

Preface

Our last book, *The Knowing-Doing Gap*, struck a chord with lots of people. In many companies there were experienced, intelligent, motivated people who, both individually and collectively, knew what to do but couldn't or wouldn't act on that knowledge. We identified the main causes of knowing-doing gaps and how organizations could avoid or reverse such impediments to action. We also found that the problem was not confined to for-profit companies. We heard story after story from people in educational research and school administration about how decades of research on teaching and learning was neglected in the practices actually enacted in schools. As we write this preface in the fall of 2005, we see the problem playing out once again. The terrible devastation and human suffering caused by hurricane Katrina, which nearly obliterated New Orleans and much of the nearby Gulf Coast, and the halting, disorganized initial rescue efforts reflect the failure to implement what was known and even planned for months and years ago both to mitigate the effects of the storm and to speed up recovery efforts. There is no question that the knowing-doing gap persists as a big problem in the private and public sector.

After writing *The Knowing-Doing Gap* we soon encountered a different and somewhat unexpected management problem. People kept telling us about the wonderful things they were doing to implement knowledge—but those things often clashed with, and at times were the opposite of, what we knew about organizations and people. Upon probing, we soon discovered that many managers had been prompted by a seminar, book, or consultants to do things that were at odds with the best evidence about what works. We began to call this the “doing-knowing” problem—doing without knowing, or at least knowing enough.

We became fascinated with why this problem existed, and what might be done about it. We also became fascinated with certain half-truths that we kept hearing again and again, ideas and principles that are partly right at times, but are flawed and misleading often enough to get organizations into serious trouble. Beliefs like “the best organizations have the best people,”

“strategy is destiny,” and “great leaders are in control and ought to be” have an element of truth, but when treated as the whole truth and applied to every decision and design of every program and practice, they cause severe damage to companies; management careers; and employee loyalty, effort, and mental health. Meanwhile, we witnessed attempts to introduce evidence-based practice into education, efforts that—despite the best intentions—were often met with resistance that undermined learning and wasted billions of dollars. We also followed the rise in evidence-based medicine because a number of our former students are physicians with a heavy research emphasis in their practice and work. We began to wonder if there were principles that might apply across domains and make decisions and actions wiser. In fact, in the National Institute of Health’s publication *Keeping Patients Safe*, there is a chapter entitled “Evidence-Based Management.”

So off we went, to study organizations, read, think, and to the surprise of no one who knows us, to argue and debate about the best logic, evidence, and management practices. The result is this book. It is a call for evidence-based management, a case for its potential impact, and a guide on how to use it. *Hard Facts, Dangerous Half-Truths, and Total Nonsense* identifies some of the barriers to implementing evidence-based management and presents steps that leaders can take to overcome those barriers, with an emphasis on how to manage in light of the most dangerous half-truths that bedevil organizations.

We emerged from this exercise with a renewed appreciation for how difficult it is to manage and lead an organization, and how much time and effort managers must devote to learning their craft. We also gained a stronger appreciation for how evidence-based management can help managers and leaders do a better job of learning and practicing their profession, and make these difficult jobs a bit less taxing and more successful. There are no simple, easy answers, but there *are* answers: better ways of thinking about business knowledge and more fact-based ways of understanding management practices. This book shares our insights and the results of our research, thought, reading, and yes, argument and debate, with you.

Part One

Setting the Stage

Why Every Company Needs Evidence-Based Management

ON THE DAY Synoptics and Wellfleet Communications merged to form Bay Networks, the company's revenue was about equal to its major competitor, Cisco Systems. If you haven't heard of Bay Networks, don't be surprised. This merger between two firms, similar in size and headquartered on opposite coasts of the United States, failed by any measure. Bay Networks fell on hard times economically, was left in the dust technologically by Cisco and others, and was finally purchased by Nortel—another troubled networking company that suffered operating problems as a result of botched mergers. Mergers often come to a bad end. Remember Conseco—the insurance and financial services company that purchased Green Tree Lending, a company that financed the purchase of mobile homes by non-prime borrowers? Conseco wound up in bankruptcy and CEO Stephen Hilbert was fired. Or how about Mattel, the famous toy company? In an attempt to diversify beyond its Barbie franchise, Mattel made an ill-fated acquisition of the Learning Company, a technology-based education firm. The deal cost Mattel a lot of money, led to a substantial decline in its stock market value, and effectively ended the corporate career of CEO Jill Barad. And remember the ill-fated Daimler-Chrysler, American Online–Time Warner, and Hewlett-Packard–Compaq mergers?

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This is not a new or surprising phenomenon—the list of failed mergers is long and provides fodder for much media attention.¹ Study after study shows that most mergers—some estimates are 70 percent or more—fail to deliver their intended benefits and destroy economic value in the process. A recent analysis of 93 studies covering more than 200,000 mergers published in peer-reviewed journals showed that, on average, the negative effects of a merger on shareholder value become evident less than a month after a merger is announced and persist thereafter.²

Corporate leaders who want to practice evidence-based management might begin by recognizing that the odds are against them in undertaking a merger and, as a consequence, resist the urge to merge. More thoughtful leaders might do what Cisco Systems has done—figure out the factors associated with successful and unsuccessful mergers and then actually use those insights to guide behavior. In 1993 Cisco CEO John Chambers and his senior team decided they needed to ramp up their growth and break into new and emerging networking technologies on a continuous basis, in part through acquisition. So Cisco embarked on a policy of aggressively acquiring new technologies and companies. Between 1993 and 1998, it acquired on average one firm per quarter, and since 1998 this pace has continued, if not intensified.³ Yet a *Fortune* article on bad mergers noted that “infrastructure giant Cisco has digested 57 companies without heartburn.”⁴

The difference between Cisco and so many other companies has little to do with either luck in finding the right things to buy or the charisma and charm of its senior management that somehow made the mergers work. Cisco’s success stems from its systematic examination of evidence about what went right and went wrong in other companies’ mergers, as well as its own. Cisco figured out that mergers between similar-sized companies rarely work, as there are frequently struggles about which team will control the combined entity (think Daimler-Chrysler or Dean Witter–Morgan Stanley). Cisco’s leaders also determined that mergers work best when companies are geographically proximate, making integration and collaboration much easier (think Synoptics and Wellfleet Communication, which were not only about equal in size, but 2,500 miles apart), and they also uncovered the importance of organizational cultural compatibility for merger success, a lesson lost on many other firms.

