instead of just keeping best practices within companies, lessons learned in one company can be applied to a completely different company, all in the blink of an eye. For example, suppose you've observed a hundred drug development projects at pharmaceutical companies, each with varying levels of success. You could relate that success to changes in collaboration patterns, showing that shaping a team's interactions over the course of the project can make them successful. Now whenever another pharmaceutical company starts up a project, managers know exactly what kinds of interactions to support without needing any additional input from the company.

All of this information sharing is incredibly exciting, because quickly companies in India would learn from companies in Brazil that would learn from companies in the U.S. Organizations in totally different industries with vastly different business models would be able to rapidly exchange best practices, taking advantage of similarities between their businesses inferred from hard data. The people analytics system becomes a global learning network, where the management "experts" no longer tell companies what to do, but instead the combined power of data drives how companies are organized.

This system might seem a bit scary to some managers, because it applies the same tools to management that one typically associates with automated hardware and software fixes. Management has always been a domain where soft skills are needed to make it work. This people analytics system, however, democratizes the management process.

This democratization is crucial for an area that hasn't been discussed much: small business. Companies with only a dozen or fewer people typically have very few tools at their disposal to help them manage their company. This problem is compounded by the fact that most people who open a small business have little management experience. These small businesses aren't just a sideshow in the economy, either. About half of non-farm GDP in the U.S. is generated by small businesses.

The people analytics system would essentially be "management in a box" for small businesses, enabling them to apply to their company the lessons learned from other organizations. With only a few sensors and some basic programs, people in small businesses could get automated help setting up their management structure and generating effective collaboration patterns. They could even receive feedback on their progress. Not only that, but with enough small businesses using such a system, these fledgling companies could get automated suggestions on org structure, compensation systems, and so on.

Take, for example, a bunch of friends going into business together to open an upscale pizza restaurant. They get the lease, purchase all of their cooking equipment, and finally buy their "People Analytics Starter Kit." They fire up the system, input the type of business and what each employee does, and then hand out badges to everyone. Immediately the system suggests different ways they could manage their business, from compensation systems to org charts. However, the real payoff comes when they start collecting data.

Every day the system provides automated feedback to the restaurant. It seems like the waiters have really engaging conversations with customers but tend to interact with

customers less frequently than the highest performers at other establishments. It also seems like the head chef isn't checking in enough with the line cooks, which means more order errors and slower cooking times. Even in a restaurant, the chain of communication is essential to make sure that the order is going from the customer to the waiter to the head chef to the line cooks in a timely fashion. Measuring that response time and giving feedback on how to improve it could be the difference between seating 80 people for dinner and seating 100. After seeing this feedback, the waiters check on patrons every seven minutes instead of every five, and the head chef now chats with other cooks every few minutes to see what they're up to. Customers are happier, the restaurant runs better, and the results are fed back into the global system so that next new restaurant will work even better.

## **THE NEXT BIG THING**

The big thing is that all of this technology will be in the background. From the employee's perspective, work will look pretty much the same. The only difference is that the environment, and the organization, has been engineered in such a way that it will naturally bring out the best in people and help them enjoy work to the greatest extent possible.

A people analytics system would create a learning community of organizations the world over, not through reading articles or books, but by exchanging data. This data exchange would extend from the Walmarts of the world to the mom-and-pop stores on the corner. From companies that install augmented cubicles in hundreds of offices to businesses that just want some simple pointers, this feedback will change what it means to manage an organization. People analytics will be here to stay.



## **11. Where We Go from Here: Of Face-to-Face Interaction, New Collaboration Tools, and Going Back to the Future**

Throughout this book, you've seen a few common threads emerge about what makes workers effective and happy in the workplace. Chief among them is the importance of face-to-face communication—specifically, cohesive face-to-face communication, where the people you talk to spend a lot of time talking with each other.

The examples in this book have shown that this communication is important for transferring complex information in an IT firm and reducing stress and increasing information flow in a call center. Having these tightly knit, face-to-face ties promotes trust and creates a common language, crucial items for today's organizations.

Having diverse ties is also helpful, as explained in [Chapters 5 and 6](#), which cover expertise and creativity, respectively. Connecting with people from different social groups, people with access to different sources of information, helps you think of ideas that you normally wouldn't hear in the echo chamber of your tightly knit group. Organizations can help foster these ties by changing the physical office space around, rearranging breaks, and taking other small steps to nudge people in the right direction. As you saw in this book, these small nudges had very strong effects.

