

Harvard Business Review

www.hbr.org  January 2006

DECISION MAKING

BETTER > FASTER > SMARTER

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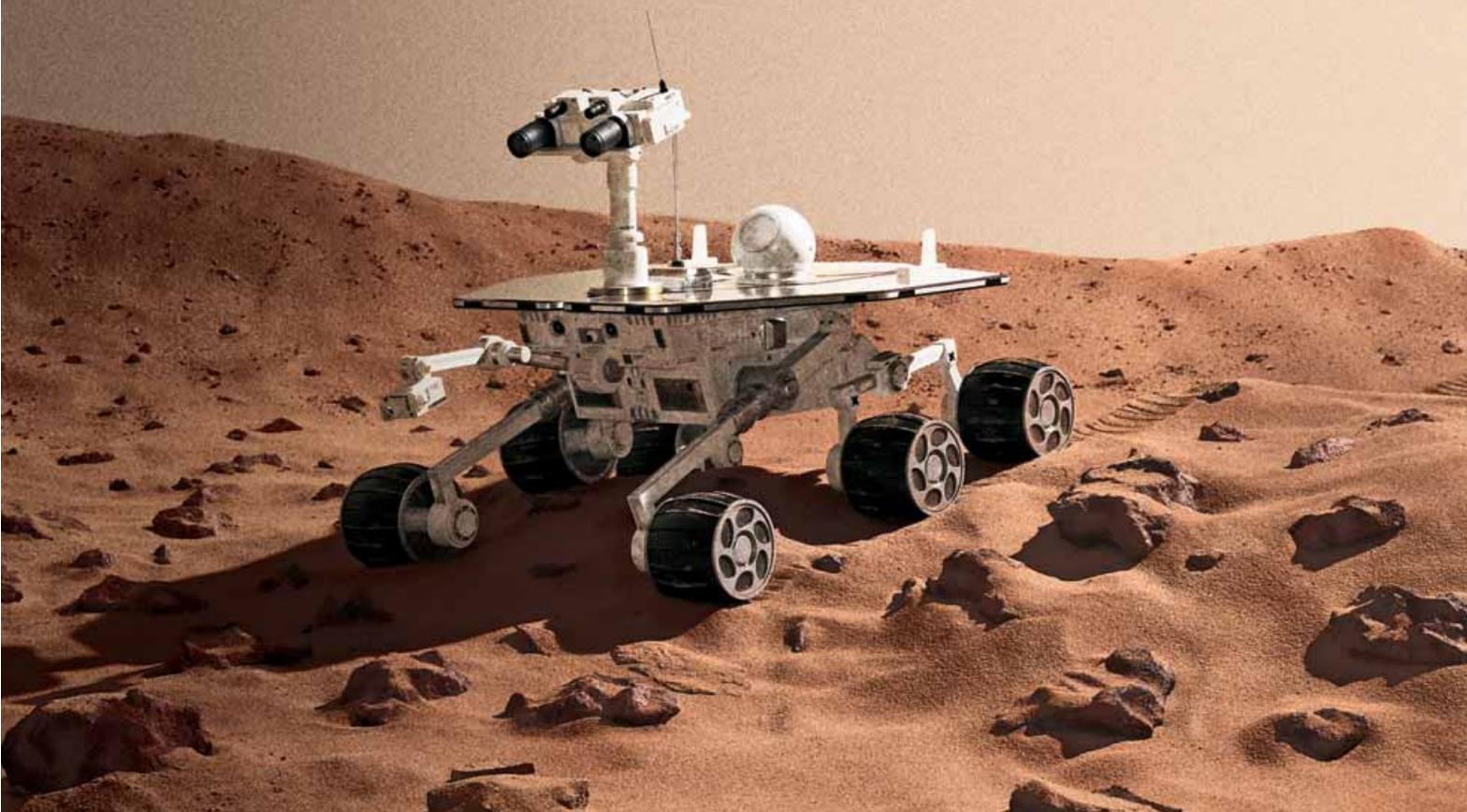
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The Hidden Traps in Decision Making
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and Howard Raiffa





What if you build things that only work 172





million miles away?

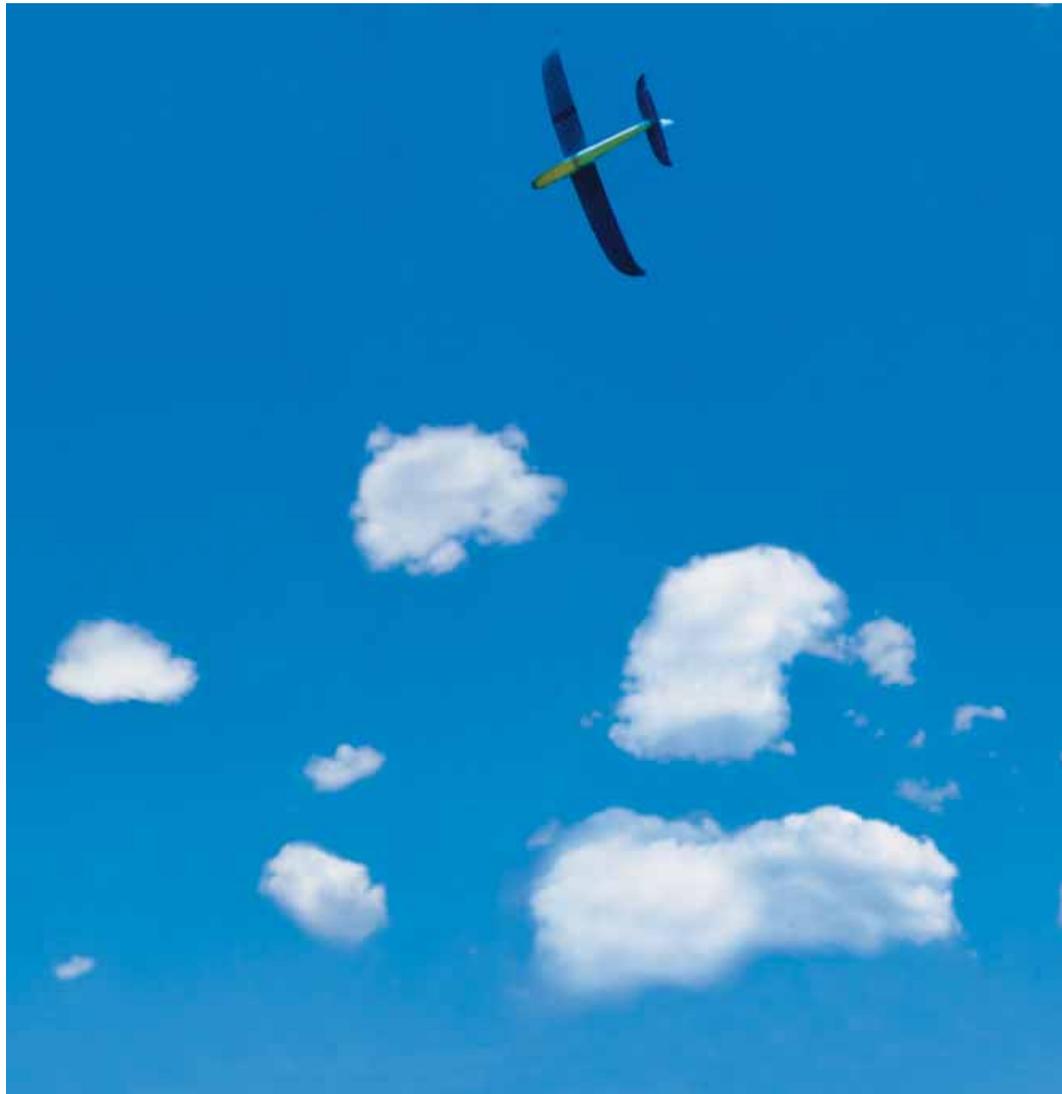
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January 2006

52 Who Has the D? How Clear Decision Roles Enhance Organizational Performance

Paul Rogers and Marcia Blenko

Decision-making bottlenecks can erode performance even in highly successful companies. The most important step in unlogging them is to clarify roles and responsibilities. A practical approach sorts out who makes recommendations, who must agree, who gives input, who makes the final decision, and who gets it done.

62 Evidence-Based Management

Jeffrey Pfeffer and Robert I. Sutton

Where do most managers turn for guidance when they have decisions to make? Surprisingly, just about everywhere *except* the latest and best knowledge of what actually works. It's time to change that.

76 Stop Making Plans; Start Making Decisions

Michael C. Mankins and Richard Steele

Your company's strategic-planning process may look good on paper, but chances are it's being sidestepped by senior executives because it focuses on business units instead of issues. Here's how to create a process that can really help you make informed decisions.

88 Decisions Without Blinders

Max H. Bazerman and Dolly Chugh

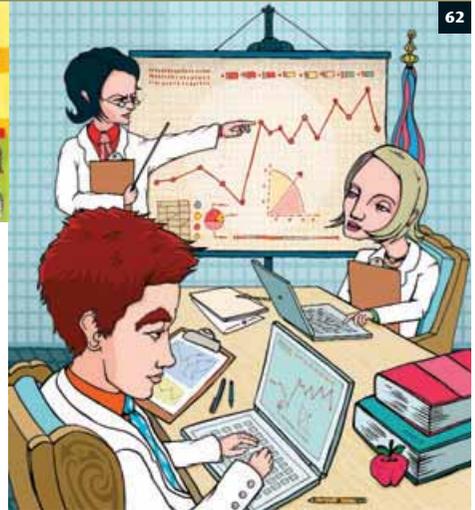
Even when spared a deluge of data and given ample time to make decisions, most executives fail to take into account the most critical information at the right time. Understanding such *bounded awareness* is the first step toward overcoming it.

98 Competing on Analytics

Thomas H. Davenport

A new breed of competitor is dominating rivals by amassing and analyzing mountains of data. Inside this type of organization, technology serves strategy, and employees live and breathe the numbers.

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Did You Ever Have to Make Up Your Mind?

Managers spend their days making (or avoiding) choices and are judged on the outcomes. Yet most managers have only the foggiest idea how they came to those choices. Hence this special issue of HBR, devoted to giving executives clear frameworks and processes for making better, faster, and smarter decisions.

18 **HBR CASE STUDY**
All the Wrong Moves

David A. Garvin

Executives at Nutrorm used to make decisions smoothly. However, a series of egregious business mistakes and a sudden PR crisis have brought problems in the company to the fore. Can Nutrorm's decision-making process be saved?

32 **A Brief History of Decision Making**

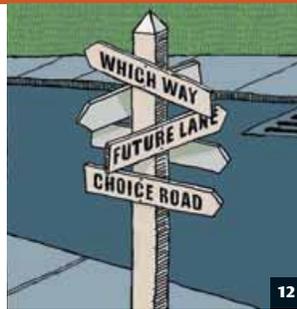
Leigh Buchanan and Andrew O'Connell

From oracles and entrails to the scientific method, executive information systems, rock-paper-scissors, and gut instinct, our efforts to improve the way we make decisions have hardly marched straight toward rationalism.

42 **FRONTIERS**
Decisions and Desire

Gardiner Morse

The closer scientists look into our brains, the clearer it becomes how much we're like animals. We have dog brains, basically, with human cortexes stuck on top. And these ancient dog brains confer with these modern cortexes to influence their choices—for better and for worse—without us even knowing it.



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108 **BEST OF HBR**
Conquering a Culture of Indecision

Ram Charan

Leaders set the tone for a decisive or indecisive corporate culture. The ones who insist on honest dialogue and follow-through will be rewarded with organizations that execute consistently and well.

118 **BEST OF HBR**
The Hidden Traps in Decision Making

John S. Hammond, Ralph L. Keeney, and Howard Raiffa

Making decisions is the most important job of any executive. But hidden flaws in the way our minds work can undermine even the most carefully considered decisions. Discover eight mental traps that managers often fall into, and get practical suggestions for avoiding them.

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People can feel like impostors not just because of gender or family pressures; racial differences and a spiritual disconnect in the workplace also play a part.

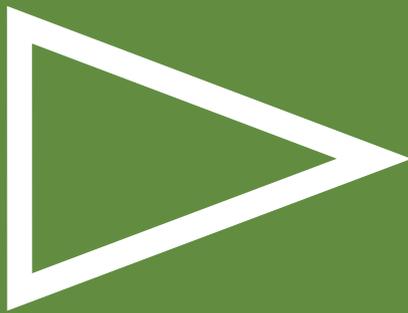
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Only a few are empowered to make the big-picture decisions that move entire companies, but everyone can benefit from an understanding of where his or her particular decision piece fits into the larger puzzle.

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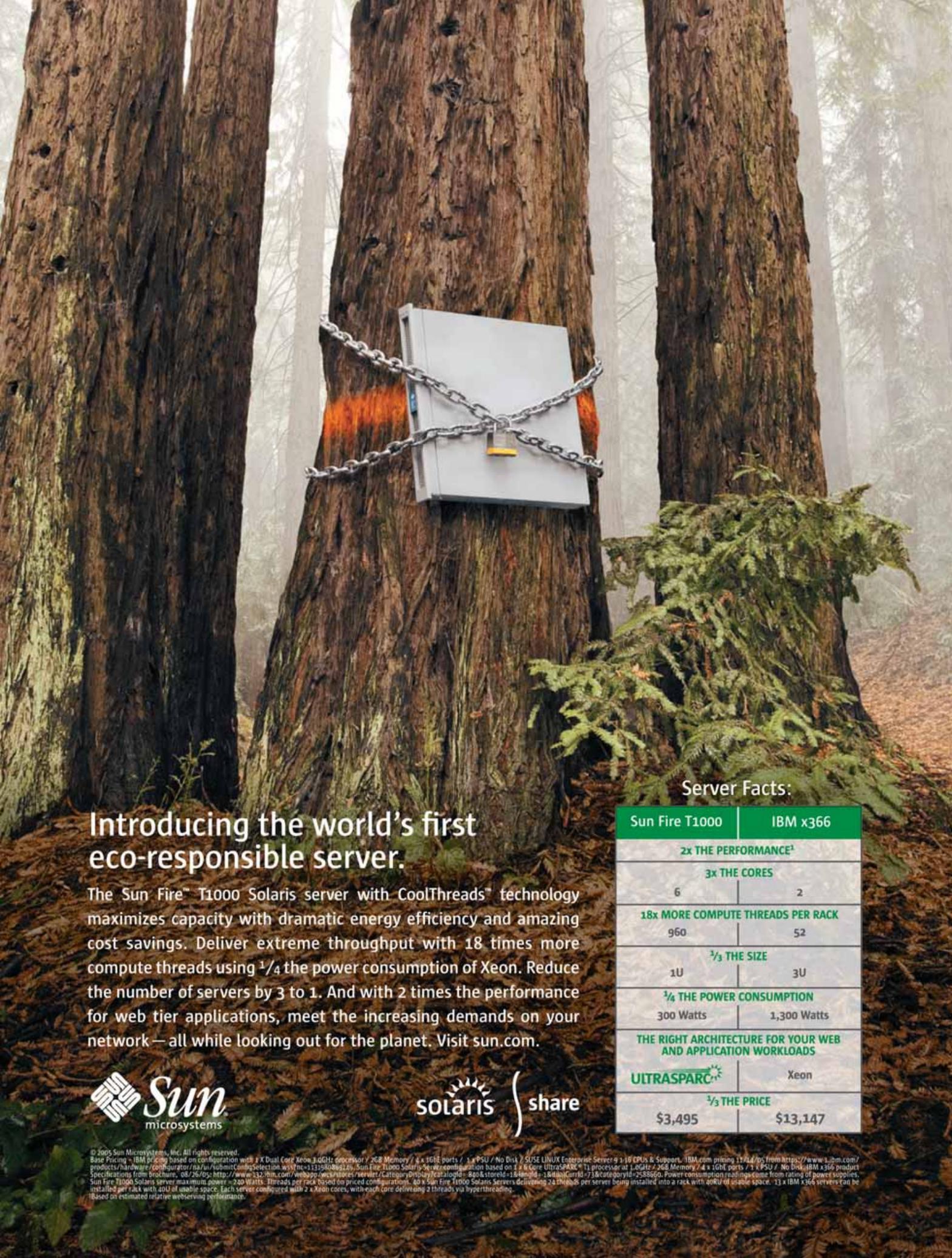
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¹Based on estimated relative webserver performance.

Did You Ever Have to Make Up Your Mind?

A BASEBALL PLAYER IS A SUPERSTAR if he makes the right decision at the plate a third of the time. A neurosurgeon had better be correct nearly always. For managers, the margin for error falls somewhere in between. William Jovanovich once told me that a person who was right 51% of the time could rise – as Jovanovich did – from being a textbook salesman to being the CEO of a *Fortune* 500 publisher. And, of course, the number of correct decisions a person makes often matters less than the relative value of those decisions.

Decisions are the essence of management. They're what managers do—sit around all day making (or avoiding) decisions. Managers are judged on the outcomes, and most of them – most of us – have only the foggiest idea how we do what we do. After-the-fact accounts of a decision are almost always fictive rationalizations. This same “retrospective coherence,” as a friend calls it, is seen in group decisions. In most companies, consultants Michael Mankins and Richard Steele say, what's called strategic planning really serves as a mechanism for ratifying and funding decisions that were made ad hoc months before.

Hence this special issue of HBR, devoted to the art and science of faster, better, and smarter decision making. We can rarely anticipate precisely the decisions we'll face; decision making is a kind of fortune-telling, a bet on the future. Perhaps it's appropriate, then, that we begin the issue by looking back, with a history of decision making—from reading entrails to data mining – compiled by HBR editors Leigh Buchanan and Andrew O'Connell. Appropriate, too, that the next article in the book looks forward. In “Decisions and Desire,” HBR's Gardiner Morse describes how neuroscientists literally probe the brain to watch how its rational and primitive parts interact as an individual makes up his or her mind.

The contest between rationality and gut instinct pervades the research on decision making. You can find even mathematicians on both sides of the fence. One, Blaise Pascal, argued: “The heart has its reasons of which reason knows nothing.” Another, Lewis Carroll, said: “Use your head.” The right approach is to seek the insights of both. Thus, in “Evidence-Based Management,” Stanford professors Jeffrey Pfeffer and Robert Sutton demonstrate why managers reach for half-forgotten half-truths when better, proven ideas are available. This month's case, written by



Harvard Business School's David Garvin, asks why some people and groups can't ever seem to make decisions well. Garvin's colleague Max Bazerman has long studied the phenomenon of bounded awareness—a quirk of cognition that leads us, time and again, to base decisions on too narrow a worldview. In “Decisions Without Blinders,” he and doctoral candidate Dolly Chugh explain how to avoid these self-set traps. Babson College's Tom Davenport, meanwhile, describes

the formidable decision-making style of companies that create competitive advantage out of analytics.

Good decision making depends foremost on accountability. Whose decision is it? That's the subject of a knowing and practical article called “Who Has the D?” by Bain consultants Paul Rogers and Marcia Blenko. I daresay that any organization that uses the authors' method to clarify decision rights will be better managed as a result.

One of the pleasures of putting together a special issue of HBR is the chance to search past issues for articles to republish. We've chosen two standouts: Ram Charan's “Conquering a Culture of Indecision” and “The Hidden Traps in Decision Making” by John Hammond, Ralph Keeney, and Howard Raiffa. But making choices inevitably means leaving something out. An important aspect of decision making is unrepresented in these pages. Every decision has an ethical dimension. Do we promote Mary or Martha? Invest in India or Indiana? Boycott sweatshops or reform them? Reprints editorial director Jane Heifetz has compiled a special set of articles that provide a searching look at the ethics of decisions. You can find this collection online at www.ethicsofdecisions.hbr.org.

As this issue was being put to bed, Peter F. Drucker, HBR's most prolific – and influential – contributor, died at the age of 95. The February issue will include a tribute to this remarkable man. In the meantime, this special issue is surely an appropriate, if unplanned, acknowledgment of a thinker whose work can be read as an extended essay on the art and discipline of effective decision making.

Thomas A. Stewart

The Macallan 12-years-old Single Malt

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www.harvardbusinessonline.org

VOLUME 84, NUMBER 1
JANUARY 2006
Printed in the U.S.A.

Harvard Business Review

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Nutrorim's best-selling sports supplement has been recalled because of a "new and improved" ingredient. The company's CEO wonders: Why do the decisions we make keep coming back to haunt us?

THE COLD JANUARY SKY was just dawning gray over Minneapolis as Don Rifkin awoke. With every cell in his body, he longed to put a pillow over his head and sleep, but the alarm added insult to injury. Slapping the off button and pulling on his oversized Turkish bathrobe, he stole from the bedroom and quietly shut the door behind him, leaving his wife to sleep. He padded toward the kitchen and turned on the coffeemaker.

Sitting down at the kitchen table, Don sleepily clicked a few keys on his laptop and began glancing through his favorite stock chat. Scanning the list of senders,

he saw a red exclamation point next to the name Stan with the headline "Bad news!" When he read the message, Don gasped:

Did anyone hear that Wally Cummings just resigned from Dipensit? Turns out he lied on his resume – never received that PhD from U.C. Berkeley as he'd claimed! The stock's gonna drop fast once this hits the street.

Don felt slightly queasy. A year earlier, his own company, Nutrorim, had purchased a small stake in Dipensit. "Sheesh, I didn't exactly trust that guy," he grumbled.

HBR's cases, which are fictional, present common managerial dilemmas and offer concrete solutions from experts.

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DECISION MAKING

He recalled how smoothly the whole decision process had seemed to go when Laurence Wiseman, the hard-driving CFO of Nutrorim, had championed the purchase of the Dipensit stock, insisting that the small company might make an excellent acquisition candidate in the future. A subcommittee had been formed to carefully review the purchase decision. Don vaguely remembered that there had been a few murmurs of concern—someone had even questioned the credentials of Cummings, the start-up’s CEO. But in the end, the subcommittee seemed to have addressed the concerns, and the senior team stood behind the decision.

Don cinched his bathrobe tighter. During the past year, Nutrorim had suffered from a spate of bad decisions. In fact, that’s what today’s meeting was about. A consultant, hired to review the company’s decision-making processes, was coming in that morning to present the results of his individual interviews with senior managers.

To Everyone’s Taste?

The previous spring, Nutrorim had been at the top of its game. Founded in 1986 by an organic farmer and his wife, the company had sold its products through a network of individual distributors before Don had joined as CEO in 1989. Thanks to a series of testimonials offered by doctors and personal trainers, Nutrorim’s products had gained national attention. Then, following an endorsement by a famous Olympic athlete, sales of ChargeUp, the company’s organic, performance-enhancing supplement powder, had gone through the roof. As a result, Nutrorim had hired hundreds of new employees, expanded its production facilities, and acquired two vitamin firms. After going public in 1997, the company had expanded distribution of ChargeUp through exclusive deals with nutrition stores and athletic clubs, and by 2002, ChargeUp was

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the best-selling performance-enhancing sports powder on the market.

The following year, when the new version of ChargeUp had been in its final stages of development, Don and R&D head Steve Ford had dressed in white coats and walked through the company’s huge lab, agleam with chrome and white tile. They wended their way

“For decisions with a certain amount of built-in predictability...the process seems to work really well. But if a decision involves clear winners and losers, it stalls.”

past stainless steel tables where technicians milled seeds and blended the all-organic ingredients that comprised Nutrorim’s various lines of vitamins and nutritional supplements.

“Hey, Darlene, how are you?” Don waved at a lab technician who was wearing gloves, a hair bonnet, and a face mask and pushing a trundle cart down an aisle. Though she was recognizable only by the walnut-rimmed glasses she wore, she smiled—he could tell by the wrinkles around her eyes—and said a brief “Fine, boss, thanks.”