But Cisco, as we’ve noted, is an exception. Siebel, the customer relationship management software firm, is yet another company that has botched numerous acquisitions: for instance, purchasing an industrial sales training

company and driving its revenues from about \$75 million to \$10 million in less than five years. Siebel's business development executive admitted that all of the company's acquisitions have failed and noted that an internal study indicated that "cultural conflicts" were the cause in every case.⁵ Cisco, by contrast, works relentlessly to understand the crucial dimensions of its culture versus its target's to determine if there is a match. Cisco has walked away from deals when the requisite cultural fit was missing.

Finally, and perhaps most importantly, Cisco has developed and uses a merger integration process to ensure that the people (what they are really buying) stay with the company, feel at home, and can use their knowledge to make key contributions. Integration activities are carefully planned and rapidly implemented to help guarantee that problems do not have a chance to arise. The company also keeps refining its merger integration process as well as the business development process to identify merger candidates, learning over time how to make its already impressive acquisition capability even better.⁶

Cisco's experience and its lessons, as well as lessons from other successful and unsuccessful acquisitions, are neither difficult to understand nor secret—they have been written about extensively. You might think companies would learn from all this experience and make fewer bad merger decisions. You also might think in a world of presumed "hypercompetition" where companies spend billions each year on consultants, more billions on intranets and chief knowledge officers, and more fortunes on training—all in an effort to acquire and use knowledge at a time when companies and their leaders are seeking every possible competitive edge and when business leaders are mightily rewarded with both money and status for success—that management decisions would be based on the best evidence, that managers would systematically learn from experience, and that organizational practices would reflect sound principles of thought and analysis.

But if you thought any of that, you would be wrong. Business decisions, as many of our colleagues in business and your own experience can attest, are frequently based on hope or fear, what others seem to be doing, what senior leaders have done and believe has worked in the past, and their dearly held ideologies—in short, on lots of things other than the facts. Although evidence-based practice may be coming to the field of medicine and, with more difficulty and delay, the world of education, it has had little impact on management or on how most companies operate. If doctors practiced medicine the way many companies practice management, there would be far more sick and dead patients, and many more doctors would be in jail.

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Yet there is good news for leaders and companies in all this recalcitrance. As we will show you, practicing evidence-based management is neither arcane nor extraordinarily difficult—and it can produce superior results. It can also generate sustained competitive advantage, because since so few organizations and their leaders do it, the likelihood of imitation is not high.

Before we talk about what evidence-based management is and how to practice it, we need to show why and how you and your organization should halt some common ways of making decisions that are so accepted and widely recommended that they are rarely questioned—yet are deeply flawed. Even if you don't otherwise adopt an evidence-based approach, your company will suffer less harm by putting aside these suspect practices. So, we begin by telling you what evidence-based management is *not* and what you should avoid doing, before we tell you what evidence-based management *is* and how to practice it.

Poor Decision Practices, and How to Recognize and Avoid Them

The catalogue of poor decision practices is immense, but we focus here on three of the most common and, in our experience, most harmful to companies.

Casual Benchmarking

There is nothing wrong with learning from others' experience—vicarious learning, as contrasted with direct experience, is an important way for both people and organizations to learn how to navigate a path through the world. After all, it is a lot cheaper and easier to learn from the mistakes, setbacks, and successes of others than to treat every management challenge as something no organization has ever faced before. So benchmarking—using other companies' performance and experience to set standards for your own company—makes a lot of sense. In the end, good or bad performance is defined and measured largely in relation to what others are doing.

The problem lies with the way that benchmarking is usually practiced: it is far too "casual." The logic behind what works at top performers, why it works, and what will work elsewhere is barely unraveled, resulting in mindless imitation. Consider a pair of quick examples. When United Airlines decided in 1994 to compete with Southwest in the intra-California marketplace, the company tried to imitate Southwest. United put its gate staff and flight attendants in casual clothes; it flew only Boeing 737s; it gave the service a different name, "Shuttle by United," and used separate planes and crews; it stopped serving food; it increased the frequency of its flights and reduced the

scheduled time planes spent on the ground, copying Southwest's legendary quick turnarounds. Southwest, however, wound up with a higher market share in California than it had before United launched its imitation.⁷ The Shuttle failed and is now shuttered.

When U.S. automobile companies decided to embrace total quality management and emulate Toyota, the world leader in automobile manufacturing, many copied its factory-floor practices. They installed pull-cords that stopped the assembly line if defects were noticed, just-in-time inventory systems, and statistical process control charts. Yet even today, decades later, U.S. automakers for the most part still lag behind Toyota in productivity—the hours required to assemble a car—and many trail in quality and design features as well. Similar failures have plagued retailers' efforts to copy Nordstrom's sales commission system to achieve higher service levels, and the numerous organizations that attempted to mimic General Electric's forced-curve performance-ranking system.

In these and scores of other examples, a pair of fundamental problems render casual benchmarking ineffective. The first is that people copy the most visible, obvious, and frequently least important practices. Southwest's success is based on its culture and management philosophy, the priority it places on its employees (Southwest did not lay off one person following the September 11 meltdown in the aviation industry), not on how it dresses its gate agents and flight attendants, which planes it flies, or how it schedules them. Similarly, the secret to Toyota's success is not a set of techniques but its *philosophy*—the mind-set of total quality management and continuous improvement it has embraced—and the company's relationship with workers that has enabled it to tap their deep knowledge. As a wise executive in one of our classes said about imitating others, "We have been benchmarking the wrong things. Instead of copying what others *do*, we ought to copy how they *think*."

This executive was partly right but did not go far enough. The second problem is that companies often have different strategies, different competitive environments, and different business models—all of which make what they need to do to be successful different from what others are doing. Something that helps one organization can damage another. This is true particularly for companies that borrow practices from other industries, but often is true for organizations even within the same industry.

The fundamental problem is that few companies, in their urge to copy—an urge often stimulated by consultants who, much as bees spread pollen across flowers, take ideas from one place to the next—ever ask the basic question of *why* something might enhance performance. Before you run off

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to benchmark mindlessly, spending effort and money that results in no pay-off, or worse yet, in problems that you never had before, ask yourself:

- Is the success you observe by the benchmarking target *because of* the practice you seek to emulate? Southwest Airlines is the most successful airline in the history of that industry. Herb Kelleher served as CEO during most of Southwest's history and remains the chairman to this day. Kelleher drinks a lot of Wild Turkey bourbon. So does that mean that if your CEO starts drinking as much Wild Turkey as Kelleher, your company will dominate its industry? Get the point?
- *Why* is a particular practice linked to performance improvement—what is the logic? If you can't explain the underlying logic or theory of why something should enhance performance, you are likely engaging in superstitious learning and may be copying something that is irrelevant or even damaging.
- What are the downsides and disadvantages to implementing the practice, even if it is a good idea? Are there ways of mitigating these problems, perhaps ways your target uses that you aren't seeing?