Despite all these revelations, let's step back and take a look at where we're going as a society. Remote work is becoming more and more common. Telecommuting is on the rise, and many people are working almost exclusively from home offices. That's partly a reflection of the times,

because the flexibility people demand and the increasingly global nature of work require that we be able to work from anywhere at any time. To some extent, the new communication tools that are available support these arrangements.

We can use Skype to set up video chat with remote colleagues, use teleconferences to get everyone on the same page, or use IM programs to do some lightweight coordination. The data shows, however, that these tools aren't enough to get the job done. Part of the issue is that we evolved for millions of years to deal with people who are right in front of us. We've only had phones for 150 years, barely an eye blink of time from an evolutionary perspective. Think of how far we have to go before we biologically adapt to more recent innovations such as the Internet and instant messaging.

One of the major issues of the day is that despite our desire and need for remote communication, people are still awful at collaborating over distance. This book has already listed some simple fixes: meeting face-to-face before a project starts, spending large amounts of time working on coordination in remote groups, and so on, but this problem cries out for a new solution.

Some of the problems can be solved by injecting social context into these alien environments. Systems such as the Meeting Mediator (refer to Chapter 10 and the real-time feedback it provides are an important part of this equation. These systems help regain much of what is lost when we separate ourselves by telephone wire or blinking computer screens.

Further down the line one can easily imagine that technologies such as virtual reality and holography will come into play to directly act on the ancient mechanisms that are buried in our brains. If it looks, sounds, even smells to us like we're physically in an office with a

bunch of other people, then for all intents and purposes we are. Of course, this technology has a long way to go before it becomes widely deployed, and if it is to be successful, some basic functionality will need to be supported.

One of the simplest things that throws off remote interactions is the eye gaze problem. If you've ever used Skype, you know what I'm talking about. This problem occurs because with current technology you can't look at your screen and the camera at the same time. Some solutions are out there that combat this problem with varying degrees of success. Cisco has created a TelePresence system that uses specially designed rooms and finely tuned camera and monitor placement to make it appear as if the people you're collaborating with are all sitting around a table with you. The effect is fairly striking, especially with HD cameras and a dedicated network for transmitting the video as fast as possible. The price tag, at around \$300,000, however, makes this technology fairly impractical for most situations.

Other solutions, such as BiDi Screen from Matt Hirsch at MIT, take a more elegant approach. Matt developed a technology that combines a camera and a screen, so that you can look directly at the person you're talking to over a video connection. If it gets produced in mass quantities, it has the potential to be orders of magnitude cheaper than the Cisco system, but currently it's still a research project with no immediate plans for commercialization.

For now, however, let's say that this problem will be solved in time whether by BiDi Screen, TelePresence, or a similar system. One can safely say that in the next two decades this issue will become a thing of the past. Unfortunately, the biggest problem with these systems is much harder to crack and involves the fundamental

design of all contemporary communication technologies. At a very basic level, in the way that every one of these systems is conceived, they are designed around planned meetings.

This isn't necessarily anyone's fault; it's just what is supportable and what designers have identified as important. This stems in large part from the enormous emphasis that has been placed on formal processes in the past hundred years. Meetings are important; talking by the coffee machine is not. So we made and continue to make better and better meeting systems, until down the line we'll come up with a system that allows us to do meetings so well over distance that we won't mind getting up at 2 a.m. for a meeting with colleagues in India (well, night owls won't mind).

However, when you look at what makes people productive, about where people really get work done, how much of that occurs within the confines of a formal meeting? Even thinking about yourself, how much of the time you spend in meetings do you feel is productive? Is that where you get your real work done? Chances are, the answer is "No."

Unfortunately, with current technology, fostering the serendipitous interactions and post-meeting socializing that forms the basis for the effectiveness of face-to-face communication is hard. There have been some attempts at addressing this problem, each with limited success. Google Hangouts is a recent foray into this area, where people leave a webcam on and invite others to come in and out as they please. There have been similar systems in the past, using always-on video, typically in common spaces, to connect workplaces in different parts of the globe.

My team at Sociometric Solutions uses Google Hangouts frequently, so I'm not going to say these systems are

without merit. Right now we have people in California, Massachusetts, and Finland, so rarely is everyone able to get together in person. Even finding a time to have meetings when we're all at work is hard for us. Using Hangouts every day makes connecting when we do meet in person much easier.