Don loved being in the lab. Though he was a manager and not a scientist, he was an increasingly enthusiastic student of microbiology; every day, he learned something new about the nutritional benefits of Nutrorim’s products. He also believed strongly in management by walking around. From the start, he had tried hard to foster a happy, participatory, democratic culture at Nutrorim. This had seemed relatively easy, since most of the company’s employees hailed from the Minneapolis area, where “Minnesota nice” was practically a state law. It was also partly an act of defiance: When Don was fresh out of business school, he’d had a terrible run-in with his boss, the dictatorial CEO of a retail chain.

Of course, there were some exceptions to Minnesota nice, especially among the more competitive, highly analytical types in upper management.

Wiseman, Ford, and a group of others tended to form strong opinions and push them aggressively. And while Don had his own opinions—and often voiced them—he also worked hard to keep the company’s decision-making processes open and democratic, and made a point of asking for input from as many people as possible.

Steve stopped at a table where a technician was mixing raspberry-colored powder from two large canisters into two beakers of water. “Hey, Jerri, mind if Don does the blind taste test?” he asked.

“Not at all, it would be an honor,” Jerri replied, pouring some liquid from a beaker into two cups.

“Shut your eyes,” said Steve. Don complied, and Steve handed him one of the cups. “Down the hatch.”

Sipping from the first cup, Don recognized the familiar taste of ChargeUp. It smelled like a combination of dried raspberries, newly mowed grass, and burnt toast.

“Here, take a sip of water before you try the next one,” Steve offered. Don drank some, then tried the second cup.

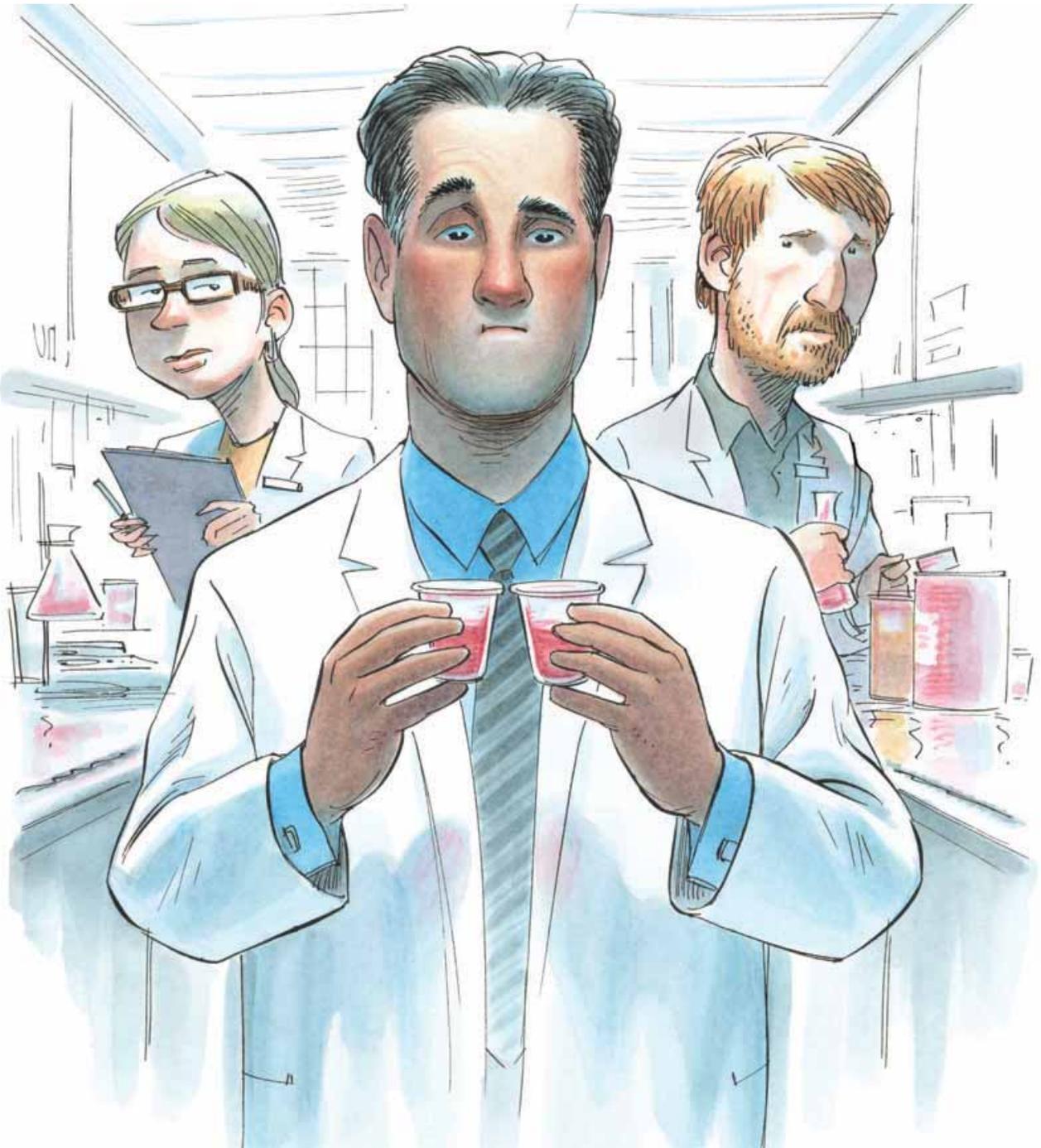
“So?” Steve inquired.

“No difference.” Don opened his eyes and looked at Steve.

“That’s what we like to hear,” said Steve. “The only real difference is that the second cup is the one with Lipitrene in it.”

“Ah,” said Don. Lipitrene, developed in Nutrorim’s labs, was a new combination of organic oils and seeds that appeared to enhance fat burning. Steve wore his pride in the new ingredient like a new father.

“We’ve finished with all the tests, and now we’re gathering final input on the taste,” Steve said, his eyes glinting. “The handoff to marketing and sales



is already in gear.” He paused. “In fact, I was invited to the product marketing meeting at 2:00. Any chance you’ll be there?”

“I’ll drop in,” Don replied, “at least for a minute.”

...

The meeting started out peaceably enough. Cynthia Pollington, the product marketing manager, presented three final designs for the new ChargeUp can-

ister, all of which had “Now with Lipitrene” splayed across them in large, embossed letters. She asked everyone in the room for feedback. In the end, the majority – including Steve and Don – liked the label with the gold letters. But when asked for her opinion, Nora Stern, a former entrepreneur whose company had been acquired by Nutrorm the previous year, was recalcitrant.

“Do I have to vote?” she asked.

“Well, we’d like your opinion, yes,” said Cynthia.

“Okay, here it is,” Nora responded. “I know this whole thing is already a done deal, but I don’t understand why there was this huge need to improve ChargeUp. It’s selling very well as it is. Why fix something that isn’t broken?”

Steve shot back, “Nora, you don’t know what you’re talking about.” Everyone stared at Steve; the silence was palpable.

DECISION MAKING

Don jumped in, feeling the need to restore peace. “Tell you what, Nora and Steve. Let’s take this off-line, OK?”

The Recall

By late September, at the end of the first quarter, sales of ChargeUp with Lipitrene had leapfrogged the standard product by 20% in the test market of greater Minneapolis. Plans for a state-wide launch, followed by a national one, were well under way. Don was pleased. In an all-staff meeting, he asked Steve and the ChargeUp team to stand and be recognized. “You have all demonstrated the kind of gung ho spirit that makes Nutrorm a leader,” he noted, nodding to Steve while the audience broke into applause.

...

The phone call came on October 5. “Mr. Rifkin?” said a male voice. “My name is Matthew Norton, and I’m an investigator with the Minnesota state department of health. I’m calling because we’ve been investigating 11 cases of gastrointestinal distress among people who took your ChargeUp supplement with Lipitrene.”

“What? Are you sure?”

“Unfortunately, yes,” the inspector responded. “The affected parties are all members of Syd’s Gyms, and they all recall using the product there between September 25 and 29. The victims range in age from 19 to 55.”

Don felt the blood drain from his face. “Are you telling me that the product has to be recalled?”

“I don’t have the authority—or the evidence—to make you do that. So for the time being, I’d simply like your cooperation in conducting an investigation. I understand that distribution is limited to the Twin Cities area, is that correct?”

“Yes.”

“That’s fortunate. Meanwhile, you may want to consider a voluntary recall,” he said just before hanging up.

Don asked his assistant to call an emergency meeting with the heads of PR, sales, R&D, Sports Supplements, and legal.

As he described his discussion with the inspector to the team, PR director

June Rotenberg looked increasingly grim. When Don finished, she spoke up. “I just checked my voice mail,” she said. “It was Linda Dervis at KXAQ radio. One of the people who got sick must have contacted her.” She looked around the room. “Guys, once this news hits, things are going to go downhill quickly.”

Jerry Garber, the general counsel, chimed in. “I think we have no choice but to pull ChargeUp off the shelves,” he said. “If we don’t, we could be facing a class action lawsuit. Talk about PR problems...”

“Why are we even considering a recall?” asked Ned Horst, who headed the Sports Supplements division. “There’s nothing wrong with the product. I should know, because I’ve been using it since it came out.”

“I suspect you’re right,” Jerry added. “And a recall will cost us.”

“Well, thank God we haven’t expanded distribution yet,” said Don.

“Recalls are expensive,” said June. “But under the circumstances, I’m with Jerry. Besides, think about the cost of not recalling a potentially bad product.”

“Damn it, people, there’s no way ChargeUp is unsafe!” Steve exclaimed, slamming his hand down on the conference table. “We put Lipitrene through

enough. The public always seems to remember how a crisis is handled more than the crisis itself. People will remember only how long it takes us to act.”

Suddenly everyone began talking at once. Steve took an increasingly entrenched position against June, who tried to get him to see things from the public’s perspective. Ned worried openly about Nutrorm’s relationships with Syd’s Gyms and other channel partners. Jerry tried to remind everyone of famous recall cases – the Tylenol crisis faced by Johnson & Johnson, Suzuki’s recall of its 2002 and 2003 auto models—and noted how the companies dealt with them.

The din in the room grew louder and louder. Don, frustrated, whistled everyone to attention.

“Look, we’re getting nowhere,” he said. “The first question here is, What are the criteria for making a recall decision? What lenses should we use to reach such an important decision? We need that kind of framework to come up with an answer, and we need that answer fast. You, you, and you,” he said, pointing to June, Jerry, and Ned. “Go find out as much relevant data as you can, and pull together an analysis in the next 24 hours. I’ll meet with you, and

“It seems like everything is a matter of debate.”

Nora sighed. “Ever since I came here, I’ve been in too many meetings about meetings.”

two full years of testing. We ran all kinds of toxicity studies in animals and on human volunteers. Then we did another tier of clinical trials in humans.” He looked hard at June. “If you need me to defend ChargeUp to the health department, the reporters, or anyone else, I have about 500,000 pages of documentation to show them.”

“Of course we all believe you, Steve,” June replied tentatively, “but that kind of response can look like defensiveness, and it can backfire.” She looked pleadingly at Don. “I’ve already drafted a press release saying we’ll fully cooperate with any investigation, but that’s not

we’ll form a preliminary view. I’m calling all the senior managers for an 8 AM meeting tomorrow. You can present our findings, and we’ll take a vote.”

He looked hard at Steve, who was scowling. “Steve, I want you out of the discussion for the time being. You’re a little too passionate about this, and I need some cool analysis here. You can speak your mind at tomorrow’s meeting.”

The following morning, after hearing the analyses and prognoses, the majority of senior managers quickly agreed with the subcommittee’s view that recalling the product was the only choice. Following the meeting, June issued a

press release announcing the decision. The release included a quote from Don, assuring the public that Nutrorim was “doing everything possible to cooperate with the investigation.”

Two weeks later, Don received another call from Matthew Norton. “I have good news,” he said. “It turns out that the people who got sick picked up a bug from the gym’s smoothie bar.”

Don gasped. “So that means Nutrorim is exonerated?” he asked.

“Yes, and fully,” the inspector replied. “We’ll send out a press release saying so today.”

Calling All Volunteers

The boardroom was abuzz as Nutrorim’s 15 top managers settled into their seats. The consultant sat quietly on Don’s right, sipping coffee.

“Okay, let’s get started,” said Don. “As you all know, we’re going to hear this morning from Synergy Consulting Group’s Gibson Bryer, who will present his preliminary findings. But first, let me review quickly why I, with the full support of the board, wanted this process review.”

Don reported that the board had been heartened by a recent analyst’s report calling the series of unfortunate events with ChargeUp a “fluke” for an “otherwise solid firm that has a history of making sound decisions.” Despite the fact that the analyst had recommended a “buy,” the board members were concerned about the damage to the ChargeUp brand and adamant about making absolutely sure that this type of thing would never happen again. To that end, the board strongly recommended a top-toe process review. Gibson, having worked with two CEOs who sat on the board, was the “obvious choice” for a consultant.

Someone turned down the lights as the first PowerPoint slide appeared on the conference room screen. “I want to thank each of you for allowing me to speak with you during the past month,” the consultant began. “My initial findings show areas of agreement and disagreement about the effectiveness of the decision-making process at Nutrorim.”

He clicked to another slide. “You told me that for decisions with a certain amount of built-in predictability—decisions like how to improve your distribution network, whether to alter your print ads—the process seems to work really well.” He clicked to the next slide. “But if a decision involves clear winners and losers, it stalls.” Click. “A preliminary survey about the inner workings of the process itself, however, reveals mixed reviews.” Click.

“Some of you feel that this company is too consensus driven and that things don’t get done in a timely fashion.” Click. “Others say that the decision-making process is fine the way it is. Still others get a bit frustrated at times, wishing that the CEO would make definitive calls more often.” Click. “Some say that the company deals well with tough issues; others say that conflict is too often suppressed or swept under the rug and that this causes resentment.” Click. “Some feel that the culture of the company is democratic and inclusive; others worry that the louder voices and squeaker wheels dominate. Lights up, please. I’m assuming many of you have questions.”

Some hands went up, and Bryer spent 45 minutes methodically addressing the concerns. Don looked at the clock and then stood up to thank him. “It’s almost time for us to end this meeting, but before we do, I need three volunteers for a subcommittee,” he said. “The next phase of our work with Gibson is to come up with a better, more resilient decision-making process that works well both in calm times and in rough. Anyone?”

No one volunteered. Then Anne Hannah, who headed the vitamin division, and Ned Horst tentatively raised their hands. Don looked around the room and gazed at Nora, the former entrepreneur. “Nora, I’d like you on the team,” he said. “Your perspective is always invaluable.”

Just Make a Decision!

“Hey, Nora,” Steve said sarcastically, waving to her as the meeting disbanded, “congratulations for volunteering. Jolly good show.”

Don, who was talking to another manager, pretended not to hear. A few minutes later, he walked to Nora’s office and tapped on the door. “Got a second?” he said, poking his head in the door.

Nora nodded, and Don perched on the corner of her desk. “You don’t look very pleased about this,” Don said soothingly.

“Well, no,” Nora said, clearly peeved. “I’m completely buried in this marketing launch at the moment, and I have other fish to fry. And to be honest,” she went on, “I’m pretty tired of all this navel-gazing nonsense.”

**Nora tightened her lips.
“Maybe it’s time for you
to take a more dictatorial
approach to decision
making.”**

“Well, I picked you because you seem to hold back in the senior management meetings,” Don replied, trying his best to be gentle. “You know, the ChargeUp problem presented us with a real opportunity to look at what’s broken. You come from outside the company, and you have clever, fresh ideas. I think you are just the person to bring these issues to the fore.”

“Look, Don, I appreciate that, and I completely sympathize with what you’re trying to do. But I come from a company where all decisions were made in the room. I didn’t allow anyone to leave until a call was made. Here, it seems like everything is a matter of debate.” She sighed. “You know, this consultant-driven committee is just more evidence of what’s wrong. Ever since I came here, I’ve been in too many meetings about meetings.”

She tightened her lips. “Maybe it’s time for you to take a more dictatorial approach to decision making.”

What’s the right decision-making process for Nutrorim? • Four commentators offer expert advice.



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By asking the right questions of the experts in his organization, Rifkin would put into play healthy dynamics that would lead to more cross-functional collaboration.

If I were to give points for good intentions, then Don Rifkin would score pretty well. He seems honest and genuinely interested in doing the right thing. Both are laudable attributes in a leader, but they go only so far. Rifkin does not appear to have a problem making decisions and, as evidenced by his choice to launch the new and improved ChargeUp, he appears to encourage creativity, innovation, and risk taking.

On the other hand, it seems that Rifkin has created a culture devoid of candid inquiry, where objective analysis and oversight take a backseat to maintaining a “happy, participatory, democratic culture.” As a consequence, Rifkin now realizes that the outcomes of decisions made in this kind of culture are leading to an unhealthy organizational dynamic, paradoxically creating the type of corporate culture he disdains.

Rifkin’s biggest problem is that he doesn’t ask enough questions. I often say that my company’s greatest asset is its people, and that this asset is at its best when *engaged*. Without

a culture of inquiry, engagement doesn’t happen. In addition to being a champion of innovation, a CEO is responsible for constantly assessing risk through questioning. Unfortunately, Rifkin is not asking the types of questions that will create the environment of accountability his organization needs to succeed.

By not probing the experts on his staff, Rifkin has missed a huge opportunity to reshape the culture of his organization and establish himself as a strong leader. A stricter mode of inquiry would have, among other things, made the decision about whether to recall ChargeUp much easier.

Of course, it must be understood that successful top managers are rarely experts in more than a few organizational disciplines.

But how they utilize and play off the strengths and skills of their in-house experts is key. This ability to juggle skill sets includes knowing how to leverage personalities so that each team member is continually challenging status-quo thinking and developing new problem-solving techniques. For Rifkin in particular, this skill also involves asking the right questions of the people he relies on to provide critical information. Granted, there is an art to creating this type of engagement, but it seems as though Rifkin doesn’t have even the slightest idea how to initiate those conversations.

A look back at how my organization recently responded to a change in local labor market conditions speaks to the value of this interplay. As site work began on a new L.L.Bean customer contact center, another company announced its plans to locate an even larger call center right next door. Because this development posed a reasonable threat to our seasonal staffing needs, the challenge I put forward to the organization was “Is it too late to reconsider? What are our options, and what are the costs?” These questions led to countless others that immediately mobilized the entire company to consider alternatives, despite the fact that ground had already been broken. The result is that we found a new location and started operations in the same amount of time and on better terms than we had for the original project.

Rifkin’s challenge is complicated by the fact that his decision-making process has led to a reactionary culture characterized by considerable resentment and second-guessing on the part of his management team. With a renewed focus on inquiry, Rifkin would experience two important benefits. First, he would create access to the information he needs to make better decisions. Second, he would set an example for his own managers that speaks to the value of diligence and personal accountability.

By asking people the right questions, Rifkin would put into play healthy dynamics that would lead to more cross-functional collaboration, greater acceptance of decisions, and better business results in which his entire team would feel more fully vested.

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Rifkin wants to be a better leader than his former boss and has strived to form a corporate culture that takes into account the “Minnesota niceness” of most of his employees. While these objectives are good starting points, the lack of consistency in

The decision-making crisis at Nutrorim is a blessing in disguise, for it offers Rifkin a chance to install firm management rules and build trust within the company.

Rifkin’s approach to management and decision making undermines trust. It’s difficult for teams to function well together when there is so much inconsistency and volatility at work.

Let’s start with Rifkin’s leadership style. In the case of the bad stock purchase, he showed poor judgment, a lack of professionalism, and an inability to view facts objectively. In addition to not taking simple business precautions by personally vetting Dipensit, Rifkin demonstrated selective hearing that kept him from absorbing dissent.

The picture is different in the case of the recall. If you look at it from the perspective of decision theory, Rifkin reacted in a rational manner. Nutrorim faced two scenarios: Either ChargeUp with Lipitrene would be found to be the cause of the customers’ illness, or it would not. Likewise, Nutrorim had two options: Recall the product, or don’t. If the product turned out to be faulty, keeping it on the market would most likely have meant the company’s demise, given the possibility of a lawsuit. Management could not take that risk, since the probability of the product being faulty was obviously beyond a negligible level and there was no time for further investigation. Rifkin did a good job of hearing people out and decisively following the subcommittee’s recommendation to withdraw the product immediately.

But Rifkin’s inconsistent approach to these events undercuts his authority and the over-

all quality of decision making. Fortunately, there are a few things he can do to improve matters. First, he should demonstrate strong leadership by setting firm management process rules – especially for investment and M&A decisions, product launches, and risk management – that are easy to apply and transparent to everyone.

M&A decisions, for example, should be formed on the basis of precisely defined criteria that cover everything from due diligence, strategic and operational aspects of the merger, and a clear exit strategy. Transparent rules prevent management from growing too bullish, practicing selective hearing, and ignoring risks. They also go a long way toward establishing trust, because people know what to expect and what they’re responsible for.

I would also recommend that Rifkin undergo intensive coaching to help him develop a consistent leadership style and learn to take a more active role in managing his team. Coaching could help Rifkin do a better job of developing his people. For example, it’s clear that Nora Stern is a hands-on manager, rather than a talker, so Rifkin should keep her on practical tasks – such as giving her responsibility for a plant where she can develop her skills—rather than force her onto subcommittees. He should also let his managers know what is expected of them, especially in terms of team behavior. He can praise Steve Ford for his R&D expertise but make him understand that his is only one viewpoint among many, and that he must remain a team player even if he does not agree with particular decisions.

As the Swiss novelist Max Frisch wrote, “A crisis is a productive situation—you only have to take away the flavor of catastrophe.” The decision-making crisis at Nutrorim is a blessing in disguise, for it offers Rifkin a chance to install firm management rules. And Rifkin can build trust within his management team by setting an example and openly communicating his intentions and goals for the company. In accomplishing both, he’s doing what is necessary to improve the company’s decision-making processes.



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“What’s the right decision-making process for Nutrorim?” raises another question: “What’s the right decision-making process for Don Rifkin?”

I agree with Gibson Bryer that the current decision-making process at Nutrorim seems to work fine for decisions with some built-in predictability but not for those with clear winners and losers. Day-to-day operational and procedural issues are one thing; important problems or strategic matters that involve conflict or debate are quite another. And when it comes to the latter, the process at Nutrorim is broken.

The problems with the decision-making process at Nutrorim stem primarily from Rifkin’s aversion to conflict. He believes that he keeps the process open and asks for input, but he doesn’t realize that his approach to building a friendly culture squelches dissent and debate. He’s trying to build a “nice” culture by making it homogeneous, and that’s causing trouble. Murmurs go unaddressed, opinions are unbalanced, top managers feel increasingly frustrated, and bad decisions are the norm. Hence, the final question—“What’s the right decision-making process for Nutrorim?”—raises another question: “What’s the right decision-making process for Rifkin?”

It would help if Rifkin could view conflict as an important source of energy and see that it’s his responsibility to understand all sides of an issue. To do this, he needs to explore his own issues first. If I were coaching him, I would begin by asking him why he hasn’t investigated the “murmurs” he’s overheard, and why he chooses to deal with conflict in private rather than in public. I might ask, “How has the decision to take things offline helped you in the past? What are the benefits and drawbacks of doing things this way?” The difficulties he’s had with his managers reflect his aversion to conflict. All leaders face people like Steve Ford from time to time. Commitment and passion are worth encouraging in direct reports, but assertiveness and conviction can have their downsides. To become more comfortable dealing with people who possess these qualities, par-

ticularly in group settings, Rifkin needs to get away from his and others’ personal feelings. In a group meeting, he could say, for example, “We’ve heard a strong case for Y. Does anyone else have data or experiences that might suggest another approach?”

Rifkin should also take a good, hard look at the way he selects members of his subcommittees. In his desire to avoid disagreements, he seems to seek out homogeneity. Public relations and legal, for example, are corporate kindred spirits, and leaving the head of R&D out of a discussion on a product recall looks a lot like deck stacking. If Rifkin wants a better balance of views and, hence, better decisions, he should choose members more carefully.