Doing What (Seems to Have) Worked in the Past

Suppose you went to a doctor who said, "I'm going to do an appendectomy on you." When you asked why, the doctor answered, "because I did one on my last patient and it made him better." We suspect you would high-tail it out of that office, because you know that the treatment ought to fit the disease, regardless of whether or not the treatment helped the previous patient. Strangely enough, that logical thought process happens less than we might care to admit in most companies.

Consider a couple of industry examples. In a compensation committee meeting of a small software company that we worked with, the committee chair, a successful and smart executive, recommended the compensation policies he had employed at his last firm. He even suggested that his former head of human resources call the head of HR at this company to facilitate precise imitation. The fact that the two companies were of dramatically different sizes, used different distribution methods, and sold to different markets and customers somehow didn't faze him or many fellow committee members. This company isn't alone: how many of you are using performance appraisal forms that your executives brought with them from another company? And then there is the case of the same strategy and approach being

used regardless of the situation. Al Dunlap—the notorious Chainsaw Al—did layoffs (and it turns out, accounting fraud) in all of his companies, including Scott Paper and Sunbeam. Similarly, executives who believe that any unit that isn't ranked number one or two in its market needs to be sold typically carry that approach to new jobs. The aphorism that nothing predicts future behavior better than past behavior is especially true for executives who develop a template and use it again and again in every situation.

There is nothing wrong with learning from experience and developing proficiency at certain strategies and tactics. We ought to learn from experience—and use that experience to get better at what we do and develop specialties and talents that we can execute with consummate skill. The problems come when the new situation is different from the past and when what we “learned” was right in the past may have been wrong, or incomplete, in the first place.

In the software company example, the chair's recommended system—individual incentive pay with big rewards for making sales—would have undermined the consultative sales process that was essential for selling this company's particular product. The layoffs used routinely by Al Dunlap and so many other executives often don't work. Blindly copying the same approach without considering the underlying business problems is just plain dumb.⁸ And lots of companies have gotten into trouble by importing, without sufficient thought, performance management and other measurement practices from past experience at other companies.

As in benchmarking, asking some simple questions and acting on their answers can help avoid the bad results that come from mindlessly repeating the past:

- Are you sure that the practice that you are about to repeat is associated with the past success? Be careful to not confuse success that has occurred *in spite of* some policy or action with success that has occurred *because of* that action.
- Is the new situation—the business, the technology, the customers, the business model, the competitive environment—so similar to past situations that what worked in the past will work in the new setting?
- *Why* do you think the past practice you intend to use again has been effective? If you cannot unpack the logic of why things have worked, it is unlikely you will be able to determine whether or not they will work this time.

Following Deeply Held Yet Unexamined Ideologies

The third flawed and widespread basis for decisions often does the most damage because it is the most difficult to change. It happens when people are overly influenced by deeply held ideologies or beliefs—causing their organization to adopt some management practice not because it is based on sound logic or hard facts but because managers “believe” it works, or it matches their (sometimes flawed) assumptions about what propels people and organizations to be successful.

The use and defense of stock options as a compensation strategy is a great example of belief trumping evidence, to the detriment of organizations. In the early years of the new millennium, there was an unprecedented wave of corporate bankruptcies and financial scandals. Senior executives lied about their company’s performance, even as they sold stock and left pension funds and other investors holding worthless paper. Experts and evidence now place a large part of the blame for financial scandals on the excessive use of stock options and stock-based compensation.

Carol Bowie, director of governance research services at the Investor Responsibility Research Center, concluded, “At the very least, options tended to promote a short-term focus . . . and at worst they promoted fraudulent activity to manipulate earnings.”⁹ Roy Satterthwaite, a beneficiary of the options craze while a vice president at Commerce One, noted that options not only fueled long work weeks but they skewed people’s decision priorities, leading to an excessive focus on cutting deals and growing revenues, the numbers the market seemed to focus on.¹⁰ Satterthwaite confessed that options “motivated us to a selfish, short-term view” and did not create long-term value. Nor is the evidence about stock options and their effects just anecdotal. One study comparing 435 companies that had to restate their financial statements with companies that did not found that the higher the proportion of the senior executives’ pay in stock options, the more likely the company was to have restated its earnings.¹¹ A study by Moody’s, the bond rating service, concluded that incentive pay packages can “create an environment that ultimately leads to fraud.”¹²

Even the logic behind the use of options as managerial incentive is flawed once you consider what behaviors are actually rewarded. Roger Martin, dean of the University of Toronto’s business school and one of the cofounders of the strategy consulting firm Monitor, noted the problems of mixing the measuring and rewarding of performance in an expectations market—the stock market—with the measuring and rewarding of performance in the real market

of sales, earnings, and productivity. As he noted, in the National Football League, players would never be permitted to profit from beating the point spread—the expectations market—because it would encourage all kinds of nefarious activity. Martin argued that “stock-based compensation is an incentive to increase expectations, not performance. The easiest way to do that is to hype the stock.”¹³

There is, in fact, little evidence that equity incentives of any kind, including stock options, enhance organizational performance. One review of more than 220 studies concluded that equity ownership had no consistent effects on financial performance.¹⁴ Another massive study and review of research on executive compensation published by the National Bureau of Economic Research reported that most schemes designed to align managerial and shareholder interests failed to do so; instead, executive compensation practices just operated as devices to enrich senior managers, who usually received most of the stock options.¹⁵

Yet executives, particularly those in high technology, remain uninterested in and unconvinced by the logic and the evidence, waging political battles to avoid expensing stock options on their income statements and maintaining that stock options are not only helpful but essential for building their companies. The evidence notwithstanding, many executives maintain that options create an ownership culture that encourages 80-hour workweeks, frugality with the company’s money, and a host of personal sacrifices designed to make the options more valuable. T. J. Rodgers, chief executive of Cypress Semiconductors, is typical. He has maintained that without options, “I would no longer have employee shareholders, I would just have employees.”¹⁶

Stock options are more crucial to success, and perhaps less likely to produce false hype, in small, privately held start-up companies. The entrepreneurship fueled by options helps new companies get off the ground. Cash is at a premium in most start-ups, and the chance to strike it rich attracts talent that otherwise would remain out of reach. Yet, despite such virtues, unwavering belief in stock options that is so pervasive among the leaders of high-technology companies is not based on sound evidence or logic.

