

Management Half-Truths and Nonsense:

HOW TO PRACTICE EVIDENCE-BASED MANAGEMENT

Jeffrey Pfeffer
Robert I. Sutton

"Instead of being interested in what is *new*, we ought to be interested in what is *true*."
—Pfeffer's Law

"If you think that you have a new idea, you are wrong. Someone probably already had it. This idea isn't original either; I stole it from someone else."
—Sutton's Law

The quest for information and research-based insight is an obsession in the capital markets. There is a veritable industry of analysts, investment bankers, portfolio managers, and investors who seek any informational advantage, which is one reason that academics who study finance—such as Nobel Prize winners Myron Scholes, William Sharpe, and Michael Spence—have been recruited to work on Wall Street and with money managers. The value of evidenced-based investment decisions also explains why acting on private information—insider trading—is regulated so tightly, and why U.S. companies are forbidden from releasing information to elite groups of investors and analysts. Instead, they must make conference calls and announcements simultaneously available to the general public. Quantitative research on capital markets abounds, and companies such as Vanguard, Fidelity, Barclays Global Investors, and hundreds more have used it to develop investment products and strategies.

The potential payoff for using valid evidence is even greater when it comes to *managing* organizations. Capital markets are among the most efficient

Adapted by permission of Harvard Business School Press. *Hard Facts, Dangerous Half-Truths, and Total Nonsense: Profiting from Evidence-Based Management*, by Jeffrey Pfeffer and Robert I. Sutton. Copyright © 2006 Jeffrey Pfeffer and Robert I. Sutton. All Rights Reserved.

in the world, so it is hard to gain an enduring information advantage. Innovations such as junk bonds, indexed mutual funds, and derivatives, for example, were copied with lightning speed. Imitation is much slower and less effective in the world of management practices, in part because such practices depend on tacit knowledge and implementation skill, on knowing not just *what* to do but *how* to do it. And management practices and logic resist copying because of the power of precedent and ideology. Consider how long Southwest Airlines had its business model and an amazing record of unparalleled profitability in the airline industry pretty much to itself before JetBlue and a few others began to seriously copy it. Or witness the failure of competitors to catch Toyota in productivity, quality, or time to market with new product innovations, even though Toyota gives tours to competitors, and the fundamentals of its system have been described in numerous writings.¹

We have found that most managers actually *try* to act on the best evidence. They follow the business press, buy business books, hire consultants, and attend seminars featuring business experts. Companies do sometimes benefit from these efforts. Yet there is surprisingly little rigorous use or serious appreciation of what we call “evidence-based management.”

First and foremost, evidence-based management 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.

Obstacles on the Road to Implementing Evidence-Based Management

Implementing evidence-based management is a journey, not a quick-fix technique, and along the road you will encounter hindrances and obstacles. It is our job to tell you about some of the most pernicious potential roadblocks and provide suggestions about how to avoid and overcome them, or at least mitigate their effects.

Using Data Changes Power Dynamics

A former student who worked at Netscape reported that James Barksdale, a former CEO of that company, once remarked at a meeting at the company something to the effect of: “If the decision is going to be made by the facts, [then] anyone’s facts, as long as they are relevant, are equal. If the decision is going to be made on the basis of people’s opinions, then mine [he was the CEO at the time] counts for a lot more.” What that anecdote illustrates is that facts and evidence are great levelers of hierarchy. Therefore, some of the resistance to

evidence-based practice arises because, when done right, it does change power dynamics, replacing formal authority, reputation, and intuition with data. One pundit, referring to evidence-based medicine, called it replacing warriors with accountants.²

Adopting evidence-based management could send similar reverberations through the corporate world. Senior leaders are often seen as heroes and venerated for their wisdom and decisiveness. CEOs and their brethren could lose stature as their intuitions are replaced, at least at times, by judgments based on evidence available to virtually any educated person with access to the data. But as recent research by Rakesh Khurana suggests, less heroic CEOs and leaders who operate on the basis of the best data and insights might actually fuel better organizational performance.³

The implication is that leaders need to make a fundamental decision: do they want to be told they are always right, or do they want to lead organizations that actually perform well? When Gary Loveman of Harrah's told a group of Stanford students that he frequently made mistakes, that he was willing to listen to all the facts and analysis, and that his facts and insights were not privileged over anyone else's, this was not some politically correct posture. Loveman is a very competitive person, and he wants Harrah's to win—and winning requires mustering the truth and the best information for making decisions, not deferring to people based on title, rank, or anything else. That sort of egalitarian culture was supposedly the norm in the Silicon Valley—and is still evident at places such as Google, with its more academic and long-term orientation.

Jeffrey Pfeffer is Professor of Organizational Behavior at the Graduate School of Business at Stanford University.

Robert I. Sutton is Professor of Management Science and Engineering at Stanford University.

But egos loom large even in high-technology companies, and evidence often cuts inflated egos down to size. There is a clear implication in all of this for selecting leaders—avoid at all costs the people who think they know everything. They don't. But worse than that, they are unlikely to embrace any facts that disagree with their preconceptions. This is why one of our favorite sayings is, "When two people always agree, one of them is unnecessary." This is a principle both of us have applied when advising leaders how to interact with others, helping companies hire new people, or looking for a coauthor to work with.

People Often Don't Want to Hear the Truth

The phrase *don't shoot the messenger* contains an enormous amount of truth, namely, that delivering bad news is not something that typically wins you many friends. People like to deliver good news, regardless of its validity, in large part because most people seem to prefer hearing good news. The important insight here is that a lie takes two parties—the person who tells the lie and quite frequently the listener who signals in a number of ways that she or he wants to be lied to.

As Gary Loveman explained to us, say he goes to a casino that isn't doing well. If the leadership at the facility tells him that they understand the problem

and know how to fix it, he can fly off feeling good that things will get better. If instead they tell him that they've tried a bunch of things, basically everything they can think of, and the casino is still losing out to the competition, Loveman and his team have to actually fix the problem, possibly deliver bad news to their bosses, the board of directors, and can't go off into the sunset content and secure. But the important thing is that they *can* fix it, because they've been given the facts. Building a culture of truth telling and acting on the hard facts requires an enormous amount of self-discipline in order to not only be willing to hear the truth, however unpleasant, but to actually encourage people to deliver bad news. Kent Thiry, the CEO of DaVita, told us that senior managers at his company actively seek out problems and bad news. That's because the good news doesn't require any decisions or action; it's the bad news that creates the need to do something to fix the failure. And you can't fix things or bring advice and talent to bear on problems unless you know about them.

There is really only one way around this reluctance to confront the hard facts, and that is to consciously and systematically understand the psychological propensity to want to both deliver and hear good news and to actively work against it. To practice evidence-based management you first need to know the real truth. And it's better to know the truth early, when situations can be remedied, than later when it may be too late to do much.

The Marketplace for Business Ideas Is Messy and Inefficient

There is yet another barrier to practicing evidence-based management, and that is the sorry state of the business idea marketplace. The sad fact is that any sane manager, consultant, or change agent who wades into the market for business knowledge is soon overwhelmed by vast amounts of clashing and misleading advice. The business-idea marketplace is plagued by several intertwined problems that confront anyone who seriously tries to practice evidence-based management.