Nora Stern makes an important point when she says that in her former company, debate was held out in the open, and differences were worked out in the group. Following this example would cut down on the frustration among Rifkin’s managers, reduce lobbying, and bring to light some key opinions. I recommend that Rifkin use subgroups to gather data, identify assumptions, and create options. Each subgroup should report regularly to the larger group, which can then debate a given issue’s pros and cons. These groups can be set up like teams of lawyers, with one critical exception: Those individuals with the strongest opinions should argue the case for the opposing side. This kind of decision-making structure can go a long way toward unearthing the opinions of all involved, including those who feel left out, and toward building the kind of balance Rifkin needs to develop in his company.

I would stress to Rifkin that he has two primary responsibilities: to guide the decision-making process so that all the data, opinions, assumptions, and options are identified and fairly discussed, and to make the final decisions. It would also help if he explained the reasoning behind his decisions to his direct reports.



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Nutrorim needs a serious reality check. Nora Stern, as the outsider, is the voice of reason when she notes that there is too much navel-gazing at the company. Too many people, including Rifkin, are operating on hunches and gut reactions that could put the company at risk. Rifkin abdicates his responsibility when he fails to sponsor a learning organization that builds knowledge as a competitive advantage. He needs to show leadership and a willingness to make decisions.

The stock purchase is a perfect case in point. The CFO, Laurence Wiseman, may have his talents, but it seems he pushed through the decision to purchase stock in Dipensit without exercising due diligence. Investing in a company is like buying a house: One makes the purchase decision based on a combination of hard factors such as price, condition, and school system, as well as soft factors such as general impressions, conversations with neighbors, and so on. It is inexcusable that Rifkin allowed shareholders' money to be spent on a stake in

Rifkin can't allow his team members to create their own versions of reality. For example, Ford, the R&D head with vested interests and a difficult personality, prevents people from having candid conversations when they are most needed – during times of crisis. Rifkin needs to buckle down and make it clear to Ford and everyone else that they will be held accountable for their actions and their results and that no one gets to steamroll others. Without this rule, the company can only react after the horse has left the stable.

To ensure better decision making, Rifkin should work hard to create a culture that rewards on the basis of unit performance as well as individual contributions. He should spend more time developing leaders – I like to think of them as mini-CEOs – who have a passion for results and understand how their actions affect the company. Rifkin's job is to monitor his managers' progress, motivate them, and give them feedback. He should make sure that results are openly celebrated and that when failure occurs, everyone learns



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The payoff for a lot of hard work and seemingly endless preparation occurs when it's time to make hard decisions.

Dipensit without having launched a thorough investigation of the CEO's background when questions first arose. Rifkin and his team should have delved into any rumors, probed any allegations, studied the business model, and fully understood any contractual obligations.

The same fact-finding failure occurred with the ChargeUp fiasco, which should have been investigated immediately. Rifkin should have dispatched a qualified team to Syd's Gyms to investigate the facts and interview the people affected. Ford and his team should have reviewed the allegations in light of earlier toxicity studies and clinical trials to determine whether any of the alleged problems had ever occurred during testing. Indeed, a thorough investigation might have prevented the crisis in the first place.

from it. Like members of a sports team, every one of these individuals is accountable for his or her own assignment. Without that accountability, the team cannot win. In the end, Rifkin should play the role of a quarterback and be the one calling all the plays. Getting this role right sometimes leads to tough discussions, but the results can be outstanding.

Sometimes the answers to dilemmas will be obvious; other times, more analysis will be required. Either way, the teams at Nutrorim must do a better job of getting at the heart of problems. The payoff for a lot of hard work and seemingly endless preparation occurs when it's time to make hard decisions. 

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To order, see page 135.

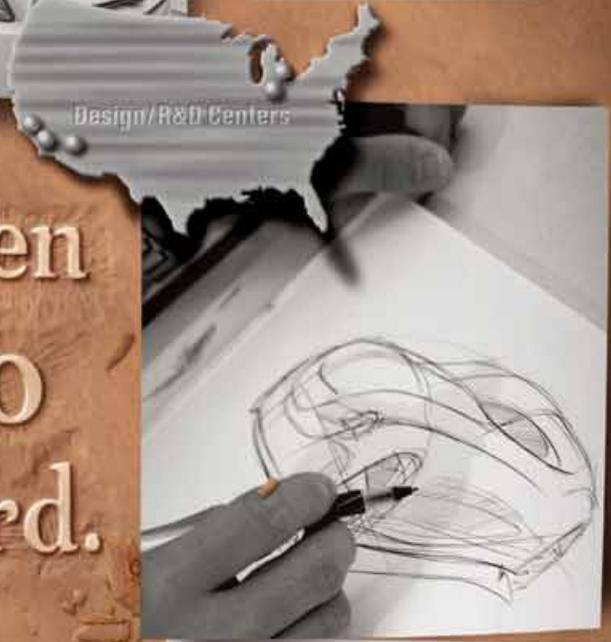


*2005 Center for Automotive Research study. Includes direct, dealer and supplier employees, and jobs created through their spending.

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 Total Jobs 388,000 *
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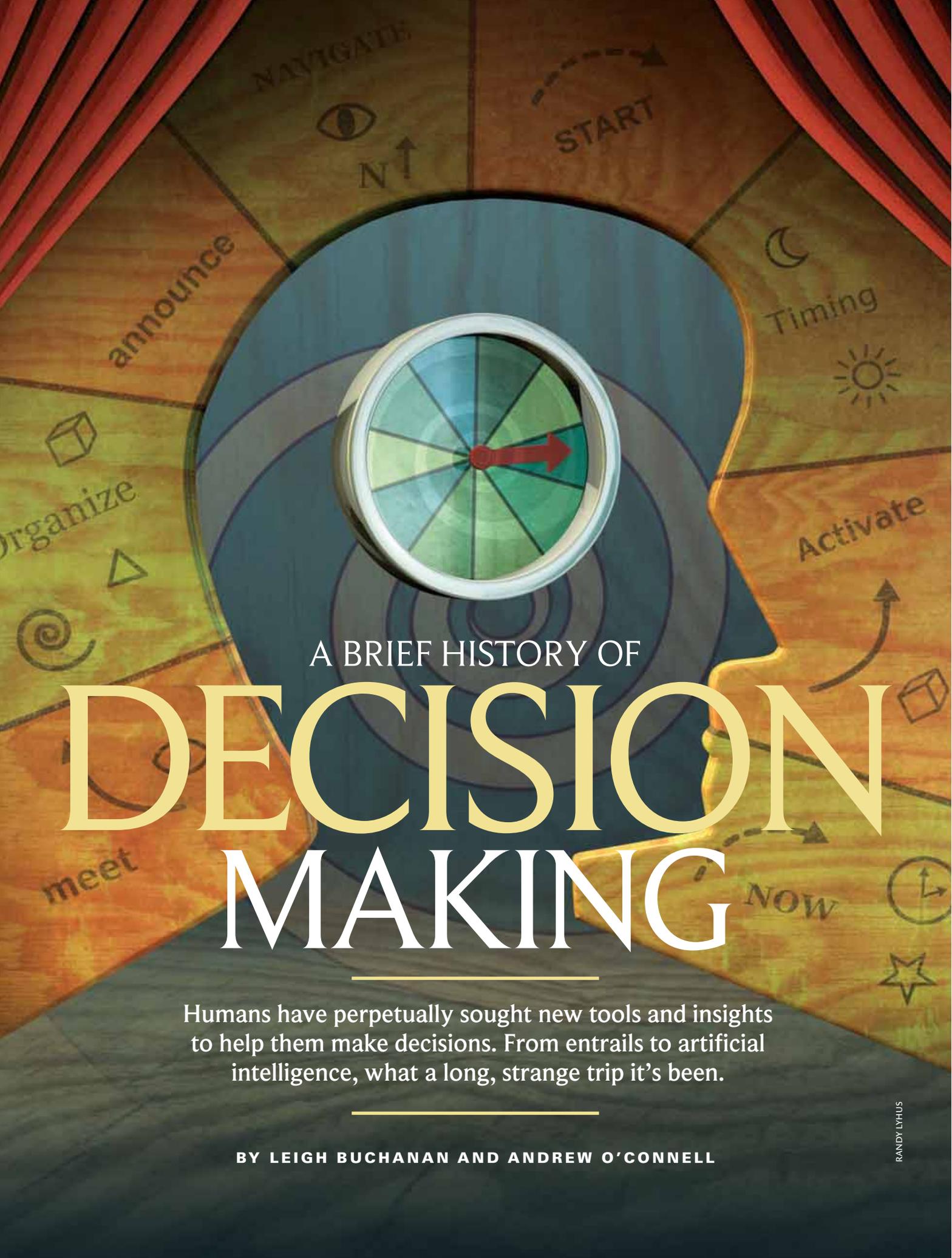
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A BRIEF HISTORY OF

DECISION MAKING

Humans have perpetually sought new tools and insights to help them make decisions. From entrails to artificial intelligence, what a long, strange trip it's been.

BY LEIGH BUCHANAN AND ANDREW O'CONNELL

SOMETIME IN THE MIDST OF THE LAST CENTURY, Chester Barnard, a retired telephone executive and author of *The Functions of the Executive*, imported the term “decision making” from the lexicon of public administration into the business world. There it began to replace narrower descriptors such as “resource allocation” and “policy making.”

The introduction of that phrase changed how managers thought about what they did and spurred a new crispness of action and desire for conclusiveness, argues William Starbuck, professor in residence at the University of Oregon’s Charles H. Lundquist College of Business. “Policy making could go on and on endlessly, and there are always resources to be allocated,” he explains. “‘Decision’ implies the end of deliberation and the beginning of action.”

So Barnard—and such later theorists as James March, Herbert Simon, and Henry Mintzberg—laid the foundation for the study of managerial decision making. But decision making within organizations is only one ripple in a stream of thought flowing back to a time when man, facing uncertainty, sought guidance from the stars. The questions of who makes decisions, and how, have shaped the world’s systems of government, justice, and social order. “Life is the sum of all your choices,” Albert Camus reminds us. History, by extrapolation, equals the accumulated choices of all mankind.

The study of decision making, consequently, is a palimpsest of intellectual disciplines: mathematics, sociology, psychology, economics, and political science, to name a few. Philosophers ponder what our decisions say about ourselves and about our values; historians dissect the choices leaders make at critical junctures. Research into risk and organizational behavior springs from a more practical desire: to help managers achieve better outcomes. And while a good decision does not guarantee a good outcome, such pragmatism has paid off. A growing sophistication with managing risk, a nuanced understanding of human behavior, and advances in technology that support and mimic

cognitive processes have improved decision making in many situations.

Even so, the history of decision-making strategies is not one of unalloyed progress toward perfect rationalism. In fact, over the years we have steadily been coming to terms with constraints—both contextual and psychological—on our ability to make optimal choices. Complex circumstances, limited time, and inadequate mental computational power reduce decision makers to a state of “bounded rationality,” argues Simon. While Simon suggests that people would make economically rational decisions if only they could gather enough information, Daniel Kahneman and Amos Tversky identify factors that cause people to decide against their economic interest even when they know better. Antonio Damasio draws on work with brain-damaged patients to demonstrate that in the absence of emotion it is impossible to make any decisions at all. Erroneous framing, bounded awareness, excessive optimism: the debunking of Descartes’s rational man threatens to swamp our confidence in our choices, with only improved technology acting as a kind of empirical breakwater.

Faced with the imperfectability of decision making, theorists have sought ways to achieve, if not optimal outcomes, at least acceptable ones. Gerd Gigerenzer urges us to make a virtue of our limited time and knowledge by mastering simple heuristics, an approach he calls “fast and frugal” reasoning. Amitai Etzioni proposes “humble decision making,” an assortment of nonheroic tactics that include tentativeness, delay, and hedging. Some practitioners, meanwhile, have simply reverted to the old ways. Last April, a Japanese television equipment manufacturer turned over its \$20 million art collection to Christie’s when the auction house trounced archrival Sotheby’s in a high-powered round of rock-paper-scissors, a game that may date back as far as Ming Dynasty China.

In this special issue on decision making, our focus—as always—is on breaking new ground. What follows is a glimpse of the bedrock that lies beneath that ground.

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Chances Are

RISK IS AN INESCAPABLE PART OF EVERY DECISION. For most of the everyday choices people make, the risks are small. But on a corporate scale, the implications (both upside and downside) can be enormous. Even the tritely expressed (and rarely encountered) win-win situation entails opportunity costs in the form of paths not taken.

To make good choices, companies must be able to calculate and manage the attendant risks. Today, myriad sophisticated tools can help them do so. But it was only a few hundred years ago that the risk management tool kit consisted of faith, hope, and guesswork. That's because risk is a numbers game, and before the seventeenth century, humankind's understanding of numbers wasn't up to the task.

Most early numbering methods were unwieldy, as anyone knows who

has tried to multiply XXIII by VI. The Hindu-Arabic numeral system (which, radically, included zero) simplified calculations and enticed philosophers to investigate the nature of numbers. The tale of our progression from those early fumbblings with base 10 is masterfully told by Peter Bernstein in *Against the Gods: The Remarkable Story of Risk*.

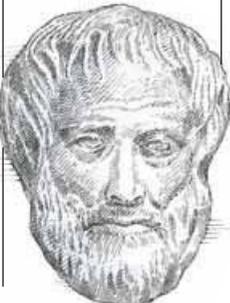
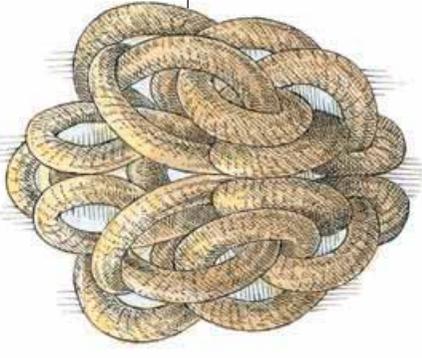
Bernstein's account begins in the dark days when people believed they had no control over events and so

turned to priests and oracles for clues to what larger powers held in store for them. It progresses quickly to a new interest in mathematics and measurement, spurred, in part, by the growth of trade. During the Renaissance, scientists and mathematicians such as Girolamo Cardano mused about probability and concocted puzzles around games of chance. In 1494, a peripatetic Franciscan monk named Luca Pacioli proposed "the problem of points" – which asks how one should divide the stakes in an incomplete game. Some 150 years later, French mathematicians Blaise Pascal and Pierre de Fermat developed a way to determine the likelihood of each possible result of a simple game (*balla*, which had fascinated Pacioli).

But it wasn't until the next century, when Swiss scholar Daniel Bernoulli

A HISTORY OF CHOICE

We created this time line to remind readers that the history of decision making is long, rich, and diverse. We recognize that it presents only a tiny sample of the people, events, research, and thinking that have contributed to our current understanding of this subject. Many dates are approximate.

Prehistory	Sixth Century BC	Fifth Century BC	Fourth Century BC	399 BC	333 BC
For millennia, human decisions are guided by interpretations of entrails, smoke, dreams, and the like; hundreds of generations of Chinese rely on the poetic wisdom and divination instructions compiled in the <i>I Ching</i> . The Greeks consult the Oracle of Delphi. Prophets and seers of all kinds peer into the future.	Lao-tzu teaches the principle of "nonwillful action": letting events take their natural course. Confucius says decisions should be informed by benevolence, ritual, reciprocity, and filial piety.	Male citizens in Athens, in an early form of democratic self-government, make decisions by voting. 	Plato asserts that all perceivable things are derived from eternal archetypes and are better discovered through the soul than through the senses. Aristotle takes an empirical view of knowledge that values information gained through the senses and deductive reasoning.	In an early jury-trial decision, 500 Athenian citizens agree to send Socrates to his death.	Alexander the Great slices through the Gordian knot with his sword, demonstrating how difficult problems can be solved with bold strokes. 

JOHN BURCOYNE



took up the study of random events, that the scientific basis for risk management took shape.

Bernoulli (who also introduced the far-reaching concept of human capital) focused not on events themselves but on the human beings who desire or fear certain outcomes to a greater or lesser degree. His intent, he wrote, was to create mathematical tools that would allow anyone to “estimate his prospects from any risky undertaking in light of [his] specific financial circumstances.” In other words, given the chance of a particular outcome, how much are you willing to bet?

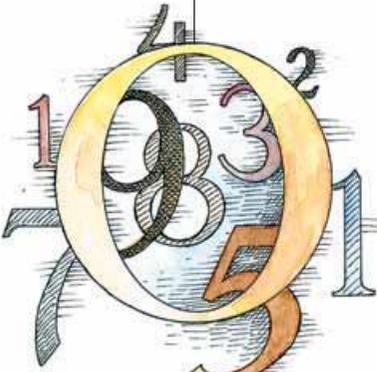
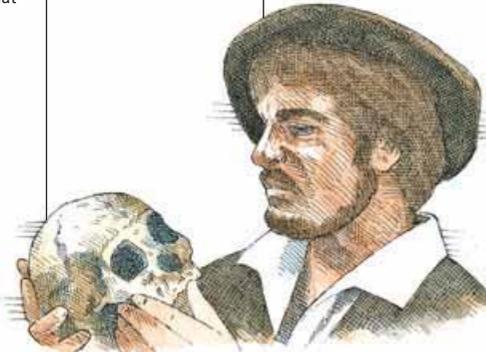
In the nineteenth century, other scientific disciplines became fodder for the risk thinkers. Carl Friedrich Gauss brought his geodesic and astro-

nomical research to bear on the bell curve of normal distribution. The insatiably curious Francis Galton came up with the concept of regression to the mean while studying generations of sweet peas. (He later applied the principle to people, observing that few of the sons – and fewer of the grandsons – of eminent men were themselves eminent.)

But it wasn’t until after World War I that risk gained a beachhead in economic analysis. In 1921, Frank Knight distinguished between *risk*, when the probability of an outcome is possible to calculate (or is knowable), and *uncertainty*, when the probability of an outcome is not possible to determine (or is unknowable) – an argument that rendered insurance attractive and

entrepreneurship, in Knight’s words, “tragic.” Some two decades later, John von Neumann and Oskar Morgenstern laid out the fundamentals of game theory, which deals in situations where people’s decisions are influenced by the unknowable decisions of “live variables” (aka other people).

Today, of course, corporations try to know as much as is humanly and technologically possible, deploying such modern techniques as derivatives, scenario planning, business forecasting, and real options. But at a time when chaos so often triumphs over control, even centuries’ worth of mathematical discoveries can do only so much. Life “is a trap for logicians,” wrote the novelist G.K. Chesterton. “Its wildness lies in wait.”

49 BC	Ninth Century	Eleventh Century	Fourteenth Century	Seventeenth Century	1602
<p>Julius Caesar makes the irreversible decision to cross the Rubicon, and a potent metaphor in decision making is born.</p> 	<p>The Hindu-Arabic number system, including zero, circulates throughout the Arab empire, stimulating the growth of mathematics.</p>	<p>Omar Khayyám uses the Hindu-Arabic number system to create a language of calculation, paving the way for the development of algebra.</p>	<p>An English friar proposes what became known as “Occam’s razor,” a rule of thumb for scientists and others trying to analyze data: The best theory is the simplest one that accounts for all the evidence.</p>	<p>Stable keeper Thomas Hobson presents his customers with an eponymous “choice”: the horse nearest the door or none.</p>	<p>Hamlet, facing arguably the most famous dilemma in Western literature, debates whether “to be, or not to be.”</p> 

The Meeting of Minds

IN THE FIFTH CENTURY BC, Athens became the first (albeit limited) democracy. In the seventeenth century, the Quakers developed a decision-making process that remains a paragon of efficiency, openness, and respect. Starting in 1945, the United Nations sought enduring peace through the actions of free peoples working together.

There is nobility in the notion of people pooling their wisdom and muzzling their egos to make decisions that are acceptable—and fair—to all. During the last century, psychologists, sociologists, anthropologists, and even biologists (studying everything from mandrills to honeybees) eagerly unlocked the secrets of effective cooperation within groups. Later, the popularity of high-performance teams, coupled with new collaborative technologies that made it “virtually” impossible for any man to be an island, fostered the collective ideal.

The scientific study of groups began, roughly, in 1890, as part of the burgeoning field of social psychology. In 1918, Mary Parker Follett made a passionate case for the value of conflict in achieving integrated solutions in *The New State: Group Organiza-*

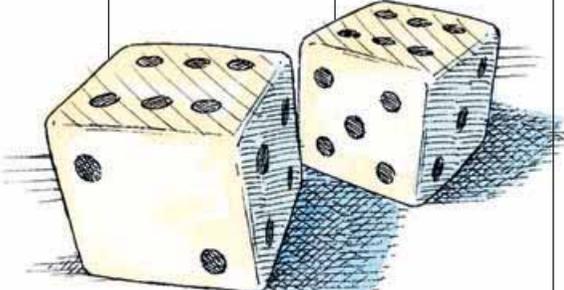
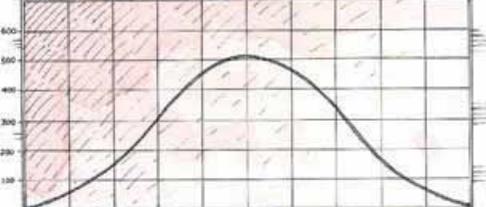
tion – The Solution of Popular Government. A breakthrough in understanding group dynamics occurred just after World War II, sparked – oddly enough – by the U.S. government’s

**Consensus is good,
unless it is achieved
too easily, in which case
it becomes suspect.**

wartime campaign to promote the consumption of organ meat. Enlisted to help, psychologist Kurt Lewin discovered that people were more likely to change their eating habits if they thrashed the subject out with others than if they simply listened to lec-

tures about diet. His influential “field theory” posited that actions are determined, in part, by social context and that even group members with very different perspectives will act together to achieve a common goal.

Over the next decades, knowledge about group dynamics and the care and feeding of teams evolved rapidly. Victor Vroom and Philip Yetton established the circumstances under which group decision making is appropriate. R. Meredith Belbin defined the components required for successful teams. Howard Raiffa explained how groups exploit “external help” in the form of mediators and facilitators. And Peter Drucker suggested that the most important decision may not be made by the team itself but rather by management about what kind of team to use.

1620	1641	1654	1660	1738	Nineteenth Century
Francis Bacon asserts the superiority of inductive reasoning in scientific inquiry.	René Descartes proposes that reason is superior to experience as a way of gaining knowledge and establishes the framework for the scientific method.	Prompted by a gamblers' question about the “problem of points,” Blaise Pascal and Pierre de Fermat develop the concept of calculating probabilities for chance events.	Pascal’s wager on the existence of God shows that for a decision maker, the consequences, rather than the likelihood, of being wrong can be paramount.	Daniel Bernoulli lays the foundation of risk science by examining random events from the standpoint of how much an individual desires or fears each possible outcome.	Carl Friedrich Gauss studies the bell curve, described earlier by Abraham de Moivre, and develops a structure for understanding the occurrences of random events.
					



Meanwhile, research and events collaborated to expose collective decision making's dark underbelly. Poor group decisions—of the sort made by boards, product development groups, management teams—are often attributed to the failure to mix things up and question assumptions. Consensus is good, unless it is achieved too easily, in which case it becomes suspect. Irving Janis coined the term “group-

think” in 1972 to describe “a mode of thinking that people engage in when they are deeply involved in a cohesive in-group, when the members’ strivings for unanimity override their motivation to realistically appraise alternative courses of action.” In his memoir, *A Thousand Days*, former Kennedy aide Arthur Schlesinger reproached himself for not objecting during the planning for the Bay of

Pigs invasion: “I can only explain my failure to do more than raise a few timid questions by reporting that one’s impulse to blow the whistle on this nonsense was simply undone by the circumstances of the discussion.”