And stock options are just one case where vehement beliefs rather than logic and evidence guide management ideas and actions. A series of studies demonstrates that people, especially those who write for and read the business press, believe in the first-mover advantage—that the first company to enter an industry or market will have an edge over competitors. Existing empirical evidence is actually mixed and unclear as to whether such an advantage exists, and many of the “success stories” purported to support the

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first-mover advantage turn out to be false—Amazon.com, for example, was not the first company to start selling books on the Web. The more that people read the business press, the more strongly they believe in first-mover advantage. But nonbusinesspeople usually believe in it as well, apparently because of cultural beliefs that favor being first, and giving either group—experienced or naïve—contradictory evidence does not cause them to lose their faith in the first-mover advantage. Beliefs rooted in ideology or in cultural values are quite “sticky”—they resist disconfirming evidence and persist in affecting judgments and choice, regardless of whether or not they are true.¹⁷

To avoid succumbing to using belief or ideology over evidence, ask yourself:

- Is my preference for a particular management practice solely or mostly because it fits with my intuitions about people and organizations?
- Am I requiring the same level of proof and the same amount of data regardless of whether or not the issue is one I believe in?
- And, most important, are my colleagues and I allowing our beliefs to cloud our willingness to gather and consider data that may be pertinent to our choices?

What Is Evidence-Based Management?

When Andy Grove, former Intel chairman and CEO, got prostate cancer, he assiduously tracked down all the data he could comparing treatment options and their risks and benefits, gathering the best available evidence to guide his medical decisions.¹⁸ That’s what we would expect from a well-trained engineer and scientist. Grove, however, like many of his Silicon Valley friends, continues to insist on the benefits of options and doesn’t cite evidence for his views—even though with other business decisions, Grove sticks closely to the facts.

The contradictory behavior is instructive. Many companies and leaders show little interest in subjecting their business practices and decisions to the same scientific rigor they would use for technical or medical issues. It is a pity, because we actually know a lot about how to make organizations and people more effective. Every day there are opportunities for companies to use better information to gain an advantage over the competition. Doing so simply entails using evidence-based management.

If taken seriously, evidence-based management can change how every manager thinks and acts. First and foremost, it is a way of seeing the world and

thinking about the craft of management. Evidence-based management proceeds from the premise that using better, deeper logic and employing facts to the extent possible permits leaders to do their jobs better. Evidence-based management is based on the belief that facing the hard facts about what works and what doesn't, understanding the dangerous half-truths that constitute so much conventional wisdom about management, and rejecting the total nonsense that too often passes for sound advice will help organizations perform better.

Evidence-Based Medicine: A Model for Evidence-Based Management

Our interest in evidence-based *management* was inspired and, to some extent, guided by the evidence-based *medicine* movement. The belief that physicians' actions should be guided by solid research goes back at least 200 years. Bloodletting was used routinely until 1836 when French physician Pierre Louis conducted one of the first clinical trials in medicine. Louis compared pneumonia patients whom he treated with aggressive bloodletting and those he treated without it. Louis found that bloodletting was linked to far more deaths, which helped convince physicians to halt the practice. Unfortunately, this knowledge came too late for George Washington, the first president of the United States, who died two days after a doctor treated his sore throat by draining almost five pints of blood.¹⁹

Dr. David Sackett is often described as the founder of the modern evidence-based medicine movement. Sackett has worked with colleagues at McMaster University in Canada to train physicians in evaluating research and developing methods for screening out all but the best research—his team screens out 98 percent of published articles. Nonetheless, a remarkably high percentage of medical decisions still reflect the often-obsolete practices that a doctor learned in medical school, the ingrained traditions of a hospital or region, and the power (or lack of it) of physicians in a given specialty. Other reasons that many doctors don't use the best evidence remind us of why managers might not either: they trust their clinical experience more than research, there is too much evidence for any person to absorb, and those who try to keep up with the advances in knowledge often aren't trained to distinguish strong research from weak. Plus, doctors face an endless supply of vendors who muddy the waters by exaggerating the benefits and downplaying the risks of using their products. You may recall Merck's tactics for selling Vioxx, where salespeople were instructed to play "dodgeball"—to avoid initiating discussions and to deflect physician's questions about research establishing a link between the painkiller and heart disease.²⁰

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The evidence-based medicine movement has its critics, especially physicians who worry that clinical judgment will be replaced by search engines and who fear that bean counters from health maintenance organizations will veto expensive or experimental techniques. But while the use of evidence in medicine is still far from where it should be, the movement has made much progress and appears to help doctors provide better patient care. Teaching hospitals that embrace evidence-based medicine try to overcome the impediments to its use by providing training, technologies, and work practices to take the critical results of the top studies to the bedside. The *Evidence-Based Medicine Journal* now has a hefty 70,000 subscribers. Initial studies also suggest that physicians trained in evidence-based techniques are better informed than their peers, even 15 years after graduating from medical school.²¹

Evidence-based medicine and evidence-based management require a mind-set with two critical components: first, willingness to put aside belief and conventional wisdom—the dangerous half-truths that many embrace—and instead hear and act on the facts; second, an unrelenting commitment to gather the facts and information necessary to make more informed and intelligent decisions, and to keep pace with new evidence and use the new facts to update practices.

Substituting Facts for Conventional Wisdom

In almost every field there are accepted truths, or conventional wisdom, that guide decisions and actions. And in almost every field, including medicine, many practitioners and their advisers are unwilling or unable to observe the world systematically because they are trapped by their beliefs and ideologies. Their observations are contaminated by what they expect to see, or because they aren't logical enough in their thinking. The result is that much conventional wisdom is wrong. Organizations can gain competitive advantage if they take the trouble to substitute facts for common lore and to test conventional wisdom against the data. The following pair of organizations illustrates how this is done.