First, there is simply too much information for any single person to consume. There are at least a hundred magazines and newspapers devoted to business issues.⁴ There are at least 30,000 business books in print⁵ and approximately 3,500 new ones are published *each year*.⁶ Second, disparate and disconnected recommendations about management practice are seldom woven together in a way that makes remembering them or thinking about them easy, or maybe even possible. Consider for instance *Business: The Ultimate Resource*, an encyclopedic tome that weighs over eight pounds and runs 2,172 oversized pages. *Business* claims "it will become the 'operating system' for any organization or anyone in business." This claim is faulty because a good operating system fits together in a seamless and logical manner. Unfortunately, this collection of over 150 essays and articles reads like a nearly random collection of disconnected bits of advice. No discernable effort is made to connect any of these bits. *Business* offers advice on a dizzying array of topics from creating a fun place to work, to calculating working capital, to creating powerful brands, to designing a website. Beyond that, the reader is given almost no information about what evidence,

TABLE 1. Whom Should You Believe? Clashing Business Book Titles

<i>In Search of Excellence: Lessons from America's Best-Run Companies</i>	<i>The Myth of Excellence: Why Great Companies Never Try to Be the Best at Everything</i>
<i>Charisma: Seven Keys to Developing the Magnetism That Leads to Success</i>	<i>Leading Quietly: An Unorthodox Guide to Doing the Right Thing</i>
<i>Leading the Revolution: How to Thrive in Turbulent Times by Making Innovation a Way of Life</i>	<i>Managing for the Short Term: The New Rules for Running a Business in a Day-to-Day World</i>
<i>Love Is the Killer App: How to Win Business and Influence Friends</i>	<i>Business Is Combat: A Fighter Pilot's Guide to Winning in Modern Business Warfare</i>
<i>The Peaceable Kingdom: Building a Company Without Factionalism, Fiefdoms, Fear and Other Staples of Modern Business</i>	<i>Capitalizing on Conflict: Strategies and Practices for Turning Conflict to Synergy in Organizations</i>
<i>Managing by Measuring: How to Improve Your Organization's Performance Through Effective Benchmarking</i>	<i>Managing with Passion: Making the Most of Your Job and Your Life</i>
<i>The Quest for Authentic Power: Getting Past Manipulation, Control, and Self-Limiting Beliefs</i>	<i>What Would Machiavelli Do? The Ends Justify the Meanness</i>
<i>Thinking Inside the Box: The 12 Timeless Rules for Managing a Successful Business</i>	<i>Out of the Box: Strategies for Achieving Profits Today and Growth Tomorrow through Web Services</i>
<i>Built to Last: Successful Habits of Visionary Companies</i>	<i>Corporate Failure by Design: Why Organizations Are Built to Fail</i>

theory, or logic (if any) supports the thousands of "do's" and "don'ts" listed, making it impossible to judge the quality of all that advice.⁷

Third, the advice managers get from the vast and ever-expanding supply of business books, articles, gurus, and consultants is remarkably inconsistent. Consider the following clashing recommendations, drawn directly from popular business books: Hire a charismatic CEO; hire a modest CEO.⁸ Embrace complexity theory; strive for simplicity.⁹ Become a strategy-focused organization; don't waste much time on strategic planning because it is of little value.¹⁰ The deeper you look, the more confusing and bewildering it all becomes. Table 1 illustrates just a small sample of the conflicting advice managers obtain from the business book marketplace.

Even worse, because good advice is frequently hard to distinguish from bad, managers are constantly enticed to believe in and implement flawed business practices. This happens partly because consultants and others who sell ideas and techniques are *always* rewarded for getting work, only *sometimes* rewarded for doing good work, and *hardly ever* rewarded for whether their advice actually enhances performance.¹¹ The incentives are often even more perverse than that, because if a client company's problems are only partly solved, that leads to more work for the consulting firm. The senior executive of a human resources

consulting firm, for example, told us that because pay for performance programs almost never work that well, you usually get asked back again and again to repair the programs your clients bought from you. Similarly, while we were writing our last book, a senior partner in a large consulting firm commented that the business process reengineering work his firm had done was one of the best things that had ever happened. First the firm made a lot of money doing the reengineering consulting; then it made even more money from the same clients because it turned out that many of the “unnecessary” people removed during reengineering efforts had in fact been doing necessary work. The result was that his own consultants were then hired to do that same work—of course, at a far higher wage rate than the people they replaced.

If you think our charge is too harsh, ask your favorite consulting firm what evidence they have that their advice or techniques actually work—and pay attention to the evidence they offer using some of the guidelines we will provide a little later on in this article. A few years ago, senior Bain consultant Darrell Rigby began conducting the only survey we have encountered on the use and persistence of various management techniques and practices.¹² As Rigby told us, it struck him as odd that you could get good information on products such as toothpaste and cereal but there was almost no information about interventions that companies were spending literally millions of dollars to implement. Even the Bain survey, noteworthy as it is, measures only the presence and persistence of various programs and subjective assessments of them.

Yet another flaw with the marketplace for business ideas is that it is filled with sloppy analogies that somehow win managers over. Two of our favorites are: those that have been used to justify forced curve ranking systems, made famous by General Electric; and the *business is war* or combat analogy, which has been used to argue for harsh steps toward the competition and, occasionally, toward one's own people (who are viewed as “necessary evils”). Jack Welch, the former CEO of GE, made the argument for forced curve ranking, a quite controversial management practice, this way: people get graded in school, so why shouldn't they get graded at work? This leads to the (reasonable) implication that grades in school are typically assigned on a comparative basis.¹³ First of all—and ironically, given the use of this analogy—the evidence strongly suggests that students learn better when they are *not* graded and certainly not when they are graded on a curve.¹⁴ But setting that fact aside, consider a crucial difference between school and work. In school, there is relatively little interdependence in performance—if you learn chemistry and your colleagues don't, it does not affect you in any way. Learning is a matter of you, individually, mastering the particular subject matter. Cooperation or teamwork in school, at least on tests, is called *cheating*. By contrast, work organizations are typically filled with interdependent action, where your ability to accomplish something is crucially dependent on the help and cooperation of others. So, if grading on the curve causes competition and conflict, the consequences will be vastly different for interdependent as opposed to noninterdependent systems.

Following the business as war analogy can be similarly misleading. The analogy implies that you would always aim to hobble and destroy competitors and avoid cooperating with other firms in your industry. If such logic had been followed, however, the Napa Valley might never have become such a prestigious winegrowing region. When Robert Mondavi started his winery in 1966, he worked to enhance the reputation and quality of *every* Napa winery, not just his own. Such cooperation set the stage for the famous “Judgment in Paris” in 1976, where prestigious French wine critics consistently mistook the California wines for French and ranked the California wines higher. Although no Mondavi wines were tasted, California winemakers from Chateau Montelena (the top white) and Stag’s Leap (the top red) were quick to thank Mondavi for helping them succeed. Indeed, both winners—Mike Grgich and Warren Winiarski—had worked for Mondavi before leaving with his blessing to start their own wineries. Mondavi’s generosity paid off: he and his company profited when the prices of *all* Napa wines skyrocketed after the 1976 “Judgment.”¹⁵ Yet if you read a Harvard case by strategy researcher Michael Porter about Robert Mondavi Winery, it only considers how Mondavi competes with other California winemakers like Kendall-Jackson and Gallo. Apparently, Porter’s narrow focus on the useful but incomplete “competitive strategy” analogy led him to avoid noticing (or mentioning) the cooperation that benefited Mondavi’s company as he enjoyed the reputational spillover from the Napa Valley’s growing prestige.¹⁶

Use Sound Logic and Analysis

So, what is an executive who is committed to implementing evidence-based management to do? We have two broad categories of recommendations. First, familiarize yourself with analytical and logical issues so that you can be a more sophisticated and informed consumer of business ideas and research. And second, develop a different set of criteria for evaluating business writing and research. We consider each of these suggestions in turn.

Using sound logic and analysis does *not* mean you have to take a course in statistics or the scientific method. It just means you need to pay close attention to problems in exposition, logic, and inference that are reasonably obvious once identified and that bedevil much of what passes for business research. For instance, some popular business books, such as *The War for Talent*, collect information on the independent variables, in this case practices for managing talent, *after* the time period covered by the data on the performance that talent management presumably causes.¹⁷ This is not the only book that has this problem of causal order. But it is important to recognize that in most discussions of causality, the cause needs to occur *before* the effect.