Time differences, of course, can't be solved no matter how much technology you pour into the equation. Current systems are also limited in that they represent only a small window into another place, and a fairly unnatural window at that. Perhaps the solution will come when we can make screens so big with cameras of such high quality that entire walls become windows and every surface in a workplace becomes a monitor to help connect us to remote coworkers. My intuition says that it will need to be something more than that, that using social context data we could make a system that would be infinitely more subtle but no less communicative, one that visualizes social context in an intuitive way that will subtly affect our perception of other places. Time will tell.

For now, however, there needs to be an acknowledgment that face-to-face communication is critical for the complex, intensely collaborative tasks that are the lifeblood of our economy. Even when factoring in the rising cost of airfare, spending a few thousand dollars flying people to a central location is almost certainly cheaper than spending hundreds of millions of dollars on thousands of high-definition screens that will need constant maintenance and a huge IT support staff.

There is also a need to shift away from the focus on formal communication and into the informal. Indeed, informal communication is more important to a company, both from a productivity and job satisfaction perspective. This realization needs to make its way into

every facet of work if we're to continue on a curve of increasing complexity. With big M&A deals and projects involving millions of workers becoming commonplace, time and again it becomes evident that the current way of doing things breaks down.

Office layout will likely lead the charge as a new area of concentration for companies. Currently, office design is relegated to an afterthought, and if management is involved in the process at all, it's usually to offer opinions on whether a particular design looks "cool." Although looks are important for a company's image and morale, an incredibly delicate dance is going on that demands close attention.

One of the issues is that choosing office space is often a political process. Bosses with good connections can typically secure the "best" space for their team, with corner offices and large desks, while politically impotent teams get stuck in the basement. Companies need to turn that process around, and instead bring a strategic approach to office design, one where political concerns take a backseat and collaborative considerations (that is, group A needs to talk to group B) drive decisions.

The problems that plague office layout are mirrored in seemingly banal furniture purchasing decisions. However, factors as ostensibly insignificant as desk length, cubicle height, and the brand of coffee machine have profound implications for collaboration. Of course, executives can't spend weeks pouring over different options, but a general directive is needed to guide furniture decisions toward high-level cultural goals. This information can filter down to individual groups so they can shape their space to fit their collaborative needs and still match the company's cultural values.

The cultural tone of a company is extremely important, and that often manifests itself in how people act during

breaks. In American culture, there is a widespread belief that time not spent at your desk is time wasted, and typically people found schmoozing by the coffee machine or eating lunch at a table with colleagues are viewed with disdain. People will even spend effort to make it look like they're working.

In one office where I worked, I had a direct view into another company's space across an atrium. One of the employees was facing her computer screen, and because she was only about 30 feet away, I had a vague sense for what she was doing. I can say without exaggeration that about 90% of her time was spent watching videos on Netflix. She would get in at around 9 a.m., fire up Netflix, and proceed to watch old movies and TV shows for the entire day. Sometimes I would look up to see what movie she was watching, and I rarely saw her use another program or even get up to talk to a coworker. I guess she figured that if her boss thought she was working, everything would be okay.

People need to change this mindset. The results in this book argue that workers' most productive time occurs when they collaborate and interact with others. This means getting up and walking around, spending time in the coffee area, eating lunch with colleagues, jumping into chat sessions, and becoming heavily involved in the social life of the workplace. These cultural changes have to start with individuals, but the higher ups need to show that they care about them, too.

Cultural change won't happen unless people at the top do it first. Until the CEO starts eating lunch in the cafeteria instead of her desk, it's a risky proposition for anyone making the leap themselves. They just have no idea whether this cultural change is actually something that's valued and will help them move up the ranks. Instead, pressure from the top has to come on people who *aren't*

engaging in these activities. Not I'm-going-to-fire-you-unless-you-do-what-I-say pressure, but a steady beat of suggestions that "this is the way we do things."

Some people mingle naturally, the social butterflies that have an innate ability to chat it up with colleagues and enjoy the social side of work. These people will probably have an easier time adapting to this style of work. People who are more introverted, however, will have a tougher go.