It seems that decisions reached through group dynamics require, above all, a dynamic group. As Clarence Darrow neatly put it: “To think is to differ.”

1880	1886	1900	1907	1921	1938
<p>Oliver Wendell Holmes, in a series of lectures later published as <i>The Common Law</i>, puts forth the thesis that “the life of the law has not been logic; it has been experience.” Judges, he argues, should base decisions not merely on statutes but on the good sense of reasonable members of the community.</p>	<p>Francis Galton discovers that although values in a random process may stray from the average, in time they will trend toward it. His concept of regression to the mean will influence stock and business analysis.</p>	<p>Sigmund Freud’s work on the unconscious suggests that people’s actions and decisions are often influenced by causes hidden in the mind.</p>	<p>Economist Irving Fisher introduces net present value as a decision-making tool, proposing that expected cash flow be discounted at a rate that reflects an investment’s risk.</p>	<p>Frank Knight distinguishes between risk, in which an outcome’s probability can be known (and consequently insured against), and uncertainty, in which an outcome’s probability is unknowable.</p>	<p>Chester Barnard separates personal from organizational decision making to explain why some employees act in the firm’s interest rather than in their own.</p>

Thinking Machines

COMPUTER PROFESSIONALS EULOGIZE XEROX PARC OF THE 1970S as a technological Eden where some of today’s indispensable tools sprouted. But comparable vitality and progress were evident two decades earlier at the Carnegie Institute of Technology in Pittsburgh. There, a group of distinguished researchers laid the conceptual – and in some cases the programming – foundation for computer-supported decision making.

Future Nobel laureate Herbert Simon, Allen Newell, Harold Guetzkow, Richard M. Cyert, and James March were among the CIT scholars who shared a fascination with organizational behavior and the workings of the human brain. The philosopher’s stone that alchemized their ideas was electronic computing. By the mid-1950s, transistors had been around less than a decade, and IBM would not launch its groundbreaking 360 mainframe until 1965. But already scientists were envisioning how the new tools might improve human decision making. The collaborations of these and other Carnegie scientists, together with research by Marvin Minsky at the Massachusetts Institute of Technology and John McCarthy of Stanford, produced early computer

models of human cognition – the embryo of artificial intelligence.

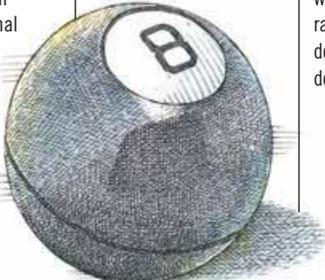
AI was intended both to help researchers understand how the brain makes decisions and to augment the

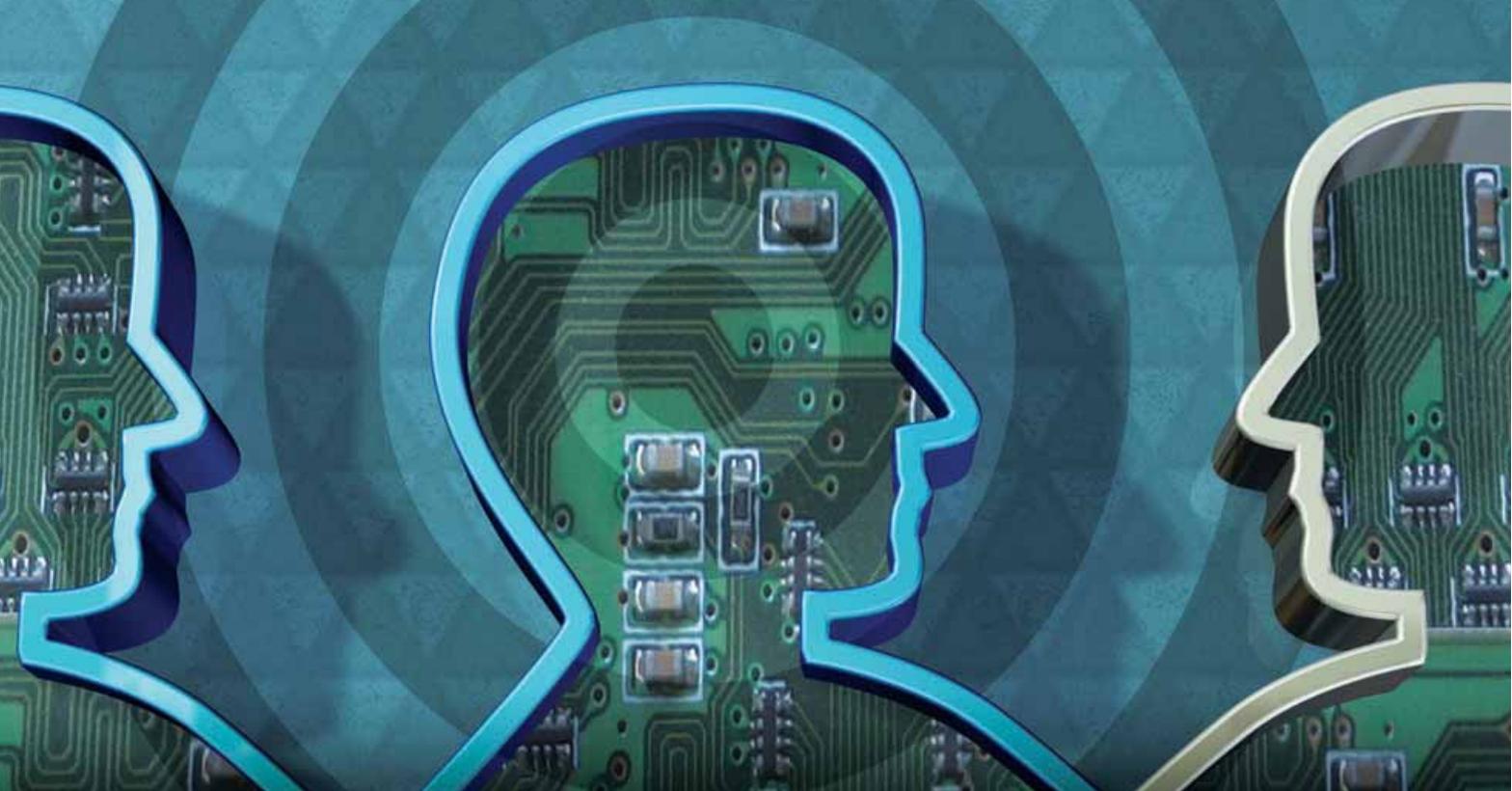
In the 1990s, technology-aided decision making found a new customer: customers themselves.

decision-making process for real people in real organizations. Decision support systems, which began appearing in large companies toward the end of the 1960s, served the latter goal, specifically targeting the practi-

cal needs of managers. In a very early experiment with the technology, managers used computers to coordinate production planning for laundry equipment, Daniel Power, editor of the Web site DSSResources.com, relates. Over the next decades, managers in many industries applied the technology to decisions about investments, pricing, advertising, and logistics, among other functions.

But while technology was improving operational decisions, it was still largely a cart horse for hauling rather than a stallion for riding into battle. Then in 1979, John Rockart published the HBR article “Chief Executives Define Their Own Data Needs,” proposing that systems used by corporate leaders ought to give them data about the key jobs the company must

1944	1946	1947	1948	1950s	1951
<p>In their book on game theory, John von Neumann and Oskar Morgenstern describe a mathematical basis for economic decision making; like most theorists before them, they take the view that decision makers are rational and consistent.</p>	<p>The Alabe Crafts Company of Cincinnati markets the Magic 8 Ball.</p>	<p>Rejecting the classical notion that decision makers behave with perfect rationality, Herbert Simon argues that because of the costs of acquiring information, executives make decisions with only “bounded rationality” – they make do with good-enough decisions.</p>	<p>Project RAND, its name a contraction of “research and development,” separates from Douglas Aircraft and becomes a nonprofit think tank. Decision makers use its analyses to form policy on education, poverty, crime, the environment, and national security.</p>	<p>Research conducted at the Carnegie Institute of Technology and MIT will lead to the development of early computer-based decision support tools.</p>	<p>Kenneth Arrow introduces what becomes known as the Impossibility Theorem, which holds that there can be no set of rules for social decision making that fulfills all the requirements of society.</p>
					



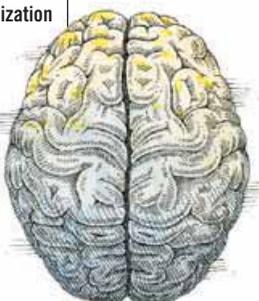
do well to succeed. That article helped launch “executive information systems,” a breed of technology specifically geared toward improving strategic decision making at the top. In the late 1980s, a Gartner Group consultant coined the term “business intelligence” to describe systems that help decision makers throughout the organization understand the state of their company’s world. At the same time, a growing concern with risk led more companies to adopt complex simula-

tion tools to assess vulnerabilities and opportunities.

In the 1990s, technology-aided decision making found a new customer: customers themselves. The Internet, which companies hoped would give them more power to sell, instead gave consumers more power to choose from whom to buy. In February 2005, the shopping search service BizRate reports, 59% of online shoppers visited aggregator sites to compare prices and features from multiple

vendors before making a purchase, and 87% used the Web to size up the merits of online retailers, catalog merchants, and traditional retailers.

Unlike executives making strategic decisions, consumers don’t have to factor what Herbert Simon called “zillions of calculations” into their choices. Still, their newfound ability to make the best possible buying decisions may amount to technology’s most significant impact to date on corporate success—or failure.

1952	1960s	1961	1965	1966	1968
<p>Harry Markowitz demonstrates mathematically how to choose diversified stock portfolios so that the returns are consistent.</p> 	<p>Edmund Learned, C. Roland Christensen, Kenneth Andrews, and others develop the SWOT (strengths, weaknesses, opportunities, threats) model of analysis, useful for making decisions when time is short and circumstances complex.</p>	<p>Joseph Heller’s term “catch-22” becomes popular shorthand for circular, bureaucratic illogic that thwarts good decision making.</p>	<p>Corporations use IBM’s System/360 computers to start implementing management information systems.</p> <p>Roger Wolcott Sperry begins publishing research on the functional specialization of the brain’s two hemispheres.</p> 	<p>The phrase “nuclear option” is coined with respect to developing atomic weapons and is eventually used to designate a decision to take the most drastic course of action.</p>	<p>Howard Raiffa’s <i>Decision Analysis</i> explains many fundamental decision-making techniques, including decision trees and the expected value of sample (as opposed to perfect) information.</p>

The Romance of the Gut

“GUT,” ACCORDING TO THE FIRST DEFINITION IN MERRIAM-WEBSTER’S LATEST EDITION, means “bowels.” But when Jack Welch describes his “straight from the gut” leadership style, he’s not talking about the alimentary canal. Rather, Welch treats the word as a conflation of two slang terms: “gut” (meaning emotional response) and “guts” (meaning fortitude, nerve).

That semantic shift—from human’s stomach to lion’s heart—helps explain the current fascination with gut decision making. From our admiration for entrepreneurs and firefighters, to the popularity of books by Malcolm Gladwell and Gary Klein, to the outcomes of the last two U.S. presidential elections, instinct appears ascendant. Pragmatists act on evidence. Heroes act on guts. As Alden Hayashi writes in “When to Trust Your Gut” (HBR February 2001): “Intuition is one of the X factors separating the men from the boys.”

We don’t admire gut decision makers for the quality of their decisions so much as for their courage in making them. Gut decisions testify to the confidence of the decision maker, an invaluable trait in a leader. Gut decisions are made in moments of crisis

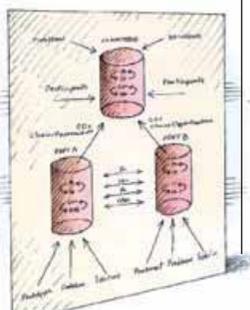
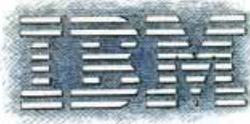
when there is no time to weigh arguments and calculate the probability of every outcome. They are made in situations where there is no precedent and consequently little evidence. Sometimes they are made in

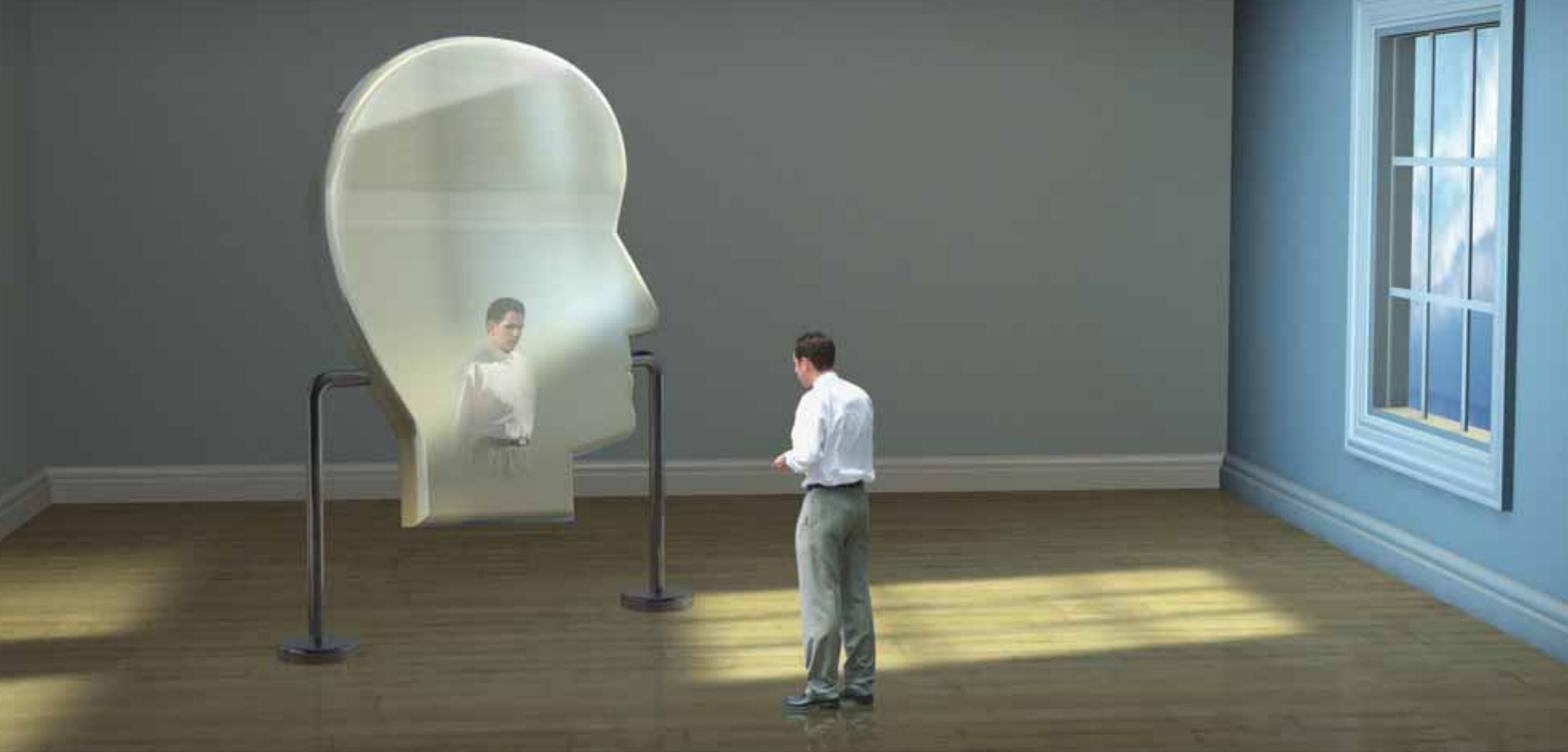
A gut is a personal, nontransferable attribute, which increases the value of a good one.

defiance of the evidence, as when Howard Schultz bucked conventional wisdom about Americans’ thirst for a \$3 cup of coffee and Robert Lutz let his emotions guide Chrysler’s \$80 million investment in a \$50,000 muscle

car. Financier George Soros claims that back pains have alerted him to discontinuities in the stock market that have made him fortunes. Such decisions are the stuff of business legend.

Decision makers have good reasons to prefer instinct. In a survey of executives that Jagdish Parikh conducted when he was a student at Harvard Business School, respondents said they used their intuitive skills as much as they used their analytical abilities, but they credited 80% of their successes to instinct. Henry Mintzberg explains that strategic thinking cries out for creativity and synthesis and thus is better suited to intuition than to analysis. And a gut is a personal, nontransferable attribute, which increases the value of a good one. Readers can parse every word that Welch and Lutz and Rudolph

1970	1972	1973	1979	1980s
<p>John D.C. Little develops the underlying theory and advances the capability of decision-support systems.</p> 	<p>Irving Janis coins the term “groupthink” for flawed decision making that values consensus over the best result.</p> <p>Michael Cohen, James March, and Johan Olsen publish “A Garbage Can Model of Organizational Choice,” which advises organizations to search their informational trash bins for solutions thrown out earlier for lack of a problem.</p>	<p>Fischer Black and Myron Scholes (in one paper) and Robert Merton (in another) show how to accurately value stock options, beginning a revolution in risk management.</p> <p>Henry Mintzberg describes several kinds of decision makers and positions decision making within the context of managerial work.</p>	<p>Victor Vroom and Philip Yetton develop the Vroom-Yetton model, which explains how different leadership styles can be harnessed to solve different types of problems.</p> <p>Amos Tversky and Daniel Kahneman publish their Prospect Theory, which demonstrates that the rational model of economics fails to describe how people arrive at decisions when facing the uncertainties of real life.</p> <p>John Rockart explores the specific data needs of chief executives, leading to the development of executive information systems.</p>	<p>“Nobody ever got fired for buying IBM” comes to stand for decisions whose chief rationale is safety.</p> 



Giuliani write. But they cannot replicate the experiences, thought patterns, and personality traits that inform those leaders' distinctive choices.

Although few dismiss outright the power of instinct, there are caveats aplenty. Behavioral economists such as Daniel Kahneman, Robert Shiller, and Richard Thaler have described the thousand natural mistakes our brains are heir to. And business examples are at least as persuasive as behavioral studies. Michael Eisner (Euro Disney), Fred Smith (ZapMail), and Soros (Russian securities) are among

the many good businesspeople who have made bad guesses, as Eric Bonabeau points out in his article "Don't Trust Your Gut" (HBR May 2003).

Of course the gut/brain dichotomy is largely false. Few decision makers ignore good information when they can get it. And most accept that there will be times they can't get it and so will have to rely on instinct. Fortunately, the intellect informs both intuition and analysis, and research shows that people's instincts are often quite good. Guts may even be trainable, suggest John Hammond, Ralph

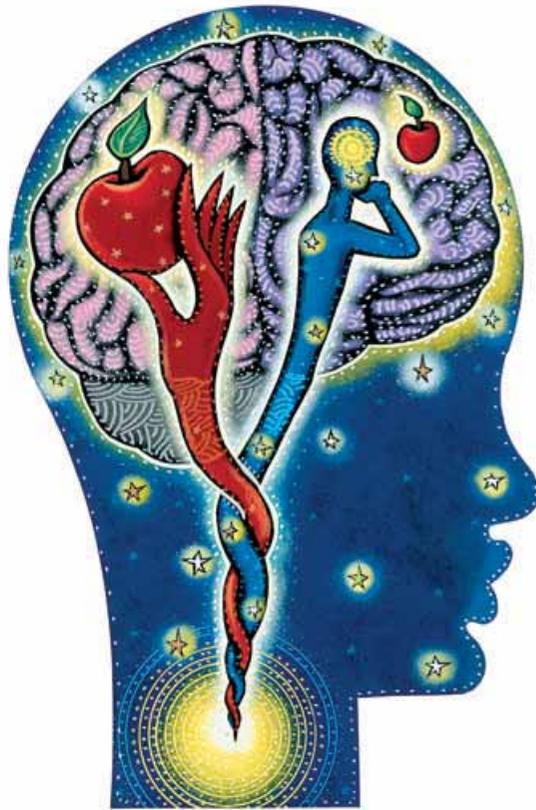
Keeney, Howard Raiffa, and Max Bazerman, among others.

In *The Fifth Discipline*, Peter Senge elegantly sums up the holistic approach: "People with high levels of personal mastery...cannot afford to choose between reason and intuition, or head and heart, any more than they would choose to walk on one leg or see with one eye." A blink, after all, is easier when you use both eyes. And so is a long, penetrating stare. 

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To order, see page 135.

1984	1989	1992	1995	1996	2005
<p>W. Carl Kester raises corporate awareness of real options by suggesting that managers think of investment opportunities as options on the company's future growth.</p> <p>Daniel Isenberg explains that executives often combine rigorous planning with intuition when faced with a high degree of uncertainty.</p>	<p>Howard Dresner introduces the term "business intelligence" to describe a set of methods that support sophisticated analytical decision making aimed at improving business performance.</p>	<p>Max Bazerman and Margaret Neale connect behavioral decision research to negotiations in <i>Negotiating Rationally</i>.</p> 	<p>Anthony Greenwald develops the Implicit Association Test, meant to reveal unconscious attitudes or beliefs that can influence judgment.</p>	<p>Web users start making buying decisions based on the buying decisions of people like themselves.</p>	<p>In <i>Blink</i>, Malcolm Gladwell explores the notion that our instantaneous decisions are sometimes better than those based on lengthy, rational analysis.</p>



The primitive, emotional parts of our brains have a powerful influence on the choices we make. Now, neuroscientists are mapping the risk and reward systems in the brain that drive our best—and worst—decision making.

DECISIONS AND DESIRE

WHEN WE MAKE DECISIONS, we're not always in charge. We can be too impulsive or too deliberate for our own good; one moment we hotheadedly let our emotions get the better of us, and the next we're paralyzed by uncertainty. Then we'll pull a brilliant decision out of thin air—and wonder how we did it. Though we may have no idea how decision making happens, neuroscientists peering into our brains are beginning to get the picture. What they're finding may not be what you want to hear, but it's worth your while to listen.

The closer scientists look, the clearer it becomes how much we're like animals. We have dog brains, basically, with a human cortex stuck on top, a veneer of civilization. This cortex is an evolutionarily recent invention that plans, deliberates, and decides. But not a second goes by that our ancient dog brains aren't conferring with our modern cortexes to influence their choices—for better and for worse—and without us even knowing it.

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DECISION MAKING

how the different parts of our brain, ancient and modern, collaborate and compete when we make decisions. Science is not going to produce anytime soon a formula for good decision making or for manipulating people's decisions (the hype surrounding "neuromarketing" notwithstanding). But the more we understand how we make decisions, the better we can manage them.

Into the Deep

Consider what happens beneath the brain's surface when people play the ultimatum game, a venerable economics experiment that pits participants against each other in a simple negotiation: One player has \$10 to split with a second player—let's say you're the recipient. She can offer you any amount, from zero to \$10, and she gets to keep the change—but only if you accept her offer. You are free to reject any offer, but if you do, neither of you gets anything. According to game theory, you should accept whatever she offers, however measly, because getting some money is better than getting none.

Of course, it doesn't work like that. In these experiments, when the offer dwindles to a few dollars, people on the receiving end consistently turn it down, forfeiting a free couple of bucks for—well, for what, exactly? Ask these participants and they'll tell you, in so many words, that they rejected the lowball offer because they were ticked off at the stingy partner (who, remember, loses her share, too). Not exactly a triumph of reason. This sounds like the dog brain at work, and it is.