Or consider a big problem that plagues managers who try to learn from experience as well as many business writers who draw lessons from currently successful companies. What both the managers and the writers don’t seem to realize is that crucial evidence is lost if they ignore the practices and strategies used by failed companies. As a consequence, the steps taken by failed companies

are consistently undersampled.¹⁸ It is hard to overstate the breadth of this problem, and how much it distorts the conclusions that people reach. For example, in 1922 the U.S. tire industry had 274 firms, but by 1936 the number of companies was down by 80 percent, to 49.¹⁹ Today only two U.S.-owned tire companies are still standing. One study estimated that there were 2,197 automobile producers in the United States between 1885 and 1981; less than 1 percent still exist.²⁰ Yet few study the histories and practices used by all those “losers” and how they differ from surviving companies.

Studying and imitating only surviving companies, especially the most successful ones, can lead to flawed and dangerous conclusions about what are the best and safest practices. For instance, companies that use risky, unusual practices perform either much better or much worse than average, especially compared to those that do what most other companies do. But “if only the best, not the worst, performers are observed, performance will seem to be associated with strategies that are far more likely to kill a company than to result in superior performance.”²¹ Similarly, concentrating resource allocations on a narrow range of products, strategies, and markets will expose companies to greater risk than a strategy of diversification, because they will have put all of their eggs in fewer baskets. But if we just observe the survivors and top performers—those that have managed to concentrate their efforts and resources in precisely the right way—it will appear as if concentrated, focused strategies win out most of the time, even though the exact opposite is usually true. The only way to avoid learning such flawed lessons is to devote more attention to studying companies that fail and why they fail, not just those that succeed.

It is also useful to get in the habit of running small experiments and thinking about the inferences you are drawing from your observations and from the data your organization is constantly generating. In medical research, two main research methodologies are used to generate knowledge. The gold standard is the double-blind, placebo-controlled study, in which patients in one group are randomly assigned to get a treatment, patients in another group are randomly assigned to get a placebo, and neither doctors nor patients know who is in which group, so prior expectations don’t affect the results. It is often impossible, however, to use such studies. For example, it would be unethical to randomly assign nonsmoking teenagers to conditions where they did and did not start smoking. The alternative, less rigorous approach is to use surveys or observations to measure behaviors like exercise, vitamin consumption, or smoking; assess health outcomes with medical records; and use statistical techniques to relate the behavior and outcomes, controlling for as many alternative explanations as possible.

Similarly, in management it often isn’t feasible to use experiments, especially double-blind designs. People will often know, for instance, if they are getting certain incentives or not. Yet field experiments are valuable, and field experiments are to be found in some of the most compelling and useful academic research. As one example, a randomized field experiment with Israeli soldiers confirmed the *Pygmalion Effect*, that high or low performance expectations

can become self-fulfilling. When drill instructors were tricked into believing that certain randomly selected soldiers would achieve superior performance, those soldiers subsequently performed far better on tasks like firing weapons and reading maps than soldiers in control conditions who did not have the higher performance expectations. This experiment and numerous other studies show that leaders often get the performance they expect from subordinates.²² In other field experiments, incentives have been used in some parts of an organization and not others, as have changes to make jobs more challenging and to compare open and closed offices.²³

A big barrier to using experiments to build management knowledge is that companies tend to adopt practices in an all or nothing way—either the CEO is behind it so everyone does it, or at least claims to do it, or it isn't tried at all. This tendency to do things everywhere or nowhere severely limits a company's ability to learn by trying things in some places but not in others, much as firms routinely do when test-marketing a product or evaluating an advertising campaign. In particular, multi-site organizations like restaurants, hotels, and manufacturers with multiple plants can learn by experimenting in selected sites and comparing the results to control locations.

The wisdom of starting with a small experiment is illustrated by research we did years ago with the Southland Corporation, which operates and franchises 7-Eleven stores. Southland executives were enamored with Peters and Waterman's *In Search of Excellence*, which exhorted managers to "be close to the customer" and develop a "service obsession." This infatuation was translated into a companywide effort to improve customer service, which aimed to get every clerk in every store in North America to offer a greeting, smile, eye contact, and a *thanks* to every customer. Millions of dollars of management bonuses were linked to these courtesy measures and, in 1987, Southland held the "Thanks a Million" contest where 17 store managers who won regional courtesy contests qualified to enter a drawing for \$1 million. The contest culminated in a slick media event hosted by game show host Monty Hall of *Let's Make a Deal* fame. Debra Wilson, a store manager from Plano, Texas, won the million bucks.

This was good fun, but was it worth the money? We worked with Larry Ford, then Southland's director of field research, to do research (including a randomized experiment with 15 stores) to discover if courteous clerks fueled sales. Unfortunately, executives hadn't bothered to try any pilot studies or experiments before spending all that money on courtesy programs, although Ford urged them to do so. We ultimately found little if any evidence that courtesy increased store sales. Yes, it was possible to increase courtesy. We used training and coaching during our 10-week field experiment to increase the percentage of customers who received greetings from 33 percent to 58 percent and smiles from 32 percent to 49 percent. But the main finding, including results from large-scale studies by Ford's group, was that clerks in stores with more sales were actually *less* courteous. Apparently, the crowding and long lines in busy stores made clerks and customers grouchy. This research ultimately helped convince executives to scale back courtesy programs and realize that, for most

7-Eleven customers, good service meant getting out of the store fast, not fake smiles and insincere social amenities. Southland could have saved millions by doing some pilot studies first.

In management research, studies that use surveys or data from company records to correlate practices with various performance outcomes are far more common than experiments. Such *nonexperimental* research is useful, but care is required to control statistically for alternative explanations, which arise in even the best studies. Managers who consume such knowledge need to understand the limitations and think critically about the results. Anyone who ever had a statistics class knows that correlation is not causation, but it is surprising how often purveyors of business knowledge are fooled or try to fool customers. We admire Bain's consulting and have made favorable comments here about their research. We do wonder, however, why they put a table on their home page that brags: "Our Clients Outperform the Market 3 to 1."²⁴ The smart people at Bain know this correlation doesn't prove or even imply that their advice transformed clients into top performers. For starters, top performers may simply have more money for hiring consultants. Indeed, any claim that Bain deserves credit for such performance is conspicuously absent. Perhaps they are hoping that visitors will momentarily forget what they learned in their statistics classes.

Although quantitative data are important, it is crucial to also learn from clinical practice and observation, and to understand that management, like medicine, is both an art and a science. We reject the notion that only quantitative data are acceptable for evidence-based management. As Einstein put it, "Not everything that can be counted counts, and not everything that counts can be counted." By focusing only on what can be quantified, we can lose sight of what matters most. John Steinbeck explained the limits of quantification in *The Log from the Sea of Cortez*, his book about a scientific expedition:

The Mexican Sierra has "XVII-15-IX" spines on the dorsal fin. These can be easily counted. But if the sierra strikes hard so that our hands are burned, if the fish sounds and nearly escapes and finally comes over the rail, his colors pulsing and his tail beating the air, a whole new relational reality comes into being—an entity which is more than the sum of the fish plus the fisherman. The only way to count the spines of the sierra unaffected by this second relational reality is to sit in a laboratory, open an evil smelling jar, remove a stiff colorless fish from the formalin solution, count the spines, and write the truth "D.XVII-15-IX." There you have recorded a reality that cannot be assailed—probably the least important reality concerning either the fish or yourself. It is good to know what you are doing. The man with the pickled fish has set down one truth and has recorded in his experience many lies. The fish is not that color, that texture, that dead, nor does he smell that way.²⁵