The gaming or “casino entertainment” industry is rife with conventional wisdom, some so widespread that it is known outside the industry as well. One deeply held belief is that the key to success is attracting the high rollers, people who drop lots of money at the card tables or the roulette wheels. Another belief is that casinos must offer discounted hotel rooms and meals, or even give away lodging to entice people into the casino, where they will spend money on gambling, restaurants, and entertainment. Other beliefs include:

- Building family-friendly places with rides, like mini-Disneylands, attracts customers, particularly families, to gaming venues.
- Building lavish—and expensive—facilities that look like Venice, Paris, or the New York skyline is the best way to draw customers away from other casinos.
- Increasing the “hold” (the money the casino retains from slot machines) will drive people out of your casino.
- Advertising on radio and television is among the best ways to build customer traffic and revenue.

When Gary Loveman was appointed chief operating officer of Harrah’s in 1998, taking a leave from his position as an associate professor at Harvard Business School, he knew little about the details of casino operations, interior design, or architecture. Loveman had consulted for Harrah’s and had studied the retail industry. He arrived with a professor’s commitment to rigorous analysis and fact-based decisions. Loveman soon made these such a part of the company’s culture that, as he commented when we talked to him, there were three ways to get fired at Harrah’s: steal, harass women, or institute a program or policy without first running an experiment. Casinos produce lots of data—on things like revenues, occupancy, profitability, and staff turnover. Loveman was determined to use those data, and to collect more information by constantly running small experiments, to uncover facts that would help the company make more money.

Loveman and his colleagues soon discovered that much of the conventional wisdom in the industry was wrong and changed company practices to reflect what they learned. Rather than relying on extensive media advertising, Harrah’s uses direct mail—promotions aimed at targeted customers to tempt them to spend more of their gaming dollars at a Harrah’s casino and to persuade them to return if they haven’t visited in a while. Harrah’s learned that its most profitable customers were locals, often older retired or semi-retired people, who visited the casino frequently to play for entertainment. These people weren’t as interested in discounted rooms as in meals and complimentary chips. In one experiment, Harrah’s offered a control group the typical promotional package worth \$125 (a free room, two steak dinners, and \$30 worth of free chips); customers in the experimental group were only offered \$60 worth of free chips. The \$60 offer generated more gambling revenue than the \$125 offer, at a reduced cost.²²

Harrah's figured out that families with small children, a target audience for many competitors, generally have little discretionary time or money, so were not profitable to court. The company also discovered that spending money on employee selection and retention, including giving people realistic job previews, enhancing training, and bolstering the quality of frontline supervision, reduced turnover and produced more committed employees. Harrah's was able to reduce staff turnover by almost 50 percent as a result. Loveman and his colleagues reasoned, using academic research on service effectiveness, that more experienced, committed, and better-managed employees would improve customer service, which in turn would bolster guest satisfaction and, ultimately, their willingness to return. This attention to employees, plus Harrah's investment in data warehousing and analytics that permitted the company to track and analyze guest behavior, had a far bigger payoff than throwing money at facilities.

With \$50 billion going through Harrah's slot machines each year, Loveman insisted on running experiments to see if holds could be varied, for instance, according to the machine's location, without affecting play. Conventional industry wisdom dictated that you could not vary the payouts at all, but Loveman didn't accept it. As he asked a group of Stanford students, how can price (which is what the hold really is) be completely inelastic when one woman can buy a black dress for \$1,000 at a designer store and another woman can buy a similar black dress for \$100 at Target, and both can be equally satisfied with their purchase? Harrah's discovered that you could increase the hold, generating additional money that fell straight to the bottom line.

Harrah's has done very well since Loveman's arrival; profits keep growing and so does the stock price. Loveman is now CEO and chairman following the retirement of Phil Satre, the CEO with the courage and foresight to offer him the COO job. What now seems obvious about the gaming business was far from obvious when he began. And note that Harrah's competitors, for the most part, have not copied the company's philosophy of fact-based decision making, nor have they stopped relying on conventional wisdom to run their businesses.

Using facts rather than conventional wisdom can even help surmount market forces, as the Oakland Athletics baseball team illustrates. A primary tenet of classical economics is that a competitive market efficiently determines the value of both labor and goods, so price is an accurate indicator of quality. That would mean that the talent a major league team has at its disposal should be closely related to its payroll, since more talented players

should command higher salaries. Conventional wisdom in baseball says that raw talent is the only thing that matters. And although the size of teams' payrolls is linked to performance, the relationship is surprisingly weak. One study found no significant differences between the amount of money that strong versus weak teams spent on players' salaries between 1997 and 2001. That same study revealed a wide difference in labor costs among teams. In 2001, the average team paid approximately \$630,000 in salary for each game it won, with the cost per game won ranging from a low of \$225,000 for the Minnesota Twins to a high of over \$1 million per win for the Boston Red Sox.²³ In August 2005, an analysis showed that the New York Yankees and Kansas City Royals had spent about \$4.8 million per game won—reflecting the inflation in salaries since 2001—while the Cleveland Indians spent about \$800,000 per game won, about one-sixth as much, and the Oakland Athletics spent just \$1.1 million per win.²⁴

The differences arise because some general managers, and Billy Beane of the Oakland Athletics is Exhibit A, have analyzed the factors that drive success—many going against conventional wisdom—and use these insights in a sort of informational arbitrage to outperform their salary budgets. This evidence has caused the A's to reject familiar truisms about the kind of talent and skills that winning teams use, for example that “hitting in the clutch,” sacrifice bunts, and stolen bases are crucial to team performance. During games, the team is managed in ways that encourage players to do what they have been selected and trained to do, while ignoring rules of thumb that aren't supported by the facts. For example, in 2002 the A's had fewer sacrifice bunts and steals than any major league club, despite the general belief in baseball that these tactics win games. Another piece of conventional wisdom that the A's and other salary-efficient teams have eschewed is the idea that you need to hire big-name stars to be successful. The problem with this half-truth is that past performance does not guarantee future results, and marquee players are often older and injury prone. So, “middle-market teams have been given an opening to use the tools of baseball's information revolution—video, injury reports, obscure statistics—to find players on the rise, while the big spenders often sign stars whose best games might be behind them.”²⁵

Between 1999 and 2002, the Yankees paid over three times what the A's paid for the average player on their roster. The Yankee payroll was \$130 million in 2002; that of the A's, just \$40 million. Yet the difference in performance between the two teams was surprisingly small considering the vast difference in salaries. The Yankees made the championship playoffs in 2000, 2001, and 2002, but so did the A's. The Yankees did go all the way to the

World Series in 2000 and 2001, and won it in 2000. But during the 2002 regular season, the A's and the Yankees each won 103 games. Just think what the A's might have accomplished with the combination of evidence and unlimited budget.