Alan Sanfey, a cognitive neuroscientist at the University of Arizona, and colleagues used fMRI scans to look into people's brains while they played this game. (For a brief description of brain-scanning techniques, see the sidebar "Spots on Brains.") As offers became increasingly unfair, the anterior insula, a part of the animal brain involved in negative emotions including anger and disgust, became more and more active,

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as if registering growing outrage. Meanwhile, part of the higher brain, an area of the prefrontal cortex involved in goal orientation (in this case, making money) was busy, too, assessing the situation. By tracking the activity of these two regions, Sanfey mapped what appeared to be a struggle between emotion and reason as each sought to influence the players' decisions. Punish the bastard? Or take the money, even though the deal stinks? When the disgusted anterior insula was more active than the rational goal-oriented prefrontal cortex—in a sense, when it was shouting louder—the players rejected the offer. When the prefrontal cortex dominated, the players took the money. (For a tour of the brain, see the sidebar "Three Brains in One.")

Not a second goes by that our ancient dog brains aren't conferring with our modern cortexes to influence their choices.

Experiments like these illuminate the aggressive participation of our emotion-driven animal brains in all kinds of decision making. And they're beginning to expose the complex dance of primitive brain circuits involved in feelings of reward and aversion as we make choices. In the ultimatum game, it certainly looks as if our dog brains sometimes hijack our higher cognitive functions to drive bad or, at least, illogical decisions. But, as we shall see, our animal brains play an important part in rational decision making as well.

Emotion and Reason

Most of us are taught from early on that sound decisions come from a cool head, as the neurologist Antonio Damasio noted in his 1994 book *Descartes' Error*. The last thing one would want would be the intrusion of emotions in the methodical process of decision making. The high-reason view, Damasio writes, assumes that "formal logic will, by itself, get us to the best available solution for any problem....To obtain the best

results, emotions must be kept *out*." Damasio's research demolished that notion. Building on the work of many thinkers in the field, including Marsel Mesulam, Lennart Heimer, and Mortimer Mishkin, Damasio showed that patients with damage to the part of the prefrontal cortex that processes emotions (or, in a way, "listens" to them) often struggle with making even routine decisions.

A patient named Elliot was among the first to raise this weird possibility in Damasio's mind 20 years earlier. Elliot had been an exemplary husband, father, and businessman. But he began to suffer from severe headaches and lose track of work responsibilities. Soon, his doctors discovered an orange-sized brain tumor that was pushing into his frontal

lobes, and they carefully removed it, along with some damaged brain tissue. It was during his recovery that family and friends discovered (as Damasio put it) that "Elliot was no longer Elliot." Though his language and intelligence were fully intact, at work he became distractible and couldn't manage his schedule. Faced with an organizational task, he'd deliberate for an entire afternoon about how to approach the problem. Should he organize the papers he was working on by date? The size of the document? Relevance to the case? In effect, he was doing the organizational task *too* well, considering every possible option—but at the expense of achieving the larger goal. He could no longer effectively reach decisions, particularly personal and social ones, and despite being repeatedly shown this flaw, he could not correct it.

Though brain scans revealed isolated damage to the central (or ventromedial) portion of Elliot's frontal lobes, tests showed that his IQ, memory, learning, language, and other capacities were



fine. But when Elliot was tested for emotional responses, the true nature of his deficit emerged. After viewing emotionally charged images—pictures of injured people and burning houses—Elliot revealed that things that had once evoked strong emotions no longer stirred him. He felt nothing.

Damasio and his colleagues have since studied over 50 patients with brain damage like Elliot's who share this combination of emotional and decision-making defects. And researchers have found that patients with injuries to

parts of the limbic system, an ancient group of brain structures important in generating emotions, also struggle with making decisions. There's something critical to decision making in the conversation between emotion and reason in the brain, but what?

Call it gut. Or hunch. Or, more precisely, "prehunch," to use Damasio's term. In a famous series of experiments designed by Damasio's colleague Antoine Bechara at the University of Iowa, patients with Elliot's emotion-dampening type of brain damage were found to be

unusually slow to detect a losing proposition in a card game. (Malcolm Gladwell offers an account of this game in his best seller *Blink*.)

In the game, players picked cards from red and blue decks, winning and losing play money with each pick. The players were hooked up to lie-detector-like devices that measure skin conductance response, or CSR, which climbs as your stress increases and your palms sweat. Most players get a feeling that there's something amiss with the red decks after they turn over about 50 cards, and

DECISION MAKING

after 30 more cards, they can explain exactly what's wrong. But just ten cards into the game, their palms begin sweating when they reach for the red decks. Part of their brains *know* the red deck is a bad bet, and they begin to avoid it – even though they won't consciously recognize the problem for another 40 cards and won't be able to explain it until 30 cards after that. Long before they have a hunch about the red deck, a subconscious pre-hunch warns them away from it.

Though the brain-damaged patients eventually figured out that the red decks were rigged against them, they never

The brain's frontal lobes, so critical to decision making, don't fully mature until after puberty. Until then, the neuronal wiring that connects the prefrontal cortex to the rest of the brain is still under construction. Meanwhile, the parts of the brain that incite impulsive behavior seem particularly primed in teenagers. For instance, Gregory Berns and colleagues at Emory University found that certain still-developing circuits in adolescents' brains become hyperactive when the kids experience pleasurable novel stimuli. An adolescent's brain is wired to favor immediate

ally terminated the physical part of his affairs coldly and quickly)." Sartre's pursuits underscore a fundamental fact about how our brains experience rewards. Whether it's reacting to a sexual conquest, a risky business deal, or an addictive drug, the brain often distinguishes clearly between the thrill of the hunt and the pleasure of the feast.

The brain's desire for rewards is a principal source of bad judgment, in teenagers and adults alike. But it would be wrong to assign blame for ill-advised reward seeking to a single part of the brain. Rather, the brain has a complex reward system of circuits that spans from bottom to top, old to new. These circuits interact to motivate us to search for things we like and to let us know when we've found them. Hans Breiter, a neuroscientist at Massachusetts General Hospital, was among the first to use fMRI to explore this reward system. In collaboration with the behavioral economist Daniel Kahneman and colleagues, Breiter showed that the brain regions that respond to cocaine or morphine are the same ones that react to the prospect of getting money and to actually receiving it. It's perhaps no surprise that chocolate, sex, music, attractive faces, and sports cars also arouse this reward system. Curiously, revenge does too, as we shall see. (Though Breiter's work suggests there's great overlap between the brain's reward-seeking and loss-aversion circuits, for simplicity this article will discuss them separately.)

The reward circuits depend on a soup of chemicals to communicate, chief among them the neurotransmitter dopamine. Dopamine is often referred to as the brain's "pleasure chemical," but that's a misnomer. It's more of a pleasure facilitator or regulator. (The writer Steven Johnson calls it a "pleasure accountant.") Produced in the ancient structures of our animal brains, it helps to regulate the brain's appetite for rewards and its sense of how well rewards meet expectations.

Well-regulated appetites are crucial to survival. Without these drives, our ancestors wouldn't have hunted for food

Much of the traffic between the primitive and modern parts of our brains is devoted to the conscious calculation of risks and rewards.

developed palm-dampening CSRs. And, even though they consciously knew better, they continued to pick red cards. What were they missing? The injured parts of their brains in the prefrontal cortex seemed unable to process the emotional signals that guide decision making. Without this emotion interpreter pushing them in the right direction (toward the winning decks), these patients were left spinning their wheels, unable to act on what they knew. They couldn't decide, apparently, what was in their own best interest. You could say they lacked good judgment.

Risk and Reward

You don't have to be a neuroscientist to see how the emotional brain can badly distort judgment. Just ask any parent. From the toddler climbing the shelves to get candy to the teenager sneaking off for unprotected sex, kids have a dangerous shortage of common sense. Their bad behavior often looks consciously defiant (and sometimes it is), but the real problem may be that their brains haven't yet developed the circuitry that judiciously balances risks and rewards to yield level-headed decisions. This is where the neuroscientists can offer special insight.

and surprising rewards, even when the teen knows full well that pursuing them may be a bad idea.

In a sense, teenagers have yet to complete the wiring that manifests as willpower. The prefrontal cortex, it appears, is the seat of willpower – the ability to take the long-term perspective in evaluating risks and rewards. As such, this area of the brain is in close contact with the structures and circuits of the emotional animal brain that seek gratification and alert us to danger.

Much of the traffic between the primitive and modern parts of our brains is devoted to this conscious calculation of risks and rewards. Though animals' reward and aversion circuitry is a lot like ours, unlike most animals, we can look out at the horizon and contemplate what might flow from a decision to chase immediate gratification. And we can get immediate pleasure from the prospect of some future gratification.

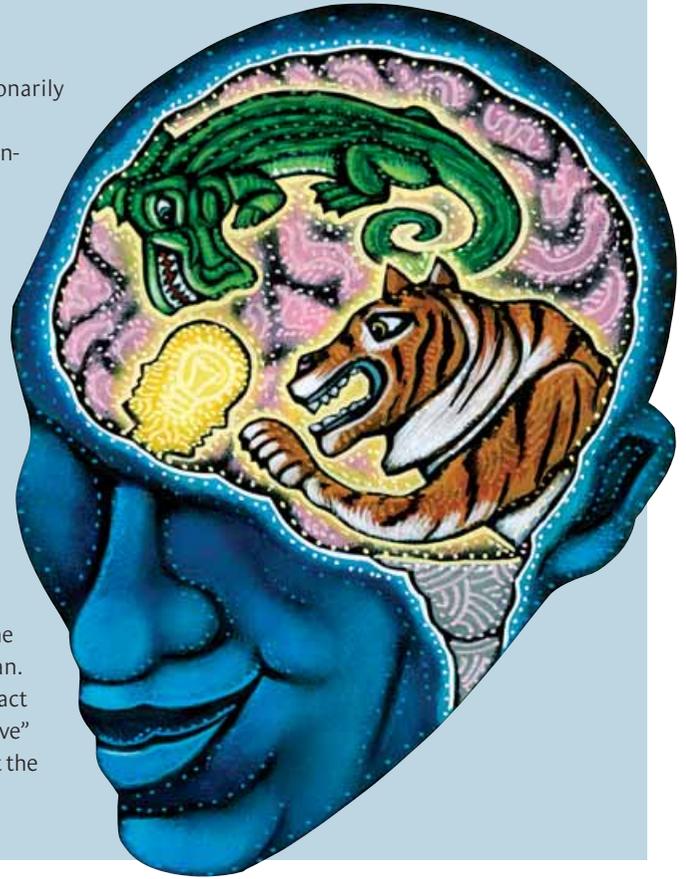
Thrill of the Hunt

Jean-Paul Sartre was a famous womanizer, but for him the excitement was in the chase. As Louis Menand wrote of him in the *New Yorker*, "He took enormous satisfaction in the conquest but little pleasure in the sex (and so he usu-

Three Brains in One

Think of your brain as composed of three layers, the evolutionarily oldest and simplest at the center and the most modern and complex on the outside. At the top of the spinal cord—the center of the brain—lie the most primitive structures, ones we share with reptiles and fish, which control basic survival functions like breathing and hunger. Wrapped around these is the ancient limbic system, which we share with dogs and other mammals. Containing the thalamus, amygdala, and hippocampus, it is the seat of basic emotions such as fear, aggressiveness, and contentment. It's the part of the brain that allows your dog to seem so pleased that you're home while your fish couldn't care less.

Encasing these older structures is the modern cortex, the folded gray matter that we all recognize as the human brain. Dogs, chimps, and other mammals have cortices, but ours has grown to a huge size. The cortex manages all sorts of higher brain processes like hearing and vision. The frontal lobes and, in particular, the prefrontal cortex (at the front of the frontal lobes) are the parts that make us human. They are the center of personality, reasoning, and abstract thought. Often, the prefrontal cortex is called the “executive” part of the brain because it considers input from throughout the brain in goal formation and planning.



or pursued sexual partners, and you wouldn't be here to read this article. By the same token, unchecked reward seeking isn't very adaptive either, as patients with disrupted dopamine systems demonstrate. Consider what happened to Bruce (as I will call him), a

his wife's growing alarm, he began to demand sex several times a day.

Bruce's story would be little more than a footnote in the medical literature but for one twist: He had Parkinson's disease, and just before his compulsions began, his neurologist had added

sires – to gamble, to shop, to have sex many times a day – simply vanished. It was, he said, “like a light switch being turned off.”

Cases like Bruce's reveal the extraordinary power of our dopamine-fueled appetite for rewards – as distinct from the rewards themselves – to ride roughshod over reason. But what about the rest of us who go about our reward-seeking business in apparently more balanced ways? We clearly do a better job of weighing trade-offs than Bruce did, but much of the same circuitry is at work – and, as such, sometimes our pursuits aren't as rational as we think they are.

Show me the money. Economists have assumed that people work because they place value on the things money can buy (or, in economic terms, they gauge “utility”). But neuroscience studies show how chasing money is its own reward. In one set of experiments, Stanford neuroscientist Brian Knutson used fMRI to watch subjects' brains as they

Whether reacting to a sexual conquest, a risky business deal, or an addictive drug, the brain distinguishes between the thrill of the hunt and the pleasure of the feast.

computer programmer, who had had no history of psychiatric problems. Bruce had never been a gambler, but at the age of 41, he abruptly began compulsively gambling, frittering away thousands of dollars in a matter of weeks over the Internet. He began to shop compulsively, too, buying things that he neither needed nor wanted. And to

a new drug to his regimen – pramipexole – which relieves the tremors of the disease by mimicking dopamine. When Bruce described his worrisome new passions to his neurologist, the doctor, suspecting the pramipexole might be involved, advised him to reduce his dose. Bruce stopped taking the drug altogether, and two days later, his de-

DECISION MAKING

reacted to the prospect of receiving money. Among the brain regions that lit up in this experiment was the nucleus accumbens, signaling in its primitive way, “You *want* this.” (Rats with electrodes planted near the accumbens will press a lever to stimulate the area until they drop from exhaustion.) The higher the potential monetary reward, the more active the accumbens became. But activity ceased by the time the subjects actually *received* the money—suggesting that it was the anticipation, and not the reward itself, that aroused them.

As Knutson puts it, the nucleus accumbens seems to act as a gas pedal that accelerates our drive for rewards, while the relevant part of the prefrontal cortex is the steering wheel that directs reward seeking toward specific goals. When it comes to making money, having the accumbens on the gas pedal is often desirable—it motivates high performance at work among other things. But when you step on the gas, you want to be pointed in the right direction.

Sweet revenge. It’s no surprise that the prospect of money or food or sex stimulates our reward circuits. But revenge? Consider Clara Harris. Her name may not ring a bell, but her case probably will. Harris is the Houston dentist who, upon encountering her husband and his receptionist-turned-mistress in a hotel parking lot in 2002, ran him down with her Mercedes. What was she *thinking*? According to an Associated

and the jury’s conclusion that she acted with “sudden passion” suggest a woman in a vengeful rage whose emotional brain overwhelmed any rational deliberation. We do know that a desire to retaliate, to punish others’ bad behavior, however mild, even at personal cost, can skew decision making. Recall the ultimatum card game, in which a player could accept or reject another player’s offer of money. Alan Sanfey’s brain

A desire to punish others’ bad behavior, however mild—even at personal cost—can skew decision making.

Press report at the time of her murder conviction in 2003, Harris testified, “I didn’t know who was driving...everything seemed like a dream.” As she put it, “I wasn’t thinking anything.”

No one can know exactly what was going on in Harris’s mind when she hit the accelerator. But her own testimony

scans of people feeling vengeful in these games show how (at least in part) a sense of moral disgust manifests in the brain. But anyone who has settled a score knows that a desire for vengeance is more than an angry response to a bad feeling. Revenge, as they say, is sweet—even *contemplating* it is.

ACT OF DESPERATION? STROKE OF GENIUS?



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When University of Zurich researchers Dominique J.F. de Quervain, Ernst Fehr, and colleagues scanned subjects with a PET device during an ultimatum-like game, they found certain reward circuits in the brain's striatum activated when players anticipated, and then actually punished, ill-behaved partners. What's more, the greater the activation of the striatum, the greater the subjects' willingness to incur costs for the opportunity to deliver punishment. At the same time, the researchers saw activation in the medial prefrontal cortex, the deliberative part of the higher brain that's thought to weigh risks and rewards. Once again, neuroscientists seem to have caught on camera an engagement between the emotional and reasoning parts of the brain.

These same brain regions—the reward-seeking striatum and the deliberative prefrontal cortex, both of which are activated by the pleasing possibility of revenge – also light up when people anticipate giving rewards to partners who cooperate. Though the players' behaviors are opposite – bestowing a reward versus exacting punishment – their brains react in the same way in eager anticipation of a satisfying social experience.

Fear and Loathing

Like the brain's reward circuits, its systems for sensing and making decisions about risks are powerful and prone to error. Often this fact confronts us directly. Many people, for instance, have a paralyzing fear of flying that's unrelated to its true risks. All the time, people make the irrational decision to travel by car rather than fly, believing on a gut level that it's safer, even though they know it's not.

This behavior is partly the work of the amygdala, a structure near the base of the brain. Colin Camerer, a behavioral and experimental economist at the California Institute of Technology, calls the amygdala an “internal hypochondriac” which provides quick and dirty emotional signals in response to potential threats. It's also been called the “fear site,” responsible for both producing

fear responses and learning from experience to be afraid of certain stimuli. The amygdala responds instantaneously to all manner of perceived potential threats and pays particular attention to social cues. This leads to good and, often, very bad decisions.

Face your fear. Look at how the amygdala influences first impressions: Brain-scanning experiments show that it activates when people see spiders, snakes, frightening expressions, faces that look untrustworthy – and faces of another race. It's easy to see how a “*that's a threat*” response to a snake could guide good decisions, particularly a million years ago out on the savanna. But a gut reaction that says “*watch out*” when you see a face of a different race?

MRI studies have shown that the amygdala becomes more active when whites see black faces than when they see white faces; similarly, in blacks, the amygdala reacts more to white faces than black ones. Taken alone, this finding says nothing about people's conscious attitudes. But research by Harvard social ethicist Mahzarin Banaji and colleagues shows that even people who consciously believe they have no racial bias often do have negative unconscious feelings toward “outgroups” – people not like themselves. (For more on this work, see “How (Un)ethical Are You?” by Banaji, Max Bazerman, and Dolly Chugh in the December 2003 issue of *Harvard Business Review*.) Investigators have found, too, that the greater a person's unconscious bias on these tests, the more active the amygdala.

Researchers are very cautious in interpreting these findings. The facile conclusion that our animal brains automatically fear people of other races is probably not right. But this and related work does suggest that our brains are wired so that we're primed in a way—we learn easily—to go on alert when we encounter people who seem different. (Research also suggests that this primed response can be reduced by positive exposure to people of other races – but that's a different article.)

On the one hand, we should be happy that our amygdalas warn us of potential

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dangers before our conscious brains grasp that something's amiss. But a brain circuit that was indispensable to our ancestors, warning them away from legitimate threats like snakes, certainly contributes to an array of bad and irrational decisions today. In the case of our readiness to fear outgroups, think of the countless missed opportunities and just plain bad decisions made by good people who consciously hold no racial biases but who nonetheless have gone with an inchoate gut sense to withhold a job offer, deny a promotion, or refuse a loan because their amygdalas, for no good reason, said, "Watch out."

Wheel of misfortune. The amygdala's role in warning us about perils real and imagined seems to extend even to the threat of losing money. In Breiter's lab, researchers monitored brain activity while volunteers watched images of roulette-like wheels, each with a spinning arrow that would come to a stop on a particular dollar amount, either a gain, a loss, or zero. It was obvious at a glance that some wheels were likely to produce dollar wins while others were clearly losers. When the losing

The amygdala activates when people see spiders, frightening expressions, faces that look untrustworthy – and faces of another race.

wheels spun, subjects' amygdalas activated even before the arrows stopped, signaling their discomfort about the losses they saw coming.

Beyond the amygdala, the brain has another risk-aversion region that steers us from disagreeable stimuli. Recall in the ultimatum game that it was the anterior insula that reacted with disgust to the other player's rotten offer; this region also activates when people think they're about to experience pain or see something shocking. Like our reward-seeking circuitry, loss-avoidance circuits involving the amygdala and anterior insula serve us well – when they're not driving us to overact and make bad decisions.

Spots on Brains

Eye-popping color images of brain scans in the popular press imply that scientists are pinpointing the precise location in the brain of feelings like fear, disgust, pleasure, and trust. But the researchers doing this work are highly circumspect about just what these colorful spots show. The two most common scanning methods, PET (positron emission tomography) and fMRI (functional magnetic resonance imaging), offer only approximations of what's really going on in the brain. PET, the older and less popular of the two, measures blood flow in the brain; fMRI measures the amount of oxygen in the blood. Local blood flow and oxygenation indicate how active a part of the brain is but offer a crude snapshot at best. These scanners typically can't see anything smaller than a peppercorn and can take only one picture every two seconds. But neural activity in the brain can occur in a fraction of the space and time that scanners can reveal. Thus, the splashy images we see are impressionistic, and the conclusions researchers draw about them are usually qualified – and often disputed. Like the images themselves, the details of brain function are just beginning to come into focus.

Consider investment decisions. Investors who should be focused on maximizing utility routinely take risks when they shouldn't and don't take risks when they should. (Among the biases that skew utility seeking is that people weigh equivalent losses and

and the other to lose money (the "bad" stock). Kuhnen and Knutson found that, even when players had developed a sense of which was the good stock, they'd still often head for the riskless bond after they'd made a losing stock choice – what the researchers called a risk-aversion mistake. In other words, even though they should have known to pick the good stock on each round, when they got stung with a loss they'd often irrationally retreat.

The MRI scans revealed this risk-aversiveness unfolding. Prior to choosing the safety of the bond, the players' anterior insulas would activate, signaling their (perhaps not-yet-conscious) anxiety. In fact, the more active this primitive risk-anticipating brain region, the more risk averse players were – often to their own detriment.

Know Your Brain

Controversial though some of his ideas may be, Freud wasn't so far off when he posited the struggle between the animalistic id and the rational superego. But he may have been too generous in his assessment of the superego's ability to channel our emotions. Neuroscientists are showing that the emotional and deliberative circuits in the brain are in constant interaction (some would

say struggle), and the former, for better or for worse, often holds sway. What's more, with each new study it becomes clearer just how quickly, subtly, and powerfully our unconscious impulses work. Flash a picture of an angry or a happy face on a screen for a few hundredths of a second, and your amygdala instantly reacts—but *you*, your conscious self, have no idea what you saw.

MGH's Breiter believes the more we learn about the brain science of motivation, the more readily it can be applied in business. "People's decision-making and management styles probably arise from common motivational impulses in the brain," he points out. "If a manager is hardwired to be more risk seeking, or risk avoiding, or more driven to pursue a goal than to achieve it, that's going to affect how he manages and makes decisions." With our increasingly clear understanding of how basic motivations affect conscious decisions, Breiter says, it should be possible to tailor incentives accordingly. A manager who

shows a preference for the hunt might, for instance, be well served by incentives that increase his motivation to reach goals rather than simply chase them.

Neuroscience research also teaches us that our emotional brains needn't always operate beneath our radar. Richard Peterson, a psychiatrist who applies behavioral economics theory in his investment consulting business, advises clients to cultivate emotional self-awareness, notice their moods as they happen, and reflect on how their moods may influence their decisions. In particular, he advises people to pay close attention to feelings of excitement (a heightened expression of reward seeking) and fear (an intense expression of loss aversion) and ask, when such a feeling arises, "What causes this? Where did these feelings come from? What is the context in which I'm having these feelings?" By consciously monitoring moods and the related decisions, Peterson says, people can become more savvy users of their gut feelings.