When used correctly, stories and cases are powerful tools for building management knowledge. Many quantitative studies are published on developing new products, but few compare to Tracy Kidder's Pulitzer Prize-winning *Soul of a New Machine* for capturing how engineers develop products and how managers can contribute to—or undermine—their success. Gordon McKenzie's *Orbiting the*

TABLE 2. Current Standards versus Evidence-Based Management

Current Practice	Evidence-Based Management
Treat old ideas as if they are brand-new.	Treat old ideas like old ideas.
Glorify, celebrate, and apply breakthrough ideas and studies.	Be suspicious of breakthrough ideas and studies—they almost never happen.
Celebrate brilliant individuals like management gurus, thought leaders, and star performers.	Celebrate communities of smart people and collective brilliance, not lone geniuses or gurus.
Emphasize only the virtues of the research methods and the management practices you use. Don't mention drawbacks or uncertainties.	Emphasize the virtues <i>and</i> drawbacks (and uncertainties) of your research and proposed practices.
Use success and failure stories about companies, teams, and people to uncover best and worst practices.	Use success and failure stories to illustrate practices supported by other evidence, not necessarily as valid evidence.
Use popular ideologies and theories to generate and justify management practices. Ignore or reject all clashing evidence (no matter how strong).	Take a neutral approach to ideologies and theories. Base management practices on the best evidence, not what is in vogue.

Giant Hairball is the most charming and useful book on corporate creativity we know. *Hairball*, for example, argues that teasing is “a disguised form of shaming” and illustrates how it stifles creativity and damages people, a hypothesis confirmed by recent experiments.²⁶ We are enthusiastic about such writings because they are engaging, bolster other (often quantitative) research, and suggest new practices that companies can try.

Some Guidelines for Evaluating Management Ideas and Knowledge

Our first set of suggestions dealt with learning enough about the logic of analysis to put claims and data to the test. Our second set of suggestions addresses a different but related problem: the existing standards for assessing management knowledge are deeply flawed and often completely dysfunctional. To partially remedy this problem, we propose six standards for generating, evaluating, selling, and applying business knowledge. Table 2 contrasts these new (or more precisely old, but less common) standards with current standards. Unfortunately, although deeply flawed, the reigning standards are reinforced by the actions of virtually every major player in the marketplace for business knowledge. Those who generate such knowledge—gurus, consultants, and academics—need to think harder about whether anyone can comprehend or use their wares. They need to stop pretending that proven—or debunked—old ideas are shiny new cures. And they need to ground their recommendations in better evidence. The business press, purveyor of so many practices, needs to reduce its

fixation on individual heroes and *what's new*, and talk more about *what's true*. Finally, as those who buy and use such knowledge, and impose it on others, managers will have the greatest say over if and how evidence-based approaches spread. Yes, dear managers, you are already beleaguered with other burdens. But you and your companies can reap great benefits—and ultimately save much time and money—by becoming more sophisticated at judging ideas in the plethora of books, seminars, and advice that rains down on you.

We didn't write *Hard Facts, Dangerous Half-Truths, and Total Nonsense* just to identify incomplete and flawed beliefs that shape organizational action. An even more important aim is to help teach managers, and those who write for and advise them, how to make better judgments about the virtues and flaws of the evidence they generate and encounter.

Treat Old Ideas As If They Are Old Ideas

The management ideas marketed by consultants, publishers, and the business press are often treated like laundry detergent—the only thing they are interested in is what's new and presumably improved. This pursuit of novelty for its own sake may be charming and profitable when applied to fashion, dress, and popular culture or food, but is costly and destructive when used to guide management practice. Consider exhibit A, the quality movement at the Ford Motor Company: "Twenty years ago, when an invasion of Japanese imports threatened the American automobile industry, the Ford Motor Company led a quality revival based on the management philosophy of W. Edwards Deming, who was controversial then and is out of fashion now. The results of the movement . . . were stunning at Ford. After racking up \$3 billion in losses between 1979 and 1982 . . . by 1986 Ford had become the most profitable American auto company."²⁷

Yet, once implemented, total quality management was yesterday's news, an old idea. And making cars was so yesterday. Under Jacques Nasser, the CEO at the time who was subsequently fired, Ford pursued innovation and "revolution." It was lauded in *Fast Company*—because the business press is enamored with novelty—for its emphasis on doing new things: "[A manager's] team recommended that Ford enter the parts-recycling business, start a for-profit driver education program, and develop a chain of branded maintenance and repair shops. The company has done all three."²⁸

There is nothing wrong with innovation, encouraging creativity, or for that matter, introducing new products and services, except that in this case Ford lost its focus on quality. Costs and defects increased, competitors developed superior designs, and sales slipped. By 2001, Ford was in the same fix it had been in two decades earlier. The solution: re-embrace an old idea, quality, but this time under the Six Sigma banner so that it would presumably look "new." A *New York Times* business reporter concluded, "Had Ford stuck with Total Quality Management, it might have avoided many of the problems that have plagued it recently."²⁹ But how could it? Sticking with old ideas is boring. Managers, and

for that matter, academics and the business press, pursue novelty often for its own sake.³⁰

Perhaps sticking with proven practices is boring, but we need to acknowledge—even glorify—old ideas if we want to debunk bad management practices and improve good ones. After all, isn't bland old excellence a better fate than an exciting new failure? It sounds ironic, but even creativity is mostly sparked by old ideas. Both major creative leaps and incremental improvements come from fiddling with ideas from other places and blending them in new ways. Better ideas result when people act like "nothing is invented here" and seek new uses for others' ideas.³¹ This holds for even the most creative companies like Apple, 3M, IDEO, Genentech, Google, Capital One, and Cirque du Soleil. Unfortunately, too many companies are plagued by the *not invented here syndrome*, where people insist on using homegrown ideas, especially ideas that can be ballyhooed as new and different. There are, after all, substantial rewards for pretending that the same old ideas are brand new. Managers can impress bosses with cutting-edge ideas. Consultants can sell clients unique services. Gurus can land lucrative book contracts and speaking fees by peddling the next big thing. And journalists can sell newspapers and magazines by giving readers the latest scoop.

These incentives fuel a bizarre collective amnesia. The same things are "discovered," or at least reported, over and over, which wastes much effort and time. The *Harvard Business Review* has published at least three articles on incentive pay and organizational performance in the past decade. Each makes a similar point: compensating people for only individual performance creates more problems than it solves, so rewards should emphasize organizational, not just individual, performance. Alfie Kohn wrote about this idea in 1993, Jeffrey Pfeffer did it 1998, and Egon Zehnder did it yet again in 2001. Not one of these articles refers to the prior article, because *HBR* policy precludes footnotes and—based on our experience in publishing seven *HBR* articles—discourages references to prior work.³²

How do we break free from this cycle where again and again business writers, experts, and managers act like old ideas are brand-new? The short answer is to treat old ideas as old ideas. The longer answer is more complex, but some simple steps would help. People who spread management knowledge can tell us where they got their ideas. They can also review past work to avoid reinventing the past. Although footnotes are not right for all publications, as they slow and distract readers, there are alternatives. We are consistently impressed with how the *Economist* and *New Yorker* weave references to past work into the text, especially in Malcolm Gladwell's deft *New Yorker* contributions.³³

No matter how it is done, people who spread ideas ought to acknowledge key sources, as it discourages clothing old ideas as new and encourages writers and managers to build on and blend existing ideas. Doing so isn't just intellectually honest and polite. It leads to better ideas. The 17th-century physicist Sir Isaac Newton is often credited as saying, "If I have seen farther, it is by standing on the shoulders of giants." Of course Newton didn't invent this saying. The originator is impossible to find, but versions of it go back at least 1,000 years

before Newton's time. Our favorite is, "A dwarf standing on the shoulder of a giant may see farther than the giant himself."³⁴

Be Suspicious of "Breakthrough" Ideas and Studies

Related to the desire for *new* is the desire for *big*—the big idea, the big study, the big innovation. Unfortunately, they rarely if ever happen. Even in the physical sciences, close examination of so-called breakthroughs nearly always reveals painstaking, incremental work that finally is recognized as a big insight. For instance, the development of the integrated circuit was the work of numerous people in a variety of companies interacting over a number of years, even though one or a few people often got most of the public credit.³⁵ Yet many managers still yearn for breakthroughs and hordes of purveyors pretend to bring them the magic they crave.