Being Committed to Fact-Based Decision Making

Sometimes, unlike major league baseball where reams of data are gathered—or even Harrah's, where the operation itself and its information system regularly generate data—the facts required for decision making are not readily at hand. That is not an excuse for continuing to rely solely on casual benchmarking, past experience, ideology, and conventional wisdom to guide what your organization does now and in the foreseeable future. Companies that practice evidence-based management are committed to doing the best they can with what they have at the time, while taking steps to gather new and possibly more useful information. These companies are relentless in assessing the utility of either new or old measures, and above all, in being ideologically committed to making decisions based on the evidence—both quantitative and qualitative. Consider three examples.

Enterprise Rent-A-Car is the largest car rental company in the United States, with revenues in 2005 of about \$8 billion. When Andy Taylor took over the leadership of this privately owned company from his father in the early 1980s, it was making about \$76 million in revenue—so they have grown about a hundredfold in twenty years. With 6,000 locations in five countries, a focus on providing outstanding customer service is a large part of the company's success. Customers are asked, "How satisfied were you with your last rental experience?" on a five-point scale. Only the percentage of people responding they were completely satisfied—answering five on the five-point scale—are counted. The company's evidence shows that people who give that answer are three times more likely to rent from Enterprise again. As a manager, if you are even one point below average on that question, you can't get promoted. By focusing on this question, which has been validated through internal studies as most predictive of future behavior (they started with a number of others, including whether or not customers would recommend Enterprise to a friend), the company has driven the mean response up over time. Plus, they have greatly reduced the variance in responses. Unusual among companies, Enterprise pays attention to the variation in responses, as it believes "you are only as good as your weakest link."

Enterprise does not rely on their employees to pass out surveys because of the attendant temptations to cheat or bias the results (like the BMW

mechanic who handed Robert Sutton a survey and pleaded for a five on a five-point scale, because otherwise he would get in trouble). Instead, Enterprise hired an objective, third-party surveying firm to randomly select and survey 25 to 30 of its customers from each branch each month—about 150,000 surveys total. Enterprise also constantly runs experiments—for instance, on its advertising and pricing—and evaluates them quantitatively to learn how to improve its operations and success.

Or take an example from a different industry. In October 1999, when Kent Thiry joined DaVita, a \$2 billion operator of kidney dialysis centers, the company was in default on its bank loans, could barely meet payroll, and teetered close to bankruptcy. A big part of the turnaround effort involved educating the facility administrators, a large proportion of whom were nurses, to use data to guide their decisions. This was accomplished by spending some \$5 million a year on DaVita University, along with various DaVita meetings and academies, to explain the business to people throughout the organization. The senior management team and the company's chief information officer, Harlan Cleaver, have been relentless in building and installing systems that help leaders at all levels understand how well they are doing and make sure they have the information they need to run the company. Thiry's motto is "no brag, just facts," and COO Joe Mello has a degree in industrial engineering from Georgia Tech. When Thiry stands up at a DaVita academy, a meeting of about 400 frontline employees from throughout the company, and states that the company has the best quality of treatment in the industry, that assertion is demonstrated with specific, quantitative comparisons, and he ends the presentation with the statement "no brag, just facts."

A large part of the company's culture involves a commitment to quality of patient care. Reports and meetings always begin with data on the effectiveness of their dialysis treatments and patient health and well-being. Each facility administrator also gets an eight-page report every month that shows a number of measures of the quality of care, which are summarized in a DaVita Quality Index (DQI). This emphasis on evidence extends to management issues, so administrators also get information on operations including treatments per day, employee retention, the retention of higher-profit private-pay patients, and resource-utilization measures, including labor hours per treatment and controllable expenses. The data enable the administrators to compare their facilities to others within the same region, as well as to DaVita as a whole.

The most interesting thing about these monthly reports is what *isn't yet* included. Joe Mello explains that if the company decides that a particular

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measure is important, but is not yet able to collect it, it is included on the report anyway with the notation “not available.” Mello notes that the persistent appearance of an important measure that is missing motivates his people to figure out ways and systems for gathering it. For instance in scheduling labor, a critical efficiency issue, things get messed up by patients who are voluntary no-shows or are in the hospital, on vacation, or absent for other reasons. On the June 2005 report, there is a place for this measure to be reported with the notation “not available.” Many impressive aspects of the DaVita culture have contributed to its success in driving voluntary turnover down by 50 percent, raising patient care quality to the best in the industry, and producing exceptional financial results. But the emphasis on evidence-based decision making and a culture that reinforces speaking the truth about how things are going is a crucial component.

Yahoo!, Inc. is also skilled at running experiments and learning from them, as well as building a culture that emphasizes evidence-based management. Usama Fayyad, chief data officer at Yahoo!, points out that because its home page gets literally millions of hits an hour, the company can design rigorous experiments that yield results in an hour or less—randomly assigning, say, one or two hundred thousand visitors to the experimental group and several million to the control group. Fayyad’s background was in running a company that had a data-mining product and provided data-mining and analysis services to big companies. Yahoo! was one of his clients. He now leads Yahoo!’s efforts to conduct experiments and use the results to enhance company revenues and profits. Much of this can be done very quickly; sometimes, results can be seen within minutes of tweaking something on the homepage or in Yahoo! Mail. This means there is often no reason to spend time discussing which variation to explore or what design opportunities to pursue—it is often cheaper, easier, and faster to simply try all of them and learn what actually works. Yahoo! typically runs 20 or so experiments at any time, manipulating things like colors, placement of advertisements, and location of text and buttons. These little experiments can have big effects, like the one run by Nitin Sharma, which showed that simply moving the search box from the side to the center of the home page would produce enough additional “click-throughs” to bring in about \$20 million more in advertising revenue a year.

This approach seems obvious in hindsight. Yes, Yahoo! gets loads of visitors, and yes, that means Yahoo! has an opportunity to vary the experience in many ways and gather information quickly on what entices visitors to stay and to spend money—things that drive revenue and profits. Yet seizing

this opportunity requires a mind-set that says, “Instead of debating which screen design looks best, or which placement of content and which choice of specific content works best, we’re going to try it all and see what works.” Trust us, we have been associated with lots of companies with Web sites and have seen few of them run experiments and analyze the results. In fact, this observation—of a willingness to debate endlessly rather than try some things and learn from what actually works—applies to domains ranging from sales to manufacturing.