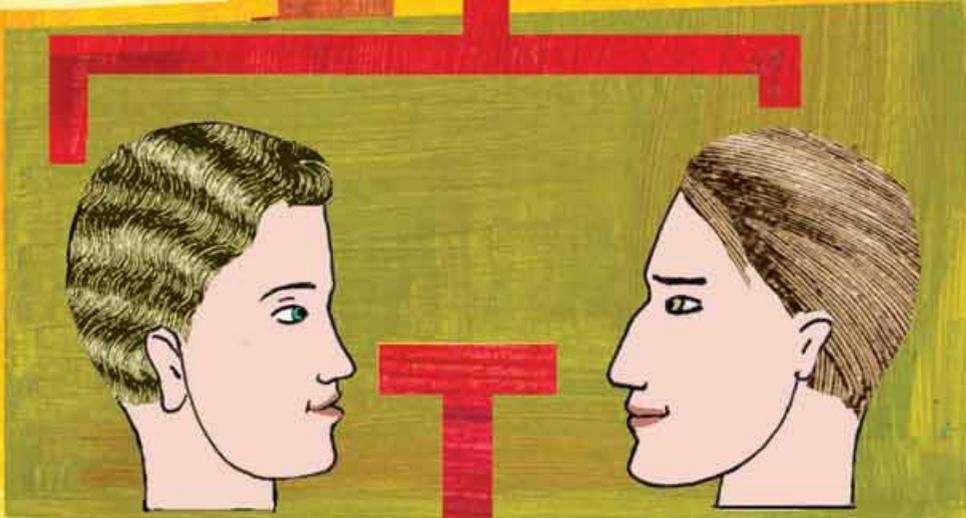
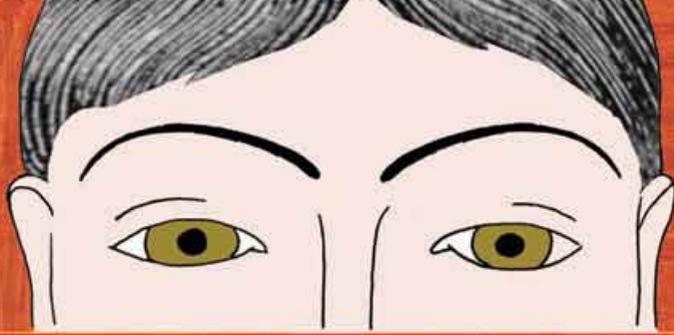
This advice may sound familiar; it lies at the heart of books like *Blink* and Gary Klein's *The Power of Intuition*, which promise to help readers harness their gut feelings. But for executives taught to methodically frame problems, consider alternatives, collect data, weigh the options, and then decide, cultivating emotional self-awareness may seem like a dispensable exercise – or at least not a critical tool in decision making. The picture emerging from the neuroscience labs is that you ignore your gut at your own peril. Whether you're negotiating an acquisition, hiring an employee, jockeying for a promotion, granting a loan, trusting a partner – taking any gamble – be aware that your dog brain is busy in increasingly predictable, measurable ways with its own assessment of the situation and often its own agenda. You'd better be paying attention. 

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Before the invention of paper and scissors.



Your organization can become more decisive – and can implement strategy more quickly – if you know where the bottlenecks are and who’s empowered to break through them.

by Paul Rogers and Marcia Blenko

WHO HAS THE



How Clear Decision Roles Enhance Organizational Performance

DECISIONS ARE THE COIN OF THE REALM IN BUSINESS. Every success, every mishap, every opportunity seized or missed is the result of a decision that someone made or failed to make. At many companies, decisions routinely get stuck inside the organization like loose change. But it’s more than loose change that’s at stake, of course; it’s the performance of the entire organization. Never mind

DECISION MAKING

what industry you're in, how big and well known your company may be, or how clever your strategy is. If you can't make the right decisions quickly and effectively, and execute those decisions consistently, your business will lose ground.

Indeed, making good decisions and making them happen quickly are the hallmarks of high-performing organizations. When we surveyed executives at 350 global companies about their organizational effectiveness, only 15% said that they have an organization that helps the business outperform competitors. What sets those top performers apart is the quality, speed, and execution of their decision making. The most effective organizations score well on the major strategic decisions – which markets to enter or exit, which businesses to buy or sell, where to allocate capital and talent. But they truly shine

a major capital investment, for example, depend on the approval of the business unit that will own it, or should headquarters make the final call?

Function versus function decision making is perhaps the most common bottleneck. Every manufacturer, for instance, faces a balancing act between product development and marketing during the design of a new product. Who should decide what? Cross-functional decisions too often result in ineffective compromise solutions, which frequently need to be revisited because the right people were not involved at the outset.

The fourth decision-making bottleneck, *inside versus outside partners*, has become familiar with the rise of outsourcing, joint ventures, strategic alliances, and franchising. In such arrangements, companies need to be absolutely clear about which decisions can be owned by

A good decision executed quickly beats a brilliant decision implemented slowly.

when it comes to the critical operating decisions requiring consistency and speed – how to drive product innovation, the best way to position brands, how to manage channel partners.

Even in companies respected for their decisiveness, however, there can be ambiguity over who is accountable for which decisions. As a result, the entire decision-making process can stall, usually at one of four bottlenecks: global versus local, center versus business unit, function versus function, and inside versus outside partners.

The first of these bottlenecks, *global versus local* decision making, can occur in nearly every major business process and function. Decisions about brand building and product development frequently get snared here, when companies wrestle over how much authority local businesses should have to tailor products for their markets. Marketing is another classic global versus local issue – should local markets have the power to determine pricing and advertising?

The second bottleneck, *center versus business unit* decision making, tends to afflict parent companies and their subsidiaries. Business units are on the front line, close to the customer; the center sees the big picture, sets broad goals, and keeps the organization focused on winning. Where should the decision-making power lie? Should

the external partner (usually those about the execution of strategy) and which must continue to be made internally (decisions about the strategy itself). In the case of outsourcing, for instance, brand-name apparel and footwear marketers once assumed that overseas suppliers could be responsible for decisions about plant employees' wages and working conditions. Big mistake.

Clearing the Bottlenecks

The most important step in unclogging decision-making bottlenecks is assigning clear roles and responsibilities. Good decision makers recognize which decisions really matter to performance. They think through who should recommend a particular path, who needs to agree, who should have input, who has ultimate responsibility for making the decision, and who is accountable for follow-through. They make the process routine. The result: better coordination and quicker response times.

Companies have devised a number of methods to clarify decision roles and assign responsibilities. We have used an approach called RAPID, which has evolved over the years, to help hundreds of companies develop clear decision-making guidelines. It is, for sure, not a panacea (an indecisive decision maker, for example, can ruin any good system), but it's an important start. The letters in RAPID stand for the primary roles in any decision-making process, although these roles are not performed exactly in this order: recommend, agree, perform, input, and decide – the “D.” (See the sidebar “A Decision-Making Primer.”)

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A Decision-Making Primer

Good decision making depends on assigning clear and specific roles. This sounds simple enough, but many companies struggle to make decisions because lots of people feel accountable—or no one does. RAPID and other tools used to analyze decision making give senior management teams a method for assigning roles and involving the relevant people. The key is to be clear who has input, who gets to decide, and who gets it done.

The five letters in RAPID correspond to the five critical decision-making roles: recommend, agree, perform, input, and decide. As you'll see, the roles are not carried out lockstep in this order—we took some liberties for the sake of creating a useful acronym.

Recommend >> People in this role are responsible for making a proposal, gathering input, and providing the right data and analysis to make a sensible decision in a timely fashion. In the course of developing a proposal, recommenders consult with the people who provide input, not just hearing and incorporating their views but also building buy in along the way. Recommenders must have analytical skills, common sense, and organizational smarts.

Agree >> Individuals in this role have veto power—yes or no—over the recommendation. Exercising the veto triggers a debate between themselves and the recommenders, which should lead to a modified proposal. If that takes too long, or if the two parties simply can't agree, they can escalate the issue to the person who has the D.

Input >> These people are consulted on the decision. Because the people who provide input are typically involved in implementation, recommenders have a strong interest in taking their advice seriously. No input is binding, but this shouldn't undermine its importance. If the right people are not involved and motivated, the decision is far more likely to falter during execution.

Decide >> The person with the D is the formal decision maker. He or she is ultimately accountable for the decision, for better or worse, and has the authority to

resolve any impasse in the decision-making process and to commit the organization to action.

Perform >> Once a decision is made, a person or group of people will be responsible for executing it. In some instances, the people responsible for implementing a decision are the same people who recommended it.

Writing down the roles and assigning accountability are essential steps, but good decision making also requires the right process. Too many rules can cause the process to collapse under its own weight. The most effective process is grounded in specifics but simple enough to adapt if necessary.

When the process gets slowed down, the problem can often be traced back to one of three trouble spots. First is a lack of clarity about who has the D. If more than one person think they have it for a particular decision, that decision will get caught up in a tug-of-war. The flip side can be equally damaging: No one is accountable for crucial decisions, and the business suffers. Second, a proliferation of people who have veto power can make life tough for recommenders. If a company has too many people in the "agree" role, it usually means that decisions are not pushed down far enough in the organization. Third, if there are a lot of people giving input, it's a signal that at least some of them aren't making a meaningful contribution.

The people who *recommend* a course of action are responsible for making a proposal or offering alternatives. They need data and analysis to support their recommendations, as well as common sense about what's reasonable, practical, and effective.

The people who *agree* to a recommendation are those who need to sign off on it before it can move forward. If they veto a proposal, they must either work with the recommender to come up with an alternative or elevate the issue to the person with the D. For decision making to function smoothly, only a few people should have such veto power. They may be executives responsible for legal

or regulatory compliance or the heads of units whose operations will be significantly affected by the decision.

People with *input* responsibilities are consulted about the recommendation. Their role is to provide the relevant facts that are the basis of any good decision: How practical is the proposal? Can manufacturing accommodate the design change? Where there's dissent or contrasting views, it's important to get these people to the table at the right time. The recommender has no obligation to act on the input he or she receives but is expected to take it into account—particularly since the people who provide input are generally among those who must implement

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a decision. Consensus is a worthy goal, but as a decision-making standard, it can be an obstacle to action or a recipe for lowest-common-denominator compromise. A more practical objective is to get everyone involved to buy in to the decision.

Eventually, one person will *decide*. The decision maker is the single point of accountability who must bring the decision to closure and commit the organization to act on it. To be strong and effective, the person with the D needs good business judgment, a grasp of the relevant trade-offs, a bias for action, and a keen awareness of the organization that will execute the decision.

The final role in the process involves the people who will *perform* the decision. They see to it that the decision is implemented promptly and effectively. It's a crucial role. Very often, a good decision executed quickly beats a brilliant decision implemented slowly or poorly.

RAPID can be used to help redesign the way an organization works or to target a single bottleneck. Some companies use the approach for the top ten to 20 decisions, or just for the CEO and his or her direct reports. Other companies use it throughout the organization – to improve customer service by clarifying decision roles on the front line, for instance. When people see an effective process for making decisions, they spread the word. For example, after senior managers at a major U.S. retailer

The trick in decision making is to avoid becoming either mindlessly global or hopelessly local. If decision-making authority tilts too far toward global executives, local customers' preferences can easily be overlooked, undermining the efficiency and agility of local operations. But with too much local authority, a company is likely to miss out on crucial economies of scale or opportunities with global clients.

To strike the right balance, a company must recognize its most important sources of value and make sure that decision roles line up with them. This was the challenge facing Martin Broughton, the former CEO and chairman of British American Tobacco, the second-largest tobacco company in the world. In 1993, when Broughton was appointed chief executive, BAT was losing ground to its nearest competitor. Broughton knew that the company needed to take better advantage of its global scale, but decision roles and responsibilities were at odds with this goal. Four geographic operating units ran themselves autonomously, rarely collaborating and sometimes even competing. Achieving consistency across global brands proved difficult, and cost synergies across the operating units were elusive. Industry insiders joked that “there are seven major tobacco companies in the world – and four of them are British American Tobacco.” Broughton vowed to change the punch line.

The trick in decision making is to avoid becoming either mindlessly global or hopelessly local.

used RAPID to sort out a particularly thorny set of corporate decisions, they promptly built the process into their own functional organizations.

To see the process in action, let's look at the way four companies have worked through their decision-making bottlenecks.

Global Versus Local

Every major company today operates in global markets, buying raw materials in one place, shipping them somewhere else, and selling finished products all over the world. Most are trying simultaneously to build local presence and expertise, and to achieve economies of scale. Decision making in this environment is far from straightforward. Frequently, decisions cut across the boundaries between global and local managers, and sometimes across a regional layer in between: What investments will streamline our supply chain? How far should we go in standardizing products or tailoring them for local markets?

The chief executive envisioned an organization that could take advantage of the opportunities a global business offers—global brands that could compete with established winners such as Altria Group's Marlboro; global purchasing of important raw materials, including tobacco; and more consistency in innovation and customer management. But Broughton didn't want the company to lose its nimbleness and competitive hunger in local markets by shifting too much decision-making power to global executives.

The first step was to clarify roles for the most important decisions. Procurement became a proving ground. Previously, each operating unit had identified its own suppliers and negotiated contracts for all materials. Under Broughton, a global procurement team was set up in headquarters and given authority to choose suppliers and negotiate pricing and quality for global materials, including bulk tobacco and certain types of packaging. Regional procurement teams were now given input into global materials strategies but ultimately had to implement the team's decision. As soon as the global team

A Recipe for a Decision-Making Bottleneck

At one automaker we studied, marketers and product developers were confused about who was responsible for making decisions about new models.

When we asked, “Who has the right to decide which features will be standard?”

64% of product developers said, “We do.”

83% of marketers said, “We do.”

When we asked, “Who has the right to decide which colors will be offered?”

77% of product developers said, “We do.”

61% of marketers said, “We do.”

Not surprisingly, the new models were delayed.

signed contracts with suppliers, responsibility shifted to the regional teams, who worked out the details of delivery and service with the suppliers in their regions. For materials that did not offer global economies of scale (mentholated filters for the North American market, for example), the regional teams retained their decision-making authority.

As the effort to revamp decision making in procurement gained momentum, the company set out to clarify roles in all its major decisions. The process wasn't easy. A company the size of British American Tobacco has a huge number of moving parts, and developing a practical system for making decisions requires sweating lots of details. What's more, decision-making authority is power, and people are often reluctant to give it up.

It's crucial for the people who will live with the new system to help design it. At BAT, Broughton created working groups led by people earmarked, implicitly or explicitly, for leadership roles in the future. For example, Paul Adams, who ultimately succeeded Broughton as chief executive, was asked to lead the group charged with re-designing decision making for brand and customer management. At the time, Adams was a regional head within one of the operating units. With other senior executives, including some of his own direct reports, Broughton specified that their role was to provide input, not to veto recommendations. Broughton didn't make the common mistake of seeking consensus, which is often an obstacle to action. Instead, he made it clear that the objective was not deciding whether to change the decision-making process but achieving buy in about how to do so as effectively as possible.

The new decision roles provided the foundation the company needed to operate successfully on a global basis

while retaining flexibility at the local level. The focus and efficiency of its decision making were reflected in the company's results: After the decision-making overhaul, British American Tobacco experienced nearly ten years of growth well above the levels of its competitors in sales, profits, and market value. The company has gone on to have one of the best-performing stocks on the UK market and has reemerged as a major global player in the tobacco industry.

Center Versus Business Unit

The first rule for making good decisions is to involve the right people at the right level of the organization. For BAT, capturing economies of scale required its global team to appropriate some decision-making powers from regional divisions. For many companies, a similar balancing act takes place between executives at the center and managers in the business units. If too many decisions flow to the center, decision making can grind to a halt. The problem is different but no less critical if the decisions that are elevated to senior executives are the wrong ones.

Companies often grow into this type of problem. In small and midsize organizations, a single management team – sometimes a single leader – effectively handles every major decision. As a company grows and its operations become more complex, however, senior executives can no longer master the details required to make decisions in every business.

A change in management style, often triggered by the arrival of a new CEO, can create similar tensions. At a large British retailer, for example, the senior team was accustomed to the founder making all critical decisions.

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When his successor began seeking consensus on important issues, the team was suddenly unsure of its role, and many decisions stalled. It's a common scenario, yet most management teams and boards of directors don't specify how decision-making authority should change as the company does.

A growth opportunity highlighted that issue for Wyeth (then known as American Home Products) in late 2000. Through organic growth, acquisitions, and partnerships, Wyeth's pharmaceutical division had developed three sizable businesses: biotech, vaccines, and traditional pharmaceutical products. Even though each business had its own market dynamics, operating requirements, and research focus, most important decisions were pushed up to one group of senior executives. "We were using generalists across all issues," said Joseph M. Mahady, president of North American and global businesses for Wyeth Pharmaceuticals. "It was a signal that we weren't getting our best decision making."

The problem crystallized for Wyeth when managers in the biotech business saw a vital – but perishable – opportunity to establish a leading position with Enbrel, a promising rheumatoid arthritis drug. Competitors were

the decisions that required the senior team's input, such as marketing strategy and manufacturing capacity.

In short order, Wyeth gave authority for many decisions to business unit managers, leaving senior executives with veto power over some of the more sensitive issues related to Grange Castle. But after that investment decision was made, the D for many subsequent decisions about the Enbrel business lay with Cavan Redmond, the executive vice president and general manager of Wyeth's biotech division, and his new management team. Redmond gathered input from managers in biotech manufacturing, marketing, forecasting, finance, and R&D, and quickly set up the complex schedules needed to collaborate with Immunex. Responsibility for execution rested firmly with the business unit, as always. But now Redmond, supported by his team, also had authority to make important decisions.

Grange Castle is paying off so far. Enbrel is among the leading brands for rheumatoid arthritis, with sales of \$1.7 billion through the first half of 2005. And Wyeth's metabolism for making decisions has increased. Recently, when the U.S. Food and Drug Administration granted priority review status to another new drug, Tygacil, because

Many of the most important cross-functional decisions are, by their very nature, the most difficult to orchestrate.

working on the same class of drug, so Wyeth needed to move quickly. This meant expanding production capacity by building a new plant, which would be located at the Grange Castle Business Park in Dublin, Ireland.

The decision, by any standard, was a complex one. Once approved by regulators, the facility would be the biggest biotech plant in the world – and the largest capital investment Wyeth had ever undertaken. Yet peak demand for the drug was not easy to determine. What's more, Wyeth planned to market Enbrel in partnership with Immunex (now a part of Amgen). In its deliberations about the plant, therefore, Wyeth needed to factor in the requirements of building up its technical expertise, technology transfer issues, and an uncertain competitive environment.

Input on the decision filtered up slowly through a gauze of overlapping committees, leaving senior executives hungry for a more detailed grasp of the issues. Given the narrow window of opportunity, Wyeth acted quickly, moving from a first look at the Grange Castle project to implementation in six months. But in the midst of this process, Wyeth Pharmaceuticals' executives saw the larger issue: The company needed a system that would push more decisions down to the business units, where operational knowledge was greatest, and elevate

of the antibiotic's efficacy against drug-resistant infections, Wyeth displayed its new reflexes. To keep Tygacil on a fast track, the company had to orchestrate a host of critical steps – refining the process technology, lining up supplies, ensuring quality control, allocating manufacturing capacity. The vital decisions were made one or two levels down in the biotech organization, where the expertise resided. "Instead of debating whether you can move your product into my shop, we had the decision systems in place to run it up and down the business units and move ahead rapidly with Tygacil," said Mahady. The drug was approved by the FDA in June 2005 and moved into volume production a mere three days later.

Function Versus Function

Decisions that cut across functions are some of the most important a company faces. Indeed, cross-functional collaboration has become an axiom of business, essential for arriving at the best answers for the company and its customers. But fluid decision making across functional teams remains a constant challenge, even for companies known for doing it well, like Toyota and Dell. For instance, a team that thinks it's more efficient to make a decision without consulting other

functions may wind up missing out on relevant input or being overruled by another team that believes—rightly or wrongly—it should have been included in the process. Many of the most important cross-functional decisions are, by their very nature, the most difficult to orchestrate, and that can string out the process and lead to sparring between fiefdoms and costly indecision.

The theme here is a lack of clarity about who has the D. For example, at a global auto manufacturer that was missing its milestones for rolling out new models—and was paying the price in falling sales—it turned out that marketers and product developers were confused about which function was responsible for making decisions about standard features and color ranges for new models. When we asked the marketing team who had the D about which features should be standard, 83% said the marketers did. When we posed the same question to product developers, 64% said the responsibility rested with them. (See the exhibit “A Recipe for a Decision-Making Bottleneck.”)

The practical difficulty of connecting functions through smooth decision making crops up frequently at retailers. John Lewis, the leading department store chain in the United Kingdom, might reasonably expect to overcome this sort of challenge more readily than other retailers. Spedan Lewis, who built the business in the early twentieth century, was a pioneer in employee ownership. A strong connection between managers and employees permeated every aspect of the store’s operations and remained vital to the company as it grew into the largest employee-owned business in the United Kingdom, with 59,600 employees and more than £5 billion in revenues in 2004.

Even at John Lewis, however, with its heritage of cooperation and teamwork, cross-functional decision making can be hard to sustain. Take salt and pepper mills, for instance. John Lewis, which prides itself on having great selection, stocked nearly 50 SKUs of salt and pepper mills, while most competitors stocked around 20. The company’s buyers saw an opportunity to increase sales and reduce complexity by offering a smaller number of popular and well-chosen products in each price point and style.

When John Lewis launched the new range, sales fell. This made no sense to the buyers until they visited the stores and saw how the merchandise was displayed. The buyers had made their decision without fully involving the sales staff, who therefore did not understand the strategy behind the new selection. As a result, the sellers had cut shelf space in half to match the reduction in range, rather than devoting the same amount of shelf space to stocking more of each product.

To fix the communication problem, John Lewis needed to clarify decision roles. The buyers were given the D on how much space to allocate to each product category. If the space allocation didn’t make sense to the sales staff,

The Decision-Driven Organization

The defining characteristic of high-performing organizations is their ability to make good decisions and to make them happen quickly. The companies that succeed tend to follow a few clear principles.

Some decisions matter more than others. The decisions that are crucial to building value in the business are the ones that matter most. Some of them will be the big strategic decisions, but just as important are the critical operating decisions that drive the business day to day and are vital to effective execution.

Action is the goal. Good decision making doesn’t end with a decision; it ends with implementation. The objective shouldn’t be consensus, which often becomes an obstacle to action, but buy in.

Ambiguity is the enemy. Clear accountability is essential: Who contributes input, who makes the decision, and who carries it out? Without clarity, gridlock and delay are the most likely outcomes. Clarity doesn’t necessarily mean concentrating authority in a few people; it means defining who has responsibility to make decisions, who has input, and who is charged with putting them into action.

Speed and adaptability are crucial. A company that makes good decisions quickly has a higher metabolism, which allows it to act on opportunities and overcome obstacles. The best decision makers create an environment where people can come together quickly and efficiently to make the most important decisions.

Decision roles trump the organizational chart. No decision-making structure will be perfect for every decision. The key is to involve the right people at the right level in the right part of the organization at the right time.

A well-aligned organization reinforces roles. Clear decision roles are critical, but they are not enough. If an organization does not reinforce the right approach to decision making through its measures and incentives, information flows, and culture, the behavior won’t become routine.

Practicing beats preaching. Involve the people who will live with the new decision roles in designing them. The very process of thinking about new decision behaviors motivates people to adopt them.

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however, they had the authority to raise their concerns and force a new round of negotiations. They also had responsibility for implementing product layouts in the stores. When the communication was sorted out and shelf space was restored, sales of the salt and pepper mills climbed well above original levels.

Crafting a decision-making process that connected the buying and selling functions for salt and pepper mills was relatively easy; rolling it out across the entire business was more challenging. Salt and pepper mills are just one of several hundred product categories for John Lewis. This element of scale is one reason why cross-functional bottlenecks are not easy to unclog. Different functions have different incentives and goals, which are often in conflict. When it comes down to a struggle between two functions, there may be good reasons to locate the D in either place – buying or selling, marketing or product development.