This is where many organizations stop, worrying that they'll force people to be something they're not. My goal, however, is different. Introverts still talk to people. Companies are, after all, fundamentally about getting people to work together to accomplish something that people can't do by themselves. For anyone to do his or her job, interacting with others is necessary. It's not that people need to interact a lot more or completely change their personality, but rather that they should be interacting with the *right* people at the right time.

Maybe instead of eating lunch at our desk every day, we take one day out of the week to eat with a coworker. That's a small change, and I think we could all agree that's not much of an imposition on someone who is naturally more introverted. From a collaboration perspective, however, that one interaction can make all the difference by providing a mental model of the other person's expertise. If a problem comes up down the road, people can easily call on that expertise. They'll feel more connected to the workplace, being able to trust their coworkers just a little bit more when it comes to stressful events or work-related problems. Strengthening these relationships is essential for building the ever-more-complex workplace of the future.

In addition to doing away with this individual view of productivity, we need to get rid of the notion of the lone



genius. An easy way to think of our creativity, and our impact on our colleagues as a whole, is to think about how much work we can actually get done by ourselves. Imagine you discover a way to increase your performance by 10%. Assuming you work 40 hours a week, you can end up saving 4 hours of your time every week by using this new method you've discovered. If you keep it to yourself, over one year you will end up saving about 200 hours.

But what if you shared your discovery with five of your closest coworkers? Maybe it takes you awhile to teach them this new method, say 20 hours. In that case, individually you would only save yourself 180 hours, but collectively everyone would save about 1,200 hours in that first year. On top of that, however, you've now created a community where sharing tips is expected. If everyone starts discovering different time-saving tips, suddenly each person is saving 10 or 15 hours every week. The group as a whole starts saving thousands of hours, meaning more people can help out on other projects and make more connections or come up with their own projects to work on that are radically different than anything else out there.

This is why we form organizations and why hundreds of thousands of years ago we began to develop more and more complex groups: to learn from each other, to make ourselves stronger than the sum of our parts.

## **BACK TO THE FUTURE 2**

As our societies got more and more complex, our basic nature had trouble catching up. Rome arguably collapsed in large part due to its increasing reliance on a distributed mode of leadership, while in our entire ancestral history, even in early city states, we were dependent upon tightly knit relationships with our colleagues. If you wanted to be a carpenter, you had to live for 20 years with a carpenter and his family. If you wanted to be a king, you had to spend decades undergoing the same rigorous training as every other king and nobleman who came before you. You had to live in the same neighborhoods, speak the same esoteric language, and drink together.

Then suddenly this all changed. In the span of a few decades in the mid-1800s, we went from organizations built on cohesive relationships to ones where factory lines and faceless masses were the key to profit and success. More and more emphasis was placed on the importance of the factory, the importance of formal process, until only 100 years later we had completely forgotten our roots. From a biological perspective, 100 years is nothing. Biological changes take millennia to manifest themselves, and we are most certainly geared toward working in tightly knit groups.

Today, people need to be creative and able to work on complex projects, infinitely more complex than anything mankind has strived to accomplish in our entire existence. Hundreds of thousands of people must work together toward a common goal.

The factory model doesn't work in these conditions. The same factors that led to our meteoric rise now make functioning in a fast-changing world increasingly difficult.

So let's think back, only a second, really, in the grand scheme of things. Let's think back a few hundred years. Back then we mostly lived in small towns, villages where we knew the other hundred or so residents by name. We trusted each other, knew how to talk to each other, and put in the time to form a communal bond. We need many of the exact same things today.

Our minds and biology are still rooted in that time. We still have the capacity to develop deep connections with each other, to create communities within larger organizations that are seemingly too big to comprehend. It's ironic, then, that these ancient abilities are our future.

This future consists of connection, collaboration, and data, a future where we're judged not solely by our own deeds, but by that of our entire community. It's a future where age-old practices of relationship building and trust are married with the new age of data gathering that the world of sensors and digital data streams has brought forth.

This future is an exciting one, where fundamentally new measurements can enable a radically new view of management. And yet, 200 years ago this new organization wouldn't be radical. In a great paradox, the company of the future will look more and more like the company of the past.

These changes will start slowly, but the walls put up around us in recent years will soon tumble down. At first this new world of work will look old, almost ancient: bustling activity as people roam around the office, small groups stopping to chat while others continue on their way, reminiscent of town squares from long ago. In fact, they look nearly identical. There's only one thing, really, that distinguishes this workplace of the future from that of the past: a small, white badge.



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