Fayyad himself confirmed this insight about the neglect of an experimenting, data-driven mind-set when he talked about his experience at the DMX group, the consulting spin-off from DigiMine, the company he had cofounded. In meeting with *Fortune* 500 CEOs, he often received a favorable reception when he described what could be done in the domain of business intelligence. But as he told us, “When it came to meeting a lot of the *Fortune* 500 leaders, we’d have these meetings and they’d really engage and all that. And what I learned is that to the CEO of the company, they had no way of understanding what data could mean to them. They thought of it as another service, part of the infrastructure, stuff that IBM does.”²⁶

What to Do When There Are No Sound Data Available

The examples we have described may seem daunting to companies facing enormous uncertainties and complexities, often without information systems and infrastructures that make much evidence available in a timely fashion. Even when companies have little or no data, however, there are things executives can do to rely more on evidence and logic and less on guesswork, fear, belief, or hope. For starters, qualitative data, especially field trips to test existing assumptions, can be powerful tools for gathering useful evidence quickly. We once worked with a large computer company that was having trouble selling its computers at retail stores. Senior executives kept blaming their marketing and sales people for doing a lousy job, and dismissed their complaints that it was hard to get customers to buy a lousy product, until one weekend when members of the senior team went out to stores and tried to buy their computers. Every executive encountered salespeople who tried to dissuade them from buying the firm’s computers, citing the excessive price, weak feature set, clunky appearance, and poor customer service.

Even before gathering any data, however, you can assess ideas that you are using or thinking about using: unpack the assumptions that underlie the proposed policy, practice, or intervention, and confront those assumptions

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with your collective wisdom and experience to see if they seem sensible. If they are, proceed; if they are not, don't bother. Table 1-1 presents a set of diagnostic questions to answer before experimenting with some approach.

We can make this process concrete with an exercise that we often do with executives. Consider merit pay for teachers. As most readers know, because U.S. public schools often are viewed as doing a poor job and education is a hot political issue, schools face constant pressure to change their management approaches to improve performance, which is usually assessed by standardized reading, math, and science scores. The extensive research on schools, learning, and test scores is rarely used to design such reforms.

In most public schools teachers are unionized, but unionized or not, their pay is determined almost exclusively by seniority, years of total teaching experience, and credentials. Pay is rarely based on results or performance, which clashes with what is thought to prevail in the private sector and annoys voters and business leaders who lament that there are no carrots or sticks to properly motivate teachers. Consequently, in the late 1990s there was a great push to implement some form of merit pay, a push that continues to this day.

It turns out that merit pay for teachers is an idea that is almost 100 years old and has been subject to much research. In one study conducted in 1918, "48 percent of U.S. school districts sampled used compensation systems that they called merit pay."²⁷ Before telling you the results of all of that research, however, we can illustrate how you can figure out if merit pay will or won't

TABLE 1-1

Questions to ask before trying a business idea or practice

What assumptions does the idea or practice make about people and organizations? What would have to be true about people and organizations for the idea or practice to be effective?

Which of these assumptions seem reasonable and correct to you and your colleagues? Which seem wrong or suspect?

Could this idea or practice still succeed if the assumptions turned out to be wrong?

How might you and your colleagues quickly and inexpensively gather some data to test the reasonableness of the underlying assumptions?

What other ideas or management practices can you think of that would address the same problem or issue *and* be more consistent with what you believe to be true about people and organizations?

work, and the conditions under which it will or won't, simply by listing the assumptions inherent in virtually all teacher pay-for-performance plans:

- Teacher motivation is *a*, perhaps *the*, determinant of student learning and achievement. (Because merit pay is focused on teachers and administrators—not, for instance, on parents or even students—the presumption must be that teachers and other school personnel are the primary causal agents in learning.)
- Learning can be measured *reliably and accurately* by a test given once a year, or less. (Success, as defined by these plans, is almost always assessed by standardized test scores.)
- Teachers are motivated largely, or at least significantly, by financial incentives; so pay for performance will induce greater and more effective effort.
- Teaching is a solo activity—there is little interdependence with others in the school. (Many plans reward only individual teachers; there is no incentive to cooperate or share with others; and some plans reward teachers for hoarding knowledge in a competition with peers.)

Do these assumptions seem plausible? Think about it. Can you imagine a person saying, “I am motivated a lot by money, so I think teaching first graders is the career for me”? And how important do you think teacher motivation is to student achievement, compared to teacher skill (and skill is not affected by incentives), parental involvement, the community where the children live, the quality of the facilities and resources, school culture, and parental education and income? Is peer support and learning from colleagues important in affecting teacher performance? What are the consequences of measuring and rewarding student performance on a set of standardized tests?

You don't have to read the evidence from literally decades of research to spot the problems with merit pay for schoolteachers. That evidence shows that merit-pay plans seldom last longer than five years and that merit pay consistently fails to improve student performance.²⁸ The very logic of merit pay for teachers suggests that it won't do what it is intended to do, or do it very well. Moreover, the signal that all that matters is student test scores and the provision of rewards for improving those scores provides an incentive for some teachers to game the system. After all, if you want to enhance students' performance on a test, one way to accomplish this is by giving students the test or the answers in advance. Research on cheating by teachers and students

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by economists Brian Jacob and Steven Levitt led directly to the firing of several principals and teachers in Chicago. Their research also showed that cheating was quite sensitive to the size of the incentive provided for enhancing student scores.²⁹ Anthony Bryk, a prestigious educational researcher, tells us that the problems with the implementation of merit pay don't surprise him or his colleagues because the same problems emerged when merit-pay systems were implemented in the 1980s. Bryk jokes, "It is like policy makers suffer from amnesia."³⁰

We have found that a thoughtful consideration of the assumptions that underpin interventions is often sufficient to reproduce the insights gained from piles of empirical research. That doesn't mean you shouldn't try to access such research or gather your own data, but it does mean that in the absence of available data, sometimes careful, structured analysis can get you almost to the same place.

The Focus on Dangerous Half-Truths

As we've seen in numerous industries ranging from gaming to baseball to education, failure to find and follow the best logic and evidence leads to relying on conventional wisdom that is frequently incorrect or incomplete, and as a consequence, downright hazardous to organizational health. *Hard Facts, Dangerous Half-Truths, and Total Nonsense* shows how managers can avoid these pitfalls and gain competitive advantage in three intertwined ways. First, as we've shown in this chapter, managers and their companies can profit by using evidence-based management as way of thinking. Second, chapter 2 will show how to use simple but powerful standards for judging which advice and practices advocated in the vast marketplace for business ideas are sound, which are suspect, and which are total nonsense. These standards for judging the logic and evidence behind the advice given by authors, gurus, consultants, and academics clash with the standards that currently reign in the marketplace—but are far more consistent with the fundamentals of logical reasoning and the scientific method. And third, this book will help you apply the mind-set of evidence-based management by questioning six widely accepted and applied, but flawed and incomplete, beliefs about managing people and organizations.