Here, as elsewhere, someone needs to think objectively about where value is created and assign decision roles accordingly. Eliminating cross-functional bottlenecks actually has less to do with shifting decision-making responsibilities between departments and more to do with ensuring that the people with relevant information are allowed to share it. The decision maker is important, of course, but more important is designing a system that aligns decision making and makes it routine.

Inside Versus Outside Partners

Decision making within an organization is hard enough. Trying to make decisions between separate organizations on different continents adds layers of complexity that can scuttle the best strategy. Companies that outsource capabilities in pursuit of cost and quality advantages face this very challenge. Which decisions should be made internally? Which can be delegated to outsourcing partners?

These questions are also relevant for strategic partners – a global bank working with an IT contractor on a systems development project, for example, or a media company that acquires content from a studio – and for companies conducting part of their business through franchisees. There is no right answer to who should have the power to decide what. But the wrong approach is to assume that contractual arrangements can provide the answer.

An outdoor-equipment company based in the United States discovered this recently when it decided to scale up production of gas patio heaters for the lower end of the market. The company had some success manufacturing high-end products in China. But with the advent of super-discounters like Wal-Mart, Target, and Home Depot, the company realized it needed to move more of its production overseas to feed these retailers with lower-cost offer-

A Decision Diagnostic

Consider the last three meaningful decisions you've been involved in and ask yourself the following questions.

1. Were the decisions right?
2. Were they made with appropriate speed?
3. Were they executed well?
4. Were the right people involved, in the right way?
5. Was it clear for each decision
 - who would recommend a solution?
 - who would provide input?
 - who had the final say?
 - who would be responsible for following through?
6. Were the decision roles, process, and time frame respected?
7. Were the decisions based on appropriate facts?
8. To the extent that there were divergent facts or opinions, was it clear who had the D?
9. Were the decision makers at the appropriate level in the company?
10. Did the organization's measures and incentives encourage the people involved to make the right decisions?

ings. The timetable left little margin for error: The company started tooling up factories in April and June of 2004, hoping to be ready for the Christmas season.

Right away, there were problems. Although the Chinese manufacturing partners understood costs, they had little idea what American consumers wanted. When expensive designs arrived from the head office in the United States, Chinese plant managers made compromises to meet contracted cost targets. They used a lower grade material, which discolored. They placed the power switch in a spot that was inconvenient for the user but easier to build. Instead of making certain parts from a single casting, they welded materials together, which looked terrible.

To fix these problems, the U.S. executives had to draw clear lines around which decisions should be made on which side of the ocean. The company broke down the design and manufacturing process into five steps and analyzed how decisions were made at each step. The company was also much more explicit about what the manufacturing specs would include and what the manufacturer was expected to do with them. The objective was not simply to clarify decision roles but to make sure those roles corresponded directly to the sources of value in the business. If a decision would affect the look and feel of the finished product, headquarters would have to sign off on it. But if a decision would not affect the customer's experience, it could be made in China. If, for example, Chinese engineers found a less expensive material that didn't compromise the product's look, feel, and functionality, they could make that change on their own.

To help with the transition to this system, the company put a team of engineers on-site in China to ensure a smooth handoff of the specs and to make decisions on issues that would become complex and time-consuming if elevated to the home office. Marketing executives in the home office insisted that it should take a customer ten minutes and no more than six steps to assemble the product at home. The company's engineers in China, along with the Chinese manufacturing team, had input into this assembly requirement and were responsible for execution. But the D resided with headquarters, and

the requirement became a major design factor. Decisions about logistics, however, became the province of the engineering team in China: It would figure out how to package the heaters so that one-third more boxes would fit into a container, which reduced shipping costs substantially.

...

If managers suddenly realize that they're spending less time sitting through meetings wondering why they are there, that's an early signal that companies have become better at making decisions. When meetings start with a common understanding about who is responsible for providing valuable input and who has the D, an organization's decision-making metabolism will get a boost.

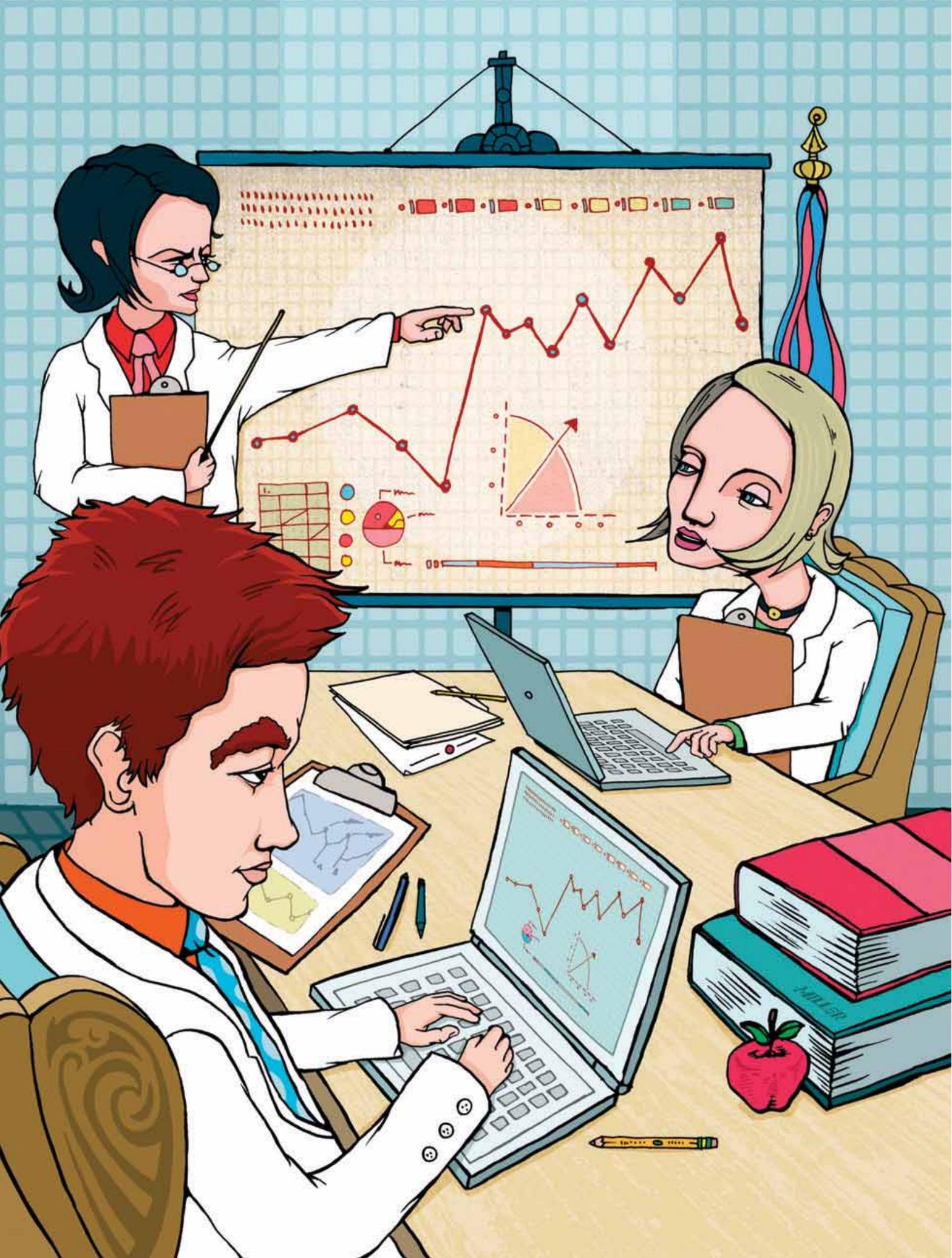
No single lever turns a decision-challenged organization into a decision-driven one, of course, and no blueprint can provide for all the contingencies and business shifts a company is bound to encounter. The most successful companies use simple tools that help them recognize potential bottlenecks and think through decision roles and responsibilities with each change in the business environment. That's difficult to do—and even more difficult for competitors to copy. But by taking some very practical steps, any company can become more effective, beginning with its next decision. 

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To order, see page 135.



"Here's the due diligence report. The CEO wants your decision ASAP."





Executives routinely dose their organizations with strategic snake oil: discredited nostrums, partial remedies, or untested management miracle cures. In many cases, the facts about what works are out there – so why don't managers use them?

EVIDENCE-BASED MANAGEMENT

by Jeffrey Pfeffer and Robert I. Sutton

A BOLD NEW WAY OF THINKING has taken the medical establishment by storm in the past decade: the idea that decisions in medical care should be based on the latest and best knowledge of what actually works. Dr. David Sackett, the individual most associated with *evidence-based medicine*, defines it as “the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients.” Sackett, his colleagues at McMaster University in Ontario, Canada, and the growing number of physicians joining the movement are committed to identifying, disseminating, and, most importantly, applying research that is soundly conducted and clinically relevant.

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If all this sounds laughable to you – after all, what else besides evidence *would* guide medical decisions? – then you are woefully naive about how doctors have traditionally plied their trade. Yes, the research is out there – thousands of studies are conducted on medical practices and products every year. Unfortunately, physicians don't use much of it. Recent studies show that only about 15% of their decisions are evidence based. For the most part, here's what doctors rely on instead: obsolete knowledge

Still, it makes sense that when managers act on better logic and evidence, their companies will trump the competition. That is why we've spent our entire research careers, especially the last five years, working to develop and surface the best evidence on how companies ought to be managed and teaching managers the right mind-set and methods for practicing evidence-based management. As with medicine, management is and will likely always be a craft that can be learned only through practice and

The use and defense of stock options as a compensation strategy seems to be a case of cherished belief trumping evidence, to the detriment of organizations.

gained in school, long-standing but never proven traditions, patterns gleaned from experience, the methods they believe in and are most skilled in applying, and information from hordes of vendors with products and services to sell.

The same behavior holds true for managers looking to cure their organizational ills. Indeed, we would argue, managers are actually much more ignorant than doctors about which prescriptions are reliable – and they're less eager to find out. If doctors practiced medicine like many companies practice management, there would be more unnecessarily sick or dead patients and many more doctors in jail or suffering other penalties for malpractice.

It's time to start an evidence-based movement in the ranks of managers. Admittedly, in some ways, the challenge is greater here than in medicine. (See the sidebar "What Makes It Hard to Be Evidence Based?") The evidence is weaker; almost anyone can (and often does) claim to be a management expert; and a bewildering array of sources – Shakespeare, Billy Graham, Jack Welch, Tony Soprano, fighter pilots, Santa Claus, Attila the Hun – are used to generate management advice. Managers seeking the best evidence also face a more vexing problem than physicians do: Because companies vary so wildly in size, form, and age, compared with human beings, it is far more risky in business to presume that a proven "cure" developed in one place will be effective elsewhere.

experience. Yet we believe that managers (like doctors) can practice their craft more effectively if they are routinely guided by the best logic and evidence – and if they relentlessly seek new knowledge and insight, from both inside and outside their companies, to keep updating their assumptions, knowledge, and skills. We aren't there yet, but we are getting closer. The managers and companies that come closest already enjoy a pronounced competitive advantage.

What Passes for Wisdom

If a doctor or a manager makes a decision that is not based on the current best evidence of what may work, then what is to blame? It may be tempting to think the worst. Stupidity. Laziness. Downright deceit. But the real answer is more benign. Seasoned practitioners sometimes neglect to seek out new evidence because they trust their own clinical experience more than they trust research. Most of them would admit problems with the small sample size that characterizes personal observation, but nonetheless, information acquired firsthand often feels richer and closer to real knowledge than do words and data in a journal article. Lots of managers, likewise, get their companies into trouble by importing, without sufficient thought, performance management and measurement practices from their past experience. We saw this at a small software company, where the chair of the

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compensation committee, a successful and smart executive, recommended the compensation policies he had employed at his last firm. The fact that the two companies were dramatically different in size, sold different kinds of software, used different distribution methods, and targeted different markets and customers didn't seem to faze him or many of his fellow committee members.

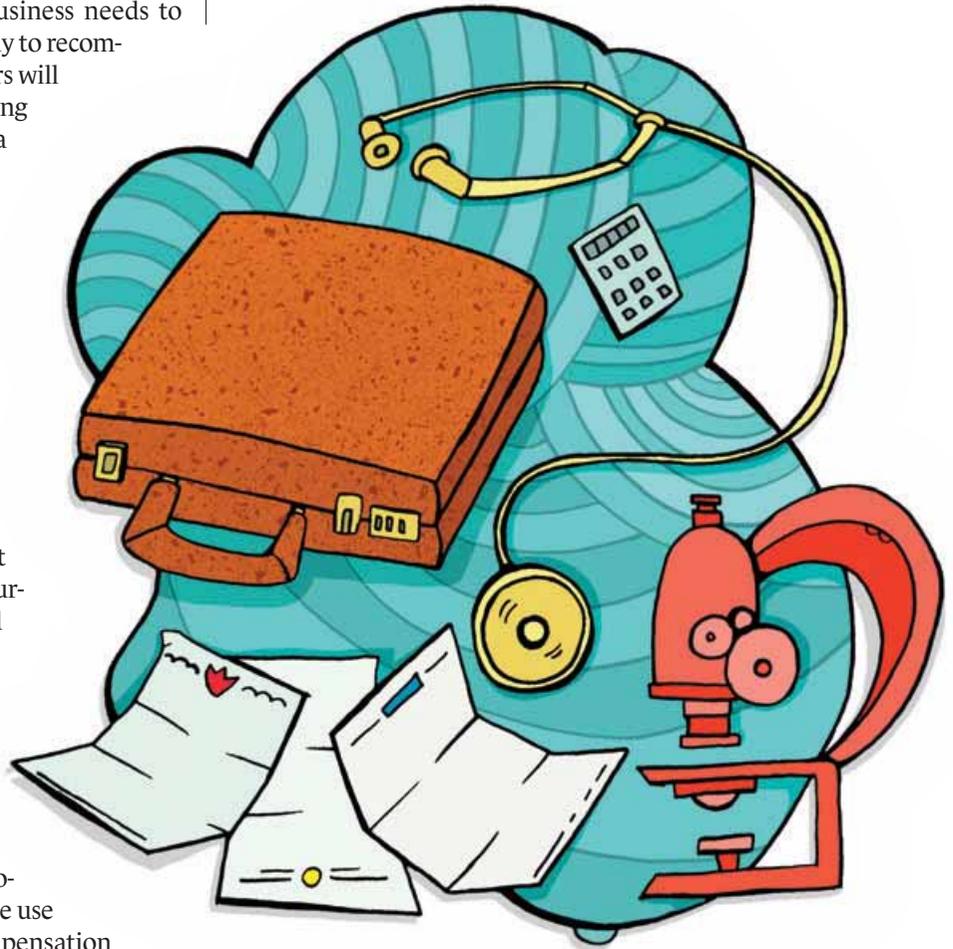
Another alternative to using evidence is making decisions that capitalize on the practitioner's own strengths. This is particularly a problem with specialists, who default to the treatments with which they have the most experience and skill. Surgeons are notorious for it. (One doctor and author, Melvin Konner, cites a common joke amongst his peers: "If you want to have an operation, ask a surgeon if you need one.") Similarly, if your business needs to drum up leads, your event planner is likely to recommend an event, and your direct marketers will probably suggest a mailing. The old saying "To a hammer, everything looks like a nail" often explains what gets done.

Hype and marketing, of course, also play a role in what information reaches the busy practitioner. Doctors face an endless supply of vendors, who muddy the waters by exaggerating the benefits and downplaying the risks of using their drugs and other products. Meanwhile, some truly efficacious solutions have no particularly interested advocates behind them. For years, general physicians have referred patients with plantar warts on their feet to specialists for expensive and painful surgical procedures. Only recently has word got out that duct tape does the trick just as well.

Numerous other decisions are driven by dogma and belief. When people are overly influenced by ideology, they often fail to question whether a practice will work – it fits so well with what they "know" about what makes people and organizations tick. In business, the use and defense of stock options as a compensation strategy seems to be just such a case of cherished belief trumping evidence, to the detriment of organizations. Many executives maintain that options produce an ownership culture that encourages 80-hour workweeks, frugality with the company's money, and a host of personal sacrifices in the interest of value creation. T.J. Rodgers, chief executive of Cypress Semiconductor, typifies this mind-set. He told the *San Francisco Chronicle* that without options, "I would no longer have employee shareholders, I would just have employees." There is, in fact, little evidence that equity incentives of any kind, including stock

options, enhance organizational performance. A recent review of more than 220 studies compiled by Indiana University's Dan R. Dalton and colleagues concluded that equity ownership had no consistent effects on financial performance.

Ideology is also to blame for the persistence of the first-mover-advantage myth. Research by Wharton's Lisa Bolton demonstrates that most people – whether experienced in business or naive about it – believe that the first company to enter an industry or market will have a big advantage over competitors. Yet empirical evidence is actually quite mixed as to whether such an advantage exists, and many "success stories" purported to support the



first-mover advantage turn out to be false. (Amazon.com, for instance, was not the first company to start selling books online.) In Western culture, people believe that the early bird gets the worm, yet this is a half-truth. As futurist Paul Saffo puts it, the whole truth is that the second (or third or fourth) mouse often gets the cheese. Unfortunately, beliefs in the power of being first and fastest in everything we do are so ingrained that giving people contradictory evidence does not cause them to abandon their faith in the first-mover advantage. Beliefs rooted in

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ideology or in cultural values are quite “sticky,” resist disconfirmation, and persist in affecting judgments and choice, regardless of whether they are true.

Finally, there is the problem of uncritical emulation and its business equivalent: casual benchmarking. Both doctors and managers look to perceived high performers in their field and try to mimic those top dogs’ moves. We aren’t damning benchmarking in general – it can be a powerful and cost-efficient tool. (See the sidebar “Can Benchmarking Produce Evidence?”) Yet it is important to remember that if you only copy what other people or companies do, the best you can be is a perfect imitation. So the most you can hope to have are practices as good as, but no better than, those of top performers—and by the time you mimic them, they’ve moved on. This isn’t necessarily a bad thing, as you can save time and money by learning from the experience of others inside and outside your in-

dustry. And if you consistently implement best practices better than your rivals, you will beat the competition.

Benchmarking is most hazardous to organizational health, however, when used in its “casual” form, in which the logic behind what works for top performers, why it works, and what will work elsewhere is barely unraveled. Consider a quick example. When United Airlines decided in 1994 to try to compete with Southwest in the California market, it tried to imitate Southwest. United created a new service, Shuttle by United, with separate crews and planes (all of them Boeing 737s). The gate staff and flight attendants wore casual clothes. Passengers weren’t served food. Seeking to emulate Southwest’s legendary quick turnarounds and enhanced productivity, Shuttle by United increased the frequency of its flights and reduced the scheduled time planes would be on the ground. None of this, however, reproduced the essence of Southwest’s ad-

WHAT MAKES IT HARD TO BE EVIDENCE BASED?

You may well be trying to bring the best evidence to bear on your decisions. You follow the business press, buy business books, hire consultants, and attend seminars featuring business experts. But evidence-based management is still hard to apply. Here’s what you’re up against.

There’s too much evidence. With hundreds of English-language magazines and journals devoted to business and management issues, dozens of business newspapers, roughly 30,000 business books in print and thousands more being published each year, and the Web-based outlets for business knowledge continuing to expand (ranging from online versions of *Fortune* and the *Wall Street Journal* to specialized sites like Hr.com and Gantthead.com), it is fair to say that there is simply too much information for any manager to consume. Moreover, recommendations about management practice are seldom integrated in a way that makes them accessible or memorable. Consider, for instance, *Business: The Ultimate Resource*, a tome that weighs about eight pounds and runs 2,208 oversize pages. *Business* claims that it “will become the ‘operating system’ for any organization or anyone in business.” But a good operating system fits together in a seamless and logical manner – not the case here or with any such encyclopedic effort to date.

There’s not enough good evidence. Despite the existence of “data, data everywhere,” managers still find themselves parched for reliable guidance. In 1993, senior Bain consultant Darrell Rigby began conducting the only survey we have encountered on the use and persistence of various management tools and techniques. (Findings from the most recent version of Bain’s

Management Tools survey were published in *Strategy and Leadership* in 2005.) Rigby told us it struck him as odd that you could get good information on products such as toothpaste and cereal but almost no information about interventions that companies were spending millions of dollars to implement. Even the Bain survey, noteworthy as it is, measures only the degree to which the different programs are used and does not go beyond subjective assessments of their value.

The evidence doesn’t quite apply. Often, managers are confronted with half-truths – advice that is true some of the time, under certain conditions. Take, for example, the controversy around stock options. The evidence suggests that, in general, heavier reliance on stock options does not increase a firm’s performance, but it does increase the chances that a company will need to restate its earnings. However, in small, privately held start-ups, options do appear to be relevant to success and less likely to produce false hype. One hallmark of solid research is conservatism – the carefulness of the researcher to point out the specific context in which intervention A led to outcome B. Unfortunately, that leaves managers wondering if the research could possibly be relevant to them.

People are trying to mislead you. Because it’s so hard to distinguish good advice from bad, managers are constantly enticed to believe in and implement flawed business practices. A big part of the problem is consultants, who are *always* rewarded for getting work, only *sometimes* rewarded for doing good work, and *hardly ever* rewarded for evaluating whether they have actually improved things. Worst of all, if a client’s problems are only partly solved,

vantage—the company’s culture and management philosophy, and the priority placed on employees. Southwest wound up with an even higher market share in California after United had launched its new service. The Shuttle is now shuttered.

We’ve just suggested no less than six substitutes that managers, like doctors, often use for the best evidence—obsolete knowledge, personal experience, specialist skills, hype, dogma, and mindless mimicry of top performers—so perhaps it’s apparent why evidence-based decision making is so rare. At the same time, it should be clear that relying on any of these six is not the best way to think about or decide among alternative practices. We’ll soon describe how evidence-based management takes shape in the companies we’ve seen practice it. First, though, it is useful to get an example on the table of the type of issue that companies can address with better evidence.

An Example: Should We Adopt Forced Ranking?

The decision-making process used at Oxford’s Centre for Evidence-Based Medicine starts with a crucial first step – the situation confronting the practitioner must be framed as an answerable question. That makes it clear how to compile relevant evidence. And so we do that here, raising a question that many companies have faced in recent years: Should we adopt forced ranking of our employees? The question refers to what General Electric more formally calls a forced-curve performance-ranking system. It’s a talent management approach in which the performance levels of individuals are plotted along a bell curve. Depending on their position on the curve, employees fall into groups, with perhaps the top 20%, the so-called A players, being given

that leads to more work for the consulting firm! (If you think our charge is too harsh, ask the people at your favorite consulting firm what evidence they have that their advice or techniques actually work—and pay attention to the evidence they offer.)

You are trying to mislead you. Simon and Garfunkel were right when they sang, “A man hears what he wants to hear and disregards the rest.” Many practitioners and their advisers routinely ignore evidence about management practices that clashes with their beliefs and ideologies, and their own observations are contaminated by what they expect to see. This is especially dangerous because some theories can become self-fulfilling – that is, we sometimes perpetuate our pet theories with our own actions. If we expect people to be untrustworthy, for example, we will closely monitor their behavior, which makes it impossible to develop trust. (Meanwhile, experimental evidence shows that when people are placed in situations where authority figures expect them to cheat, more of them do, in fact, cheat.)