The result of this search for the big thing is what we saw at a large bank: the idea of the moment. The former CEO of this bank fancied himself (and was) quite an intellectual. He was always learning about new techniques, hoping each would be *the* concept to propel the bank to the next performance level. The bank shifted from one program to another and managers learned to brace themselves for the next flavor of the month. When a new initiative was announced, veterans did nothing, recognizing that by the time their inaction was noticed, the CEO would be on to the next big thing. We repeatedly talked to and heard of managers who perfected the art of pretending to use the latest flavor, while making no actual changes in how they or their people worked. The upshot was that the company churned through talking about one idea after another, but had little else to show for it.

The temptation to search for the silver bullet, that breakthrough study or concept, occurs far more often in the world of management than in academic research. We constantly travel between academia and the real world of practicing managers and their advisers. Breakthroughs hardly ever seem to happen in academic research, even though thousands of studies are published in peer-reviewed journals each year. Academics hesitate to place too much weight on any one study, preferring to find patterns across many studies and to base conclusions on the weight of the evidence. In contrast, managers face an onslaught of writers, gurus, and consultants who claim or imply one breakthrough after another. Even when people who do a study or coin a phrase don't call it a breakthrough, the press often reinterprets modest progress (or none at all) as "shocking" and "revolutionary" ideas. In 2001 through 2005, the February issue of *Harvard Business Review* has published lists of "Breakthrough Ideas for Today's Business Agenda," described as "bold and unsettling new ideas."³⁶ We've had three of our ideas selected for the list. One of our *HBR* articles that was selected for the list in 2002, Sutton's "The Weird Rules of Creativity," really isn't a breakthrough. The publicity was nice, but embarrassing because these rules were actually derived from past, sometimes quite old, research. And in 2005, Pfeffer's "breakthrough idea" was evidence-based management, which might be unsettling to some people, but we are the first to admit it isn't new. As Stanford's

James March—among the most renowned organizational theorists—put it, “Most claims of originality are testimony to ignorance and most claims of magic are testimony to hubris.”³⁷

Celebrate and Develop Collective Brilliance, Not Lone Geniuses or Gurus

The business world is among the few places where the term *guru* apparently has primarily positive connotations. In religion and politics, gurus are portrayed as extraordinary but often dangerous leaders, who attract fanatical disciples who bend to their wishes, even when doing so harms themselves and others. Yet despite the occasional cynical article or book, gurus are still portrayed in largely positive terms by the press, where they are routinely listed, rank ordered, and gossiped about. *What's the Big Idea?* by Thomas Davenport and Laurence Prusak uses press mentions, Google Internet searches, and citations in academic journals to rank the top 100 business gurus (Michael Porter was number one and Tom Peters was number two). In 2001 and 2002, *Business 2.0* not only listed top gurus like Tom Peters and Larry Bossidy, they inserted cardboard “Business Guru Trading Cards” for each, with a color picture and information including star power (from one to four stars), fees, the guru’s “big idea,” and a “little known fact.”

Certainly, people who have good ideas and communicate them well can help organizations. But a focus on gurus masks how business knowledge is and ought to be developed and used. Knowledge isn’t generated by lone geniuses who magically produce brilliant new ideas in their gigantic brains. This is a dangerous fiction. Writers and consultants need to be more careful about describing the teams and communities of researchers who develop ideas. Even more important, implementing practices, accomplishing organizational change, and executing strategy require the coordinated actions of many people. This is partly because commitment to an idea or program is amplified when people feel ownership for it. Learning also happens faster when people take an active role in developing a practice or program. Sitting and listening to even the most insightful speaker does none of this—there is no ownership of the ideas and no involvement in building a solution, so little information is retained and less is learned about how to actually use the ideas.

Moreover, gurus too often oversimplify management challenges. The common implication that business practices can be installed like a new machine is especially dangerous. As Wharton’s Russell Ackoff put it, “Gurus provide ready made solutions, but educators provide ways that one can find solutions for oneself . . . The output of a guru is a closed system of thought, closed to external influences and not subject to change; the output of an educator is an open system of thought, open to external influences and subject to change.”³⁸ Leading a revolution, reengineering, adopting Six Sigma, or becoming strategy-focused can help some companies, but no approach is right for everyone. Those of us who hawk business knowledge need to come clean. We need to deny that we have magic answers. We need to confess that we are just suggesting ideas that might make managers’ hard jobs a bit easier. We also need to follow those

few gurus who rebuke dangerous oversimplification. Consider C. K. Prahalad, who (with Gary Hamel) wrote the blockbuster *Competing for the Future* and ranks high on many guru lists. A few years back, he ended an engaging 45-minute speech to a huge audience by warning, "Don't forget, if someone tells you they have the answer, they probably don't understand the question."³⁹

Emphasize Virtues and Drawbacks

No drug is without side effects. Most surgical procedures have risks and even when performed perfectly may have downsides. Doctors are getting better at explaining risks to patients and, in the best circumstances, enabling them to join in a decision process where risks and potential problems are considered. This rarely happens in management, where too many solutions are presented as costless and universally applicable, with little acknowledgment of potential pitfalls. Yet all management practices and programs have strong and weak points, and even the best have costs. This doesn't mean companies shouldn't implement things like Six Sigma or balanced scorecards, just that they should recognize the hazards. That way, managers won't become disenchanted when known setbacks occur, or worse yet, abandon a valuable program or practice.

Last year, one of us (Sutton) gave a speech at a company that is renowned for innovation. The company had spent the prior year implementing a Six Sigma program to improve efficiency and customer satisfaction. Sutton mentioned during his speech that process improvement programs like Six Sigma and TQM had been shown to drive out errors and improve efficiency, but also to stifle innovation.⁴⁰ A self-described "internal quality guru" and "quality evangelist" came up after the talk and argued that Six Sigma could be used to improve any process, including creativity. This guru kept insisting this was so, even though (after working in the field for 10 years) he couldn't name a single instance where Six Sigma or Total Quality Management programs had improved innovation. Sutton finally asked, "Can you think of *any* drawbacks to using Six Sigma or TQM?" There was a long silence until the guru said, "Other than irrational fear and resistance, I can't think of any."

This evangelist illustrates how business knowledge is routinely sold. Unlike medicine, where physicians are ethically obligated to reveal risks and drawbacks, advocates of business practices rarely describe risks, problems that arise even in successful cases, or occasions when their wares are likely to be ineffective. A few exceptions illustrate a better approach. Consider J. Richard Hackman's article "On the Coming Demise of Job Enrichment," published at the height of a management fad in the 1970s, a fad based largely on Hackman's research. Hackman was troubled because he could only find published success stories about companies that had redesigned work to be more motivating and meaningful. Yet in his experience, most redesign efforts were failing. Hackman warned managers that enrichment programs were time-consuming and expensive to implement; they couldn't simply be installed like a new machine. He predicted that job enrichment would be just another failed fad (a prediction that partly came true) if companies didn't start diagnosing work systems before

trying to enrich jobs, kept pretending that jobs had changed when they hadn't, and did not change the organization (especially incentives and supervision) to support enriched work.⁴¹

The lesson is that, although some "experts" will make less money in the short term, business knowledge will advance and cynicism about "flavors of the month" will wane if those who peddle business practices routinely admit flaws and uncertainties. This means, among other things, admitting that their wares are the best they can build right now and, like all good ideas, will require constant modification as more is learned along the way.