These ideas are dangerous half-truths because they have much currency and many advocates, yet are often applied in the wrong ways and at the wrong times. Certainly, beliefs that are total nonsense do harm and must be debunked by practicing evidence-based management. We focus far more

attention on dangerous half-truths, however. Even greater damage is done by beliefs that are partly right and apply at certain times, but when treated as completely true and applied in full force to every decision and every action, undermine performance, destroy management careers, and ruin employee well-being. Half-truths are more difficult to debunk than total nonsense because arguments can always be mustered about times and places they are correct—and then generalized to the wrong settings and times. Half-truths also require subtle skills and more complete knowledge to navigate properly because—rather than resorting to appealing but simplistic sound bites and slogans—leaders need to know when these ideas are right and when they are wrong in order to guide organizational decisions and actions. We will consider dangerous half-truths about work-life integration, managing talent, structuring rewards, setting strategy, managing change, and leadership—and will show how to manage in light of the best logic and evidence about each half-truth.³¹

Chapter 3 examines perhaps the most basic half-truth—“work is fundamentally different from the rest of life and should be.” Some readers might not experience the difficulty of living in separate worlds, or the ripple effects of living with someone who struggles to balance the world of work with the rest of life. Yet all the evidence we have gathered, including our own experiences, show that this is a vexing problem and is getting worse. The half-truth that these are and should be separate domains is fundamental because so much else follows from it. The organizational practices that we believe are best for managing talent and for implementing rewards, and even our views of good leadership, are quite different than what we observe—or at least aspire to—in our families, churches, synagogues, mosques, and communal organizations. That is because we do things, think about things, and tolerate things at work that are different than what we would do, or even attempt to get away with, in other domains.

Member selection (who is admitted and who gets to stay) and how people are rewarded once inside are two of the most important and time-consuming processes in any organization. Chapter 4 shows why the idea that “the best organizations have the best people” is a half-truth, with particular attention to the “war for talent” imagery that was embraced during the dot-com boom and lives on in conferences on talent management and programs to attract and retain high potentials. As you will see, many of these much ballyhooed talent management practices reflect assumptions that don’t stand up to sound logic and, despite vehement claims by experienced and expensive consultants, clash with the best evidence. Chapter 5 examines one of the

most deeply held half-truths in the business world, that “financial incentives drive company performance.” We see so many organizations treat financial incentives as the solution to every problem—including problems caused by financial incentives in the first place. We review the assumptions that guide interventions and show that, although financial incentives propel behavior, the best evidence shows that using them to solve many problems leads organizations to stray from their goals and undermines performance.

The remaining three half-truths move up to the organizational level of analysis, focusing on the challenges of managing the enterprise. Chapter 6 questions whether and when “strategy is destiny” and makes an evidence-based case that excessive faith in strategic decision making is hazardous to an organization’s health. There is enormous emphasis on strategy in the business world, reflecting the belief that if companies get their strategy right, everything else will be fine. It turns out that this is not quite true, and that having the right strategy may provide less competitive advantage than many of the most respected and highly paid senior executives, gurus, and management consultants believe. There is also strong interest in the challenges of organizational change, in part because to implement a chosen strategy, organizations often need to change their product lines, adopt new technologies, and merge with other companies. Chapter 7 examines the faulty evidence and logic behind the mantra “change or die.” This is a dangerous half-truth because many changes actually increase rather than decrease the chances of failure, so delaying and avoiding some changes can help an organization, even when those changes seem to mesh with the strategy. This chapter also takes on a related half-truth, that change is difficult and takes a long time. We show that this isn’t always the case and describe what organizations can do to speed change. Chapter 8 considers what leaders are expected to do versus what they actually can and should do. In a world of heroic leaders, who so often do things that don’t turn out to be very heroic, no book that considers dangerous half-truths would be complete without examining the fundamental, and partly flawed, belief that “great leaders are in control of their companies” and whether and when leaders ought to be in control.

We focus on these half-truths because leaders who understand why each belief is flawed, and who think hard about the evidence for and against each, can develop more effective and sophisticated approaches to running their organizations. And we don’t simply show why each of these beliefs is at least half-wrong; we explain how and what organizations can do to prosper in light of the best evidence about these beliefs.

Making the Difficult Job of Managing a Little Easier

It is one thing to argue that organizations would perform better if leaders knew and applied the best evidence. It is another thing to do it. We appreciate how hard it is for working managers and executives to do their jobs. The demands for decisions are relentless, information is incomplete, and even the very best executives make many mistakes and face constant criticism and second-guessing from people both inside and outside their companies. In that respect, managers are like physicians who face one decision after another. It isn't possible for even the very best physician—or manager—to make the right decision each time. Hippocrates, the famous Greek who wrote the physician's oath, described this plight well: “life is short and the art long, the occasion instant, experiment perilous, decision difficult.”³²

These constraints mean that it would be naïve to claim that evidence-based management, or any other mind-set or practice, can improve every managerial decision and action. But evidence and data do matter. There are better and worse ways to think about solving organizational problems, and many organizations and their leaders fail to use the best data or the best logic to navigate what are admittedly tough issues.

This raises the question of *why* evidence-based management isn't used more. We believe that managers are seduced by far too many half-truths: ideas that are partly right but also partly wrong and that damage careers and companies over and over again. Yet managers routinely ignore or reject solid evidence that these truisms are flawed. The problem isn't just that executives face a lack of time, knowledge, or data. It is worse than that. As we dug into the market for business knowledge, we identified a clear, albeit largely unspoken, set of deeply flawed standards for judging managerial knowledge and writing that are ingrained and remarkably counterproductive. Before evidence-based management can become a reality, many of the current ways of gathering and assessing business knowledge need to be described, understood, and rejected—and then replaced with better standards and guidelines. The next chapter shows how and why so many of the current standards for judging business ideas and management practices are flawed and then goes on to provide some alternative ways of approaching the marketplace for ideas more consistent with the concepts of evidence-based management. These better standards can help leaders figure out which advice to follow and—even more importantly—which to ignore.