*Use Success (and Failure) Stories to Illustrate Sound Practices,
Not as a Valid Research Method*

One of the most common research methods entails sorting teams or organizations into "high" and "low" performers, and then digging into their pasts with interviews, questionnaires, and published press reports that rely on fuzzy and flawed human memory. These recollections are used to explain the differences between winners and losers, and to identify which practices to use (what winners did) and which to avoid (what losers did). A related, and even more suspect, method is to gather recollections from and about only winners, and to assume that similarities explain success—even though (unstudied) losers may have acted the same way. *In Search of Excellence* used precisely this approach—which may explain why a study by Michael Hitt and Duane Ireland found no significant performance differences between Peters and Waterman's "excellent" companies and a representative sample of *Fortune* 1000 companies.⁴²

Academic researchers also make extensive use of retrospective success and failure stories, although they usually offer ritualistic apologies. But such apologies don't prevent what is learned from being based on suspect evidence. Many influential studies, for example, have asked managers to identify one successful and one unsuccessful past product development effort, and then to recall differences between the two. These studies find dramatic differences between winners and losers. Successful efforts are remembered as having more top management support, more competent engineers, superior planning and execution, more frequent interaction between key players, and on the whole using a process that was superior to failed efforts in nearly every way.⁴³

There is an enormous problem with inferences based on recollection. In 1911, Ambrose Bierce's *The Devil's Dictionary* defined *recollect* as "to recall with additions something not previously known,"⁴⁴ foreshadowing much research on human memory.⁴⁵ It turns out that eyewitness accounts are notoriously unreliable. We humans have terrible memories, regardless of how confident we are in our recollections. In particular, we remember very different things when we are anointed winners versus losers, and what we recall has little to do with what happened. Barry Staw, for example, assigned 20 teams of MBAs to work on a financial puzzle game. These three-person teams used a company's annual report to predict its sales and stock price a year later. Staw then gave them false performance feedback. Ten teams were told their predictions were almost

perfect; the other 10 were told their estimates were far off target. In reality, there were no significant differences between how well teams in the two groups predicted performance. Yet these false beliefs led to profound differences in what members recalled. The 30 winners reported that their teams were more motivated, more cohesive, more open to others' ideas, had more constructive conflict, and had greater ability compared to what the 30 losers remembered about their teams. This research and similar studies showing that false information causes winning team members to recall having more effective leaders demonstrate that winners and losers tell predictable stories, no matter what actually happened. So using reports from winners or losers to find ways to turn your company or team into a winner is questionable at best.⁴⁶

We aren't advocating a ban on success and failure stories. Vivid cases grab our attention, show us what to do, and inspire us to do it. The challenge is to tell more true stories. This means that storytellers (and listeners too) must remind themselves that once they know who wins and who loses, they will believe predictable things that are not necessarily true. It also means that we can learn more by studying what people do in real time rather than by studying what they remember doing. And when we do tell and hear tales of triumph and despair, if we want to learn despite our biases, we might look for *failures embedded in success stories* and *successes embedded in failure stories*. This could mean, for example, that we should look back at what Enron and WorldCom did *right* rather than what they did *wrong*!

Take a Neutral, Dispassionate Approach to Ideologies and Theories

Ideology is among the more widespread, potent, and vexing impediments to using evidence-based management. People routinely ignore evidence about management practices that clash with their political convictions or idiosyncratic personal histories. Simon and Garfunkel were right when they sang, "A man hears what he wants to hear and disregards the rest." Academics and other thought leaders may worship and believe in their own theories so fervently that it renders them incapable of learning from new evidence. This happens partly because people "see what they believe." It also happens because theories can become self-fulfilling: when we act as our pet theories suggest we should, we can produce the very behavior we expect in ourselves and those around us. So, if we expect people to be untrustworthy, we will closely monitor their behavior, which makes it impossible to develop trust. After all, how can I know if you can be trusted unless I provide you an opportunity to show you can be trusted? And experimental evidence shows that when people are placed in situations where authority figures expected them to cheat, more of them do in fact cheat.⁴⁷

Many economists, including Gary Becker and Oliver Williamson, believe that human beings act primarily to enhance their individual self-interest. The assumption that people are wired to be selfish isn't just used to explain the power of financial incentives; economists use it to explain why people fall in love, get married (including why they may or may not prefer polygamy), and have children. Yet these economists ignore evidence that being selfish—or not—

is learned, not a hardwired human trait.⁴⁸ Indeed, economists appear to teach students to be selfish. Research by Cornell's Robert Frank and his colleagues showed that the percentage of students choosing unethical options on an honesty test increased dramatically among students taking microeconomics courses, but not among students in astronomy classes. Other researchers asked students to recommend a plumber for a film club from offers that varied by how much money the plumber charged and how much money the student would get if the recommended plumber were hired. They found that "economists are more corruptible than others." Such studies suggest that self-interest is learned and varies widely across people, groups, and countries. Yet most economic theories still rest on the assumption that everyone is selfish. The lesson is that even people trained to do rigorous research are still prone to reject and ignore evidence that contradicts their most precious beliefs.⁴⁹

Another example of how ideology trumps evidence comes from education. At the moment, U.S. schools are applying and enforcing the most stringent performance standards ever, especially holding students, teachers, and administrators accountable for performance. It is hard to argue against high standards. But when an ideal is applied without regard to evidence about which tough practices work and which don't, performance suffers. For instance, there is great pressure to end *social promotion*, advancing a child to the next grade even if his or her work isn't up to par—in other words, to start flunking more kids who don't meet certain standards. Social promotion was ended in Chicago in 1996 at Mayor Daley's urging, in New York in 1999 at Mayor Giuliani's insistence, and in numerous other cities including Baltimore and Philadelphia. Former president Bill Clinton's 1999 State of the Union address called for an end to social promotion, because "when we promote a child from grade to grade who hasn't mastered the work, we do the child no favors." And President Bush is just as vehement as Clinton was about eliminating social promotion.

On the surface, it is hard to argue with Clinton's conclusion. But it is a half-truth. Clinton's statement is partly right because when students fail to meet minimum standards during the school year, going to summer school before starting the next grade may enhance test scores. And advancing kids who can't perform at the next grade level certainly creates frustration and may lower motivation of kids who put forth the effort to meet standards. But ending social promotion harms students and schools, and the strongest negative effects are found in the best, most rigorous studies. At least 55 studies show that when flunked students are compared to socially promoted students, flunked students perform worse and drop out of school at higher rates. One of the most careful studies found that, after controlling for numerous alternative explanations including race, gender, family income, and school characteristics, students held back one grade were 70 percent more likely to drop out of high school. Holding students back also leaves schools crowded with older students, and costs skyrocket as more teachers and other resources are needed because the average student spends more years in school.⁵⁰ Clinton, Bush, Giuliani, and many other politicians ignored the overwhelming evidence that ending social promotion would

fail, even though renowned educational researcher Robert Hauser warned in 1999: "We should know that a new policy works before trying it out on a large scale. In its plan to end social promotion the administration appears to have [included] . . . an enforcement provision—flunking kids by the carload lot—about which the great mass of evidence is strongly negative. And this policy will hurt poor and minority children most of all."⁵¹

Hauser's predictions came true. New York eliminated social promotion in 1999, but reinstated it in 2002 because the numbers of holdovers mounted to 43,000 and reached a disastrous 100,000 by 2004. This drove up costs, forcing the elimination of numerous programs, including those for helping underachievers. There was also no evidence that flunking students helped them learn more. This was not a new lesson: the exact same problems happened when New York City ended social promotion 20 years earlier.⁵² Yet as of this writing, Mayor Bloomberg is once again moving to eliminate social promotion in New York.

Why can't smart people like Mayor Bloomberg and Mayor Daley learn from such clear evidence? Because learning is difficult when leaders or anyone else is driven by ideology rather than evidence.

Wisdom: The Most Important Thing

The guidelines developed here can help managers and their advisers to do a better job evaluating and applying business knowledge. But something else, something broader, is more important than any single guideline for reaping the benefits of evidence-based management: the *attitude* people have toward business knowledge. The idea that wisdom is reflected in the attitude people have toward what they know, not in how *much* or how *little* they know, goes back at least to Plato's writings. Plato described Socrates' visit to "a man with a high reputation for wisdom." Socrates "gave a thorough examination of this person" and concluded:

[I] formed the impression that although in many people's opinion, and especially his own, he appeared to be wise, in fact, he was not . . . I reflected as I walked away, well I certainly am wiser than this man. It is only too likely that neither of us has any knowledge to boast of, but he thinks that he knows something which he does not know, whereas I am quite conscious of my ignorance. At any rate it seems that I am wiser than him to this small extent, that I do not think that I know what I do not know.

The power of Plato's ancient insight persists because wisdom (or the lack of it) shapes how people think, feel, and act in so many ways. Psychologists including John Meacham and Robert Sternberg have studied the nuances of wisdom, especially how being wise is different from being smart. One of their most important insights is that, as Plato's quote suggests, wisdom means "knowing what you know and knowing what you don't know," especially striking a balance between arrogance (assuming you know more than you do) and insecurity (believing that you know too little to act). This attitude enables people to act

on their present knowledge while doubting what they know. It means they can do things now, as well as keep learning along the way.⁵³

The attitude of wisdom pervades the standards we've proposed here for consumers and purveyors of business knowledge. To illustrate, we urged people to compensate for their limited knowledge by building on old ideas and to join communities of smart people rather than relying only on their own insights. Our perspective implies that the unacknowledged ignorance or arrogance behind most apparent breakthroughs stems from an absence of wisdom. And we emphasized that embracing an ideology or theory can be comforting, but can make it difficult for devotees to acknowledge flaws in their ideas—let alone to seek, accept, and learn from criticism. In essence, practicing evidence-based management means adopting beliefs and designing settings that enable people to keep acting with knowledge while doubting what they know, and to openly acknowledge the imperfections in even their best ideas along the way.

To turn to evidence-based medicine, pioneer David Sackett's reaction to the accolades he has received demonstrates the attitude of wisdom. He worries openly that people will treat his ideas as gospel rather than an initial effort that must be constantly revised and challenged. Sackett even despises when people call him an expert on evidence-based medicine since "[he] dislikes the concept of experts and expertise because so-called experts can't help but be biased toward their own published views." Dr. Sackett has gone to extreme lengths to convey that he is not a lone genius, that he was part of a team at McMaster University that developed modern evidence-based medicine, and so doesn't deserve to be singled out as the guru. Sackett refused an invitation to be inducted into the Canadian Medical Hall of Fame, and only relented after they allowed him to accept the honor on behalf of all of his colleagues. Sackett's words and deeds not only demonstrate the right attitude for sparking constant improvement in medical knowledge, they provide a model for management researchers and writers.⁵⁴

Unfortunately, there are few David Sacketts in the management idea marketplace. Modesty is in short supply and absolutes abound—in recommendations as to what to do, in conclusions about what affects individual and organizational performance, and in beliefs about what is true and what is false. There is little wonder then that half-truths fill management lore, causing all sorts of problems for those who are seduced by their appeal. That's why investigating, understanding, and deciding what to do about some of the most important dangerous half-truths is so crucial for implementing evidence-based management.

Notes

1. Alex Taylor III, "How Toyota Defies Gravity," *Fortune*, December 8, 1997, pp. 100–108; Michael N. Kennedy and Allen Ward, *Product Development for the Lean Enterprise: Why Toyota's System Is Four Times More Productive and How You Can Implement It* (Richmond, VA: Oaklea Press, 2003).
2. Kevin Patterson, "What Doctors Don't Know (Almost Everything)," *New York Times Magazine*, May 5, 2002, p. 77.
3. Rakesh Khurana, *Searching for the Corporate Savior: The Irrational Quest for Charismatic CEOs* (Princeton, NJ: Princeton University Press, 2002).

4. This estimate is based on counts of business magazines and newspapers listed on Yahoo.com for a search done in October 2002.
5. This estimate is based on information provided on barnesandnoble.com and Amazon .com.
6. Peter Meyers, "Cranky Consumer: Rating Business-Book Summaries," *Wall Street Journal*, November 5, 2002.
7. Perseus Publishing, *Business: The Ultimate Resource* (Cambridge, MA: Perseus, 2002).
8. Compare, for instance, the recommendations that come from Jim Collins, *Good to Great* (New York, NY: HarperCollins, 2001) with those from Tony Alessandra, *Charisma: Seven Keys to Developing the Magnetism That Leads to Success* (New York, NY: Warner, 1998).
9. Bill Jensen, *Simplicity: The New Competitive Advantage in a World of More, Better, Faster* (New York, NY: Perseus, 2001); Robert Axelrod and Michael D. Cohen, *Harnessing Complexity: Organizational Implications of a Scientific Frontier* (New York, NY: Free Press, 2000).
10. Robert S. Kaplan and David P. Norton, *The Strategy-Focused Organization* (Boston, MA: Harvard Business School Press, 2000); Henry Mintzberg, *The Rise and Fall of Strategic Planning* (New York, NY: Free Press, 1993).
11. On small New York- and San Francisco-based consulting firms specializing in organizational and cultural change and strategy implementation, The Trium Group does do follow-up surveys to see if changes in knowledge, attitudes, behavior, and results come from its work with clients. Also, the firm has a three-tier pricing model in which clients voluntarily decide whether to pay more if the project has exceeded their goals and expectations, an agreed upon amount if it has met objectives, or less if the project did not deliver all that was expected. This provides an incentive for the company to do good work, not just sell business.
12. Darrell Rigby, "Management Tools and Techniques: A Survey," *California Management Review*, 43/2 (Winter 2001): 139-160.
13. Jack Welch quote from *Workforce Management* magazine, available on line at <www.workforce.com/archive/feature/23/47/39/234742.php>.
14. For a review of just some of the literature on this issue, see Alfie Kohn, *No Contest: The Case Against Competition* (Boston, MA: Houghton Mifflin, 1986), particularly chapter 3, "Is Competition More Productive?" and chapter 10, "Learning Together."
15. Paul Lukacs, *American Vintage: The Rise of American Wine* (Boston, MA: Houghton Mifflin, 2002).
16. Michael Porter and Gregory C. Bond, "Robert Mondavi: Competitive Strategy," Case 799-124, Boston, MA, Harvard Business School, 1999.
17. Ed Michaels, Helen Handfield-Jones, and Beth Axelrod, *The War for Talent* (Boston, MA: Harvard Business School Press, 2001). The appendix makes clear that the dependent variable, total shareholder return, was for the years prior to the particular year the survey was done to gather the information on management practices. Performance data for the prior 10 years were correlated with current practices for the 77 firms participating in their 1997 survey; performance data for the prior three to five years were correlated with current performance for the 2000 survey. If the authors' temporal logic were applied to research on the link between smoking and lung cancer, the conclusion would be that lung cancer causes smoking.
18. Jerker Denrell, "Vicarious Learning, Undersampling of Failure, and the Myths of Management," *Organization Science*, 14 (2003): 227-243.
19. Ibid., 229.
20. Glenn R. Carroll and Michael T. Hannan, "Automobile Manufacturers," in G.R. Carroll and M.T. Hannan, eds., *Organizations in Industry* (New York, NY: Oxford University Press, 1995), pp. 195-214.
21. Denrell, op. cit., p. 228.
22. D. Eden and A.B. Shani, "Pygmalion Goes to Boot Camp: Expectancy, Leadership and Trainee Performance," *Journal of Applied Psychology*, 67 (1982): 194-199; R. Rosenthal and D. B. Rubin, "Interpersonal Expectancy Effects: The First 345 Studies," *The Behavioral and Brain Sciences*, 3 (1978): 377-386; Brian D. McNatt, "Ancient Pygmalion Joins Contemporary Management: A Meta-Analysis of the Result," *Journal of Applied Psychology*, 85 (2000): 314-322.
23. For example, see Alexander G. Stajkovic and Fred Luthans, "Differential Effects of Incentive Motivators on Work Performance," *Academy of Management Journal*, 44 (2001): 580-591; Richard W. Griffin, "Objective and Social Sources of Information in Task Redesign: A Field Experiment," *Administrative Science Quarterly*, 28 (1983): 184-200; Gregory R. Oldham and

- Daniel J. Brass, "Employee Reactions to an Open-Plan Office: A Naturally Occurring Quasi-Experiment," *Administrative Science Quarterly*, 24 (1979): 267–284.
24. See <www.bain.com>. We wrote to George Cogan, a senior partner at Bain, about this "correlation is not causation" problem. He readily acknowledged that this was so and pointed out that Bain's training materials emphasize that "we obviously cannot claim credit for these results" but this disclaimer is conspicuously absent from the Bain Web site. As we go to press, the claim that "our clients outperform the market 4 to 1" (up from 3 to 1) is the first thing visitors see when they go to bain.com, and the implication that Bain is responsible for this superior performance remains, accompanied by the statement: "Companies that outperform the market like to work with us; we are as passionate about their results as they are." (Quotes from George Cogan are from an e-mail exchange with Robert Sutton on September 17, 2005.)
25. John Steinbeck, *The Log from the Sea of Cortez* (New York, NY: Viking Press, 1941), 3.
26. G. MacKenzie, *Orbiting the Giant Hairball: A Corporate Fool's Guide to Surviving with Grace* (New York, NY: Viking, 1996).
27. Andrea Gabor, "Quality Revival, Part 2: Ford Embraces Six Sigma," *New York Times*, June 13, 2001.
28. Keith H. Hammonds, "Grassroots Leadership—Ford Motor Co.," *Fast Company*, April 2000, pp. 138–143.
29. Ibid.
30. See, for instance, M.A. Mone and W. McKinley, "The Uniqueness Value and Its Consequences for Organization Studies," *Journal of Management Inquiry*, 2 (1993): 284–296.
31. See Andrew Hargadon, *How Breakthroughs Happen: The Surprising Truth About How Companies Innovate* (Boston, MA: Harvard Business School Press, 2003).
32. Alfie Kohn, "Why Incentive Plans Cannot Work," *Harvard Business Review*, 71/5 (September/October 1993): 3–7; Jeffrey Pfeffer, "Six Dangerous Myths About Pay," *Harvard Business Review*, 76/3 (May/June 1998): 107–119; Egon Zehnder, "A Simpler Way to Pay," *Harvard Business Review*, 79/4 (April 2001): 3–8.
33. See <www.gladwell.com>.
34. A famous sociologist wrote a charming book that tries, but ultimately fails, to track down the originator of this saying. See Robert K. Merton, *On the Shoulders of Giants* (New York, NY: Free Press, 1965).
35. See, for instance, Leslie Berlin, *The Man Behind the Microchip: Robert Noyce and the Invention of Silicon Valley* (New York, NY: Oxford University Press, 2005). In spite of the title, the book details the large number of different people involved with this important technological invention, and Noyce's important but limited role in the entire enterprise.
36. "The 2002 HBR List: Breakthrough Ideas for Today's Business Agenda," *Harvard Business Review*, 80/3 (March 2002): 58–59.
37. James March, e-mail to Robert Sutton, November 2, 2002.
38. Russell L. Ackoff, "Management Gurus and Educators," *Reflections*, 2 (2001): 66–67.
39. Stefan Stern, "Guru Guide," *Management Today*, October 2001, 82–87. Quote is from page 87.
40. Mary J. Benner and Michael L. Tushman, "Exploration, Exploitation, and Process Management: The Productivity Dilemma Revisited," *Academy of Management Review*, 28 (2003): 238–256.
41. Richard J. Hackman, "On the Coming Demise of Job Enrichment," in E.L. Cass and F.G. Zimmer, eds., *Man and Work in Society* (New York, NY: Van Nostrand Reinhold, 1975), pp. 97–115.
42. Michael A. Hitt and R. Duane Ireland, "Peters and Waterman Revisited: The Unended Quest for Excellence," *Academy of Management Executive*, 1 (1987): 91–98.
43. See, for example, Billie Jo Zirger and Modesto A. Maidique, "A Model of New Product Development: An Empirical Test," *Management Science*, 36 (1990): 867–884; for a review of much of this literature, see Shona Brown and Kathleen Eisenhardt, "Product Development: Past Research, Present Findings, and Future Directions," *Academy of Management Review*, 20 (1995): 343–378.
44. Ambrose Bierce, *The Devil's Dictionary* (New York, NY: Crowell, 1979), p. 112. (Originally published in 1911.)
45. Baruch Fischhoff, "For Those Condemned to Study the Past: Heuristics and Biases in Hindsight," in Daniel Kahneman, Paul Slovic, and Amos Tversky, eds., *Judgment Under Uncertainty: Heuristics and Biases* (Cambridge, England: Cambridge University Press, 1982), pp. 335–353.

46. Barry M. Staw, "Attribution of the 'Causes' of Performance: An Alternative Interpretation of Cross-Sectional Research on Organizations," *Organizational Behavior and Human Performance*, 13 (1975): 414-432.
47. Robert B. Cialdini, *Influence: Science and Practice*, 4th ed. (Boston, MA: Allyn & Bacon, 2001).
48. D. T. Miller, "The Norm of Self-Interest," *American Psychologist*, 54 (1999): 1053-1060.
49. B. Frank and G.G. Schulze, "Does Economics Make Citizens Corrupt?" *Journal of Economic Behavior & Organization*, 43 (2000): 101-113; H. Frank, T.D. Gilovich, and D.T. Regan, "Does Studying Economics Inhibit Cooperation?" *Journal of Economic Perspectives*, 7 (1993): 159-171.
50. This research is summarized in Robert M. Hauser, "What If We Ended Social Promotion?" *Education Week*, April 7, 1999, pp. 64-66.
51. Ibid.
52. Sheryl McCarthy, "Schools Repeat Social Promotion Problems," *Newsday*, March 28, 2002.
53. See John A. Meacham, "The Loss of Wisdom," in Robert J. Sternberg, ed., *Wisdom: Its Nature, Origins, and Development* (Cambridge, England: Cambridge University Press, 1990), 181-211; John A. Meacham, "Wisdom and the Context of Knowledge: Knowing What One Doesn't Know One Doesn't Know," in D. Huhn and J. A. Meacham, eds., *On the Development of Developmental Psychology* (Basel, Switzerland: Karger, 1983), 111-134; see Robert J. Sternberg, "Implicit Theories of Intelligence, Creativity, and Wisdom," *Journal of Personality and Social Psychology*, 49 (1985): 607-627.
54. Gabrielle Bauer, "A Reluctant Policy Wonk: Dr. David Sackett, a Pioneer in Evidence-Based Medicine, Has No Time to Play King, but the World Seems Intent on Crowning Him," *The Medical Post*, August 22, 2002.

Copyright of *California Management Review* is the property of *California Management Review* and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.