The side effects outweigh the cure. Sometimes, evidence points clearly to a cure, but the effects of the cure are too narrowly considered. One of our favorite examples comes from outside management, in the controversy over social promotion in public schools – that is, advancing a child to the next grade even if his or her work isn’t up to par. Former U.S. president Bill Clinton represented the views of many when, in his 1999 State of the Union address, he said, “We do our children no favors when we allow them to pass from grade to grade without mastering the material.” President George W. Bush holds the same view. But this belief is contrary to the results from over 55 published stud-

ies that demonstrate the net negative effects of ending social promotion (versus no careful studies that find positive effects). Many school systems that have tried to end the practice have quickly discovered the fly in the ointment: Holding students back 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. The flunked kids also consistently come out worse in the end, with lower test scores and higher drop-out rates. There are also reports that bullying increases: Those flunked kids, bigger than their classmates, are mad about being held back, and the teachers have trouble maintaining control in the larger classes.

Stories are more persuasive, anyway. It’s hard to remain devoted to the task of building bulletproof, evidence-based cases for action when it’s clear that good storytelling often carries the day. And indeed, we reject the notion that only quantitative data should qualify as evidence. As Einstein put it, “Not everything that can be counted counts, and not everything that counts can be counted.” When used correctly, stories and cases are powerful tools for building management knowledge. Many quantitative studies are published on developing new products, but few come close to Tracy Kidder’s Pulitzer-winning *Soul of a New Machine* in capturing how engineers develop products and how managers can enhance or undermine the engineers’ (and products’) success. Gordon MacKenzie’s *Orbiting the Giant Hairball* is the most charming and useful book on corporate creativity we know. Good stories have their place in an evidence-based world, in suggesting hypotheses, augmenting other (often quantitative) research, and rallying people who will be affected by a change.

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outsized rewards; the middle 70% or so, the B players, being targeted for development; and the lowly bottom 10%, the C players, being counseled or thrown out of their jobs.

Without a doubt, this question arose for many companies as they engaged in benchmarking. General Electric has enjoyed great financial success and seems well stocked with star employees. GE alums have gone on to serve as CEOs at many other companies, including 3M, Boeing, Intuit, Honeywell, and the Home Depot. Systems that give the bulk of rewards to star employees have also been thoroughly hyped in business publications—for instance, in the McKinsey-authored book *The War for Talent*. But it's far from clear that the practice is worth emulating. It isn't just the infamous Enron—much praised in *The War for Talent*—that makes us say this. A couple of years ago, one of us gave a speech at a renowned but declining high-technology firm that used forced ranking (there, it was called a “stacking system”). A senior executive told us

Next, management would have assembled more evidence and weighed the negative against the positive. In doing so, it would have found plenty of evidence that performance improves with team continuity and time in position—two reasons to avoid the churn of what's been called the “rank and yank” approach. Think of the U.S. Women's National Soccer Team, which has won numerous championships, including two of the four Women's World Cups and two of the three Olympic women's tournaments held to date. The team certainly has had enormously talented players, such as Mia Hamm, Brandi Chastain, Julie Foudy, Kristine Lilly, and Joy Fawcett. Yet all these players will tell you that the most important factor in their success was the communication, mutual understanding and respect, and ability to work together that developed during the 13 or so years that the stable core group played together. The power of such joint experience has been established in every setting examined, from

In a recent survey of more than 200 HR professionals, respondents reported that forced ranking had consequences such as lower productivity, inequity, damage to morale, and mistrust in leadership.

about an anonymous poll conducted among the firm's top 100 or so executives to discover which company practices made it difficult to turn knowledge into action. The stacking system was voted the worst culprit.

Would evidence-based management have kept that company from adopting this deeply unpopular program? We think so. First, managers would have immediately questioned whether their company was similar enough to GE in various respects that a practice cribbed from it could be expected to play out in the same way. Then, they would have been compelled to take a harder look at the data presumably supporting forced ranking—the claim that this style of talent management actually has caused adherents to be more successful. So, for example, they might have noticed a key flaw in *The War for Talent's* research method: The authors report in the appendix that companies were first rated as high or average performers, based on return to shareholders during the prior three to ten years; then interviews and surveys were conducted to measure how these firms were fighting the talent wars. So, for the 77 companies (of 141 studied), management practices assessed in 1997 were treated as the “cause” of firm performance between 1987 and 1997. The study therefore violates a fundamental condition of causality: The proposed cause needs to occur *before* the proposed effect.

string quartets to surgical teams, to top management teams, to airplane cockpit crews.

If managers at the technology firm had reviewed the best evidence, they would have also found that in work that requires cooperation (as nearly all the work in their company did), performance suffers when there is a big spread between the worst- and best-paid people—even though giving the lion's share of rewards to top performers is a hallmark of forced-ranking systems. In a Haas School of Business study of 102 business units, Douglas Cowherd and David Levine found that the greater the gap between top management's pay and that of other employees, the lower the product quality. Similar negative effects of dispersed pay have been found in longitudinal studies of top management teams, universities, and a sample of nearly 500 public companies. And in a recent Novations Group survey of more than 200 human resource professionals from companies with more than 2,500 employees, even though over half of the companies used forced ranking, the respondents reported that this approach resulted in lower productivity, inequity, skepticism, decreased employee engagement, reduced collaboration, damage to morale, and mistrust in leadership. We can find plenty of consultants and gurus who praise the power of dispersed pay, but we can't find a careful study that supports its value in settings where coopera-

tion, coordination, and information sharing are crucial to performance.

Negative effects of highly dispersed pay are even seen in professional sports. Studies of baseball teams are especially interesting because, of all major professional sports, baseball calls for the least coordination among team members. But baseball still requires some cooperation – for example, between pitchers and catchers, and among infielders. And although individuals hit the ball,

teammates can help one another improve their skills and break out of slumps. Notre Dame's Matt Bloom did a careful study of over 1,500 professional baseball players from 29 teams, spanning an eight-year period, which showed that players on teams with greater dispersion in pay had lower winning percentages, gate receipts, and media income.

Finally, an evidence-based approach would have surfaced data suggesting that average players can be

CAN BENCHMARKING PRODUCE EVIDENCE?

Across the board, U.S. automobile companies have for decades benchmarked Toyota, the world leader in auto manufacturing. In particular, many have tried to copy its factory-floor practices. They've installed just-in-time inventory systems, statistical process control charts, and pull cords to stop the assembly line if defects are noticed. Yet, although they (most notably, General Motors) have made progress, for the most part the companies still lag behind Toyota in productivity—the hours required to assemble a car—and often in quality and design as well.

Studies of the automobile industry, especially those by Wharton professor John Paul MacDuffie, suggest that the U.S. companies fell prey to the same pair of fundamental problems we have seen in so many casual-benchmarking initiatives. First, people mimic the most visible, the most obvious, and, frequently, the least important practices. The secret to Toyota's success is not a set of techniques per se, but the philosophy of total quality management and continuous improvement the company has embraced, as well as managers' accessibility to employees on the plant floor, which enables Toyota to tap these workers' tacit knowledge. Second, companies have different strategies, cultures, workforces, and competitive environments—so that what one of them needs to do to be successful is different

from what others need to do. The Toyota system presumes that people will be team players and subordinate their egos for the good of the group, a collectivistic mind-set that tends to fit Asian managers and workers better than it does U.S. and European managers and workers.

Before you run off to benchmark, possibly spending effort and money that will result in no payoff or, worse yet, problems that you never had before, ask yourself the following questions:

- ***Do sound logic and evidence indicate that the benchmarking target's success is attributable to the practice we seek to emulate?*** Southwest Airlines is the most successful airline in the history of the industry. Herb Kelleher, its CEO from 1982 to 2001, drinks a lot of Wild Turkey bourbon. Does this mean that your company will dominate its industry if your CEO drinks a lot of Wild Turkey?

- ***Are the conditions at our company—strategy, business model, workforce—similar enough to those at the benchmarked company to make the learning useful?*** Just as doctors who do neurosurgery learn mostly from other neurosurgeons, not from orthopedists, you and your company should seek to learn from *relevant* others.

- ***Why does a given practice enhance performance? And what is the logic that links it to bottom-line results?***

If you can't explain the underlying theory, you are likely engaging in superstitious learning, and you may be copying something irrelevant or even damaging—or only copying part (perhaps the worst part) of the practice. As senior GE executives once pointed out to us, many companies that imitate their “rank and yank” system take only the A, B, and C rankings and miss the crucial subtlety that an A player is someone who helps colleagues do their jobs more effectively, rather than engaging in dysfunctional internal competition.

- ***What are the downsides of implementing the practice even if it is a good idea overall?*** Keep in mind that there is usually at least one disadvantage. For example, research by Mary Benner at Wharton and Michael Tushman at Harvard Business School shows that firms in the paint and photography industries that implemented more extensive process management programs did increase short-term efficiency but had more trouble keeping up with rapid technological changes. You need to ask if there are ways of mitigating the downsides, maybe even solutions that your benchmarking target uses that you aren't seeing. Say you are doing a merger. Look closely at what Cisco does and why, as it consistently profits from mergers while most other firms consistently fail.

extremely productive and that A players can founder, depending on the system they work in. Over 15 years of research in the auto industry provides compelling evidence for the power of systems over individual talent. Wharton's John Paul MacDuffie has combined quantitative studies of every automobile plant in the world with in-depth case studies to understand why some plants are more effective than others. MacDuffie has found that lean or flexible production systems – with their emphasis on teams, training, and job rotation, and their de-emphasis on status differences among employees – build higher-quality cars at a lower cost.

Becoming a Company of Evidence-Based Managers

It is one thing to believe that organizations would perform better if leaders knew and applied the best evidence. It is another thing to put that belief into practice. 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 undergo constant criticism and second-guessing from people inside and outside their companies. In that respect, managers are like physicians who face one decision after another: They can't possibly make the right choice every time. Hippocrates, the famous Greek who wrote the physicians' oath, described this plight well: "Life is short, the art long, opportunity fleeting, experiment treacherous, judgment difficult."

Teaching hospitals that embrace evidence-based medicine try to overcome impediments to using it by providing training, technologies, and work practices so staff can take the critical results of the best studies to the bedside. The equivalent should be done in management settings. But it's also crucial to appreciate that evidence-based management, like evidence-based medicine, entails a distinct mind-set that clashes with the way many managers and companies operate. It features a willingness to put aside belief and conventional wisdom – the dangerous half-truths that many embrace – and replace these with an unrelenting commitment to gather the necessary facts to make more informed and intelligent decisions.

As a leader in your organization, you can begin to nurture an evidence-based approach immediately by doing a few simple things that reflect the proper mind-set. If you ask for evidence of efficacy every time a change is proposed, people will sit up and take notice. If you take the time to parse the logic behind that evidence, people will become more disciplined in their own thinking. If you treat the organization like an unfinished prototype and encourage trial programs, pilot studies, and experimentation – and reward learning from these activities, even when something new fails – your organization will begin

to develop its own evidence base. And if you keep learning while acting on the best knowledge you have and expect your people to do the same – if you have what has been called "the attitude of wisdom" – then your company can profit from evidence-based management as you benefit from "enlightened trial and error" and the learning that occurs as a consequence.

Demand evidence. When it comes to setting the tone for evidence-based management, we have met few chief executives on a par with Kent Thiry, the CEO of DaVita, a \$2 billion operator of kidney dialysis centers headquartered in El Segundo, California. Thiry joined DaVita in October 1999, when the company was in default on its bank loans, could barely meet payroll, and was close to bankruptcy. A big part of his turnaround effort has been to educate the many facility administrators, a large proportion of them nurses, in the use of data to guide their decisions.

To ensure that the company has the information necessary to assess its operations, the senior management team and DaVita's chief technical officer, Harlan Cleaver, have been relentless in building and installing systems that help leaders at all levels understand how well they are doing. One of Thiry's mottoes is "No brag, just facts." When he stands up at DaVita Academy, a meeting of about 400 frontline employees from throughout the organization, and states that the company has the best quality of treatment in the industry, that assertion is demonstrated with specific, quantitative comparisons.

A large part of the company's culture is a commitment to the quality of patient care. To reinforce this value, managers always begin reports and meetings with data on the effectiveness of the dialysis treatments and on patient health and well-being. And each facility administrator 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. This emphasis on evidence also extends to management issues – administrators get information on operations, including treatments per day, teammate (employee) retention, the retention of higher-paying private pay patients, and a number of resource utilization measures such as labor hours per treatment and controllable expenses.

The most interesting thing about these monthly reports is what *isn't yet* included. DaVita COO Joe Mello explained that if a particular metric is deemed important, but the company currently lacks the ability to collect the relevant measurements, that metric is included on reports anyway, with the notation "not available." He said that the persistent mention of important measures that are missing helps motivate the company to figure out ways of gathering that information.

Many impressive aspects of DaVita's operations have contributed to the company's success, as evidenced by the 50% decrease in voluntary turnover, best-in-industry quality of patient care, and exceptional financial results. But

ARE YOU PART OF THE PROBLEM?

Perhaps the greatest barrier to evidence-based management is that today's prevailing standards for assessing management knowledge are deeply flawed. Unfortunately, they are bolstered by the actions of virtually every major player in the marketplace for business knowledge. The business press in particular, purveyor of so many practices, needs to make better judgments about the virtues and shortcomings of the evidence it generates and publishes. We propose six standards for producing, evaluating, selling, and applying business knowledge.

1. Stop treating old ideas as if they were brand-new.

Sir Isaac Newton is often credited as saying, "If I have seen farther, it is by standing on the shoulders of giants." But peddlers of management ideas find they win more speaking engagements and lucrative book contracts if they ignore antecedents and represent insights as being wholly original. Most business magazines happily recycle and rename concepts to keep the money flowing. This continues to happen even though, as renowned management theorist James March pointed out to us in an e-mail message, "most claims of originality are testimony to ignorance and most claims of magic are testimony to hubris." How do we break the cycle? For starters, people who spread ideas ought to acknowledge key sources and encourage writers and managers to build on and blend with what's come before. Doing so isn't just intellectually honest and polite. It leads to better ideas.

2. 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, "big" rarely happens. Close examination of so-called breakthroughs nearly always reveals that they're preceded by the painstaking, incremental work of others. We live in a world where scientists and economists who win the Nobel Prize credit their predecessors' work; they carefully point out the tiny, excruciating steps they took over the years to develop their ideas and hesitate to declare breakthroughs, while—like old-fashioned snake oil salesmen—one business guru after another claims to have developed a brand-new cure-all. Something is wrong with this picture. Still, managers yearn for magic remedies, and purveyors pretend to give them what they crave.

3. Celebrate and develop collective brilliance.

The business world is among the few places where the term "guru" has primarily positive connotations. But a focus on gurus masks how business knowledge is and ought to be developed and used. Knowledge is rarely generated by lone geniuses who cook up brilliant new ideas in their gigantic

brains. Writers and consultants need to be more careful about describing the teams and communities of researchers who develop ideas. Even more important, they need to recognize that implementing practices, executing strategy, and accomplishing organizational change all require the coordinated actions of many people, whose commitment to an idea is greatest when they feel ownership.

4. Emphasize drawbacks as well as virtues.

Doctors are getting better at explaining risks to patients and, in the best circumstances, enabling them to join a decision process where potential problems are considered. This rarely happens in management, where too many solutions are presented as costless and universally applicable, with little acknowledgment of possible pitfalls. Yet all management practices and programs have both 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 disenchanting or, worse, abandon a valuable program or practice when known setbacks occur.

5. Use success (and failure) stories to illustrate sound practices, but not in place of a valid research method.

There is an enormous problem with research that relies on recollection by the parties involved in a project, as so much management research does when it seeks out keys to subsequent success. A century ago, Ambrose Bierce, in his *Devil's Dictionary*, defined "recollect" as "To recall with additions something not previously known," foreshadowing much research on human memory. It turns out that, for example, eyewitness accounts are notoriously unreliable and that, in general, people have terrible memory, regardless of how confident they are in their recollections. Most relevant to management research is that people tend to remember much different things when they are anointed winners (versus losers), and what they recall has little to do with what happened.

6. Adopt a neutral stance toward ideologies and theories.

Ideology is among the more widespread, potent, and vexing impediments to using evidence-based management. Academics and other thought leaders can come to believe in their own theories so fervently that they're incapable of learning from new evidence. And managers can lower or raise the threshold of their skepticism when a proposed solution, on its face, seems "vaguely socialistic" or "compassionate," "militaristic" or "disciplined." The best way to keep such filters from obscuring good solutions is to establish clarity and consensus on the problem to be solved and on what constitutes evidence of efficacy.

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the emphasis on evidence-based decision making in a culture that reinforces speaking the truth about how things are going is certainly another crucial component.

Examine logic. Simply asking for backup research on proposals is insufficient to foster a true organizational commitment to evidence-based management, especially given the problems that bedevil much so-called business research. As managers or consultants make their case, pay close attention to gaps in exposition, logic, and inference. (See the sidebar “Are You Part of the Problem?”) This is particularly important because, 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 must be taken to examine the logic of the research design and to control statistically for alternative explanations, which arise in even the best studies. Managers who consume such knowledge

fall 2005. Perhaps the hope is that visitors will momentarily forget what they learned in their statistics classes!

Treat the organization as an unfinished prototype. For some questions in some businesses, the best evidence is to be found at home—in the company’s own data and experience rather than in the broader-based research of scholars. Companies that want to promote more evidence-based management should get in the habit of running trial programs, pilot studies, and small experiments, and thinking about the inferences that can be drawn from them, as CEO Gary Loveman has done at Harrah’s. Loveman joked to us that there are three ways to get fired at Harrah’s these days: steal, harass women, or institute a program without first running an experiment. As you might expect, Harrah’s experimentation is richest and most renowned in the area of marketing, where the company makes use of the data stream about customers’ behaviors and responses to promotions. In one experiment

Evidence-based management is conducted best not by know-it-alls but by managers who profoundly appreciate how much they do not know.

need to understand the limitations and think critically about the results.

When people in the organization see senior executives spending the time and mental energy to unpack the underlying assumptions that form the foundation for some proposed policy, practice, or intervention, they absorb a new cultural norm. The best leaders avoid the problem of seeming captious about the work of subordinates; they tap the collective wisdom and experience of their teams to explore whether assumptions seem sensible. They ask, “What would have to be true about people and organizations if this idea or practice were going to be effective? Does that feel true to us?”

Consultant claims may require an extra grain of salt. It is surprising how often purveyors of business knowledge are fooled or try to fool customers. We admire Bain & Company, for example, and believe it is quite capable of good research. We do wonder, however, why the company has a table on its Web site’s home page that brags, “Our clients outperform the market 4 to 1” (the claim was “3 to 1” a few years back). The smart people at Bain know this correlation doesn’t prove that their advice transformed clients into top performers. It could simply be that top performers have more money for hiring consultants. Indeed, any claim that Bain deserves credit for such performance is conspicuously absent from the Web site, at least as of

reported by Harvard’s Rajiv Lal in a teaching case, Harrah’s offered a control group a promotional package worth \$125 (a free room, two steak dinners, and \$30 in casino chips); it offered customers in an experimental group just \$60 in chips. The \$60 offer generated more gambling revenue than the \$125 offer did, and at a reduced cost. Loveman wanted to see experimentation like this throughout the business, not just in marketing. And so the company proved that spending money on employee selection and retention efforts (including giving people realistic job previews, enhancing training, and bolstering the quality of frontline supervision) would reduce turnover and produce more engaged and committed employees. Harrah’s succeeded in reducing staff turnover by almost 50%.

Similarly, CEO Meg Whitman attributes much of eBay’s success to the fact that management spends less time on strategic analysis and more time trying and tweaking things that seem like they might work. As she said in March 2005, “This is a completely new business, so there’s only so much analysis you can do.” Whitman suggests instead, “It’s better to put something out there and see the reaction and fix it on the fly. You could spend six months getting it perfect in the lab...[but] we’re better off spending six days putting it out there, getting feedback, and then evolving it.”

Yahoo is especially systematic about treating its home page as an unfinished prototype. Usama Fayyad, the company's chief data officer, points out that the home page gets millions of hits an hour, so Yahoo can conduct rigorous experiments that yield results in an hour or less—randomly assigning, say, a couple hundred thousand visitors to the experimental group and several million to the control group. Yahoo typically has 20 or so experiments running at any time, manipulating site features like colors, placement of advertisements, and location of text and buttons. These little experiments can have big effects. For instance, an experiment by data-mining researcher Nitin Sharma revealed 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 millions more dollars in advertising revenue a year.

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 the practice, so everyone does it or at least claims to, or it isn't tried at all. This tendency to do things everywhere or nowhere severely limits a company's ability to learn. In particular, multisite organizations like restaurants, hotels, and manufacturers with multiple locations can learn by experimenting in selected sites and making comparisons with “control” locations. Field experiments at places such as McDonald's restaurants, 7-Eleven convenience stores, Hewlett-Packard, and Intel have introduced changes in some units and not others to test the effects of different incentives, technologies, more interesting job content, open versus closed offices, and even detailed and warm (versus cursory and cold) explanations about why pay cuts were being implemented.

Embrace the attitude of wisdom. 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. At least since Plato's time, people have appreciated that true wisdom does not come from the sheer accumulation of knowledge, but from a healthy respect for and curiosity about the vast realms of knowledge still unconquered. Evidence-based management is conducted best not by know-it-all's but by managers who profoundly appreciate how much they do not know. These managers aren't frozen into inaction by ignorance; rather, they act on the best of their knowledge while questioning what they know.

Cultivating the right balance of humility and decisiveness is a huge, amorphous goal, but one tactic that serves it is to support the continuing professional education of managers with a commitment equal to that in other professions. The Centre for Evidence-Based Medicine says that identifying and applying effective strategies for lifelong learning are the keys to making this happen for physicians. The same things are surely critical to evidence-based management.

Another tactic is to encourage inquiry and observation even when rigorous evidence is lacking and you feel compelled to act quickly. If there is little or no information and you can't conduct a rigorous study, there are still things you can do to act more on the basis of logic and less on guesswork, fear, belief, or hope. 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 staff for doing a bad job and dismissed 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. All of the executives encountered sales clerks who tried to dissuade them from buying the firm's computers, citing the excessive price, weak feature set, clunky appearance, and poor customer service. By organizing such field trips and finding other ways to gather qualitative data, managers can convey that decisions should not ignore real-world observations.

Will It Make a Difference?

The evidence-based-medicine movement has its critics, especially physicians who worry that clinical judgment will be replaced by search engines or who fear that bean counters from HMOs will veto experimental or expensive techniques. But initial studies suggest that physicians trained in evidence-based techniques are better informed than their peers, even 15 years after graduating from medical school. Studies also show conclusively that patients receiving the care that is indicated by evidence-based medicine experience better outcomes.

At this time, that level of assurance isn't available to those who undertake evidence-based management in business settings. We have the experience of relatively few companies to go on, and while it is positive, evidence from broad and representative samples is needed before that experience can be called a consistent pattern. Yet the theoretical argument strikes us as ironclad. It seems perfectly logical that decisions made on the basis of a preponderance of evidence about what works elsewhere, as well as within your own company, will be better decisions and will help the organization thrive. We also have a huge body of peer-reviewed studies—literally thousands of careful studies by well-trained researchers—that, although routinely ignored, provide simple and powerful advice about how to run organizations. If found and used, this advice would have an immediate positive effect on organizations.

Does all this sound too obvious? Perhaps. But one of the most important lessons we've learned over the years is that practicing evidence-based management often entails being a master of the mundane. Consider how the findings from this one little study could help a huge

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organization: An experiment at the University of Missouri compared decision-making groups that stood up during ten- to 20-minute meetings with groups that sat down. Those that stood up took 34% less time to make decisions, and the quality was just as good. Whether people should sit down or stand up during meetings may seem a downright silly question at first blush. But do the math. Take energy giant Chevron, which has over 50,000 employees. If each employee replaced just one 20-minute sit-down meeting per year with a stand-up meeting, each of those meetings would be about seven minutes shorter. That would save Chevron over 350,000 minutes—nearly 6,000 hours—per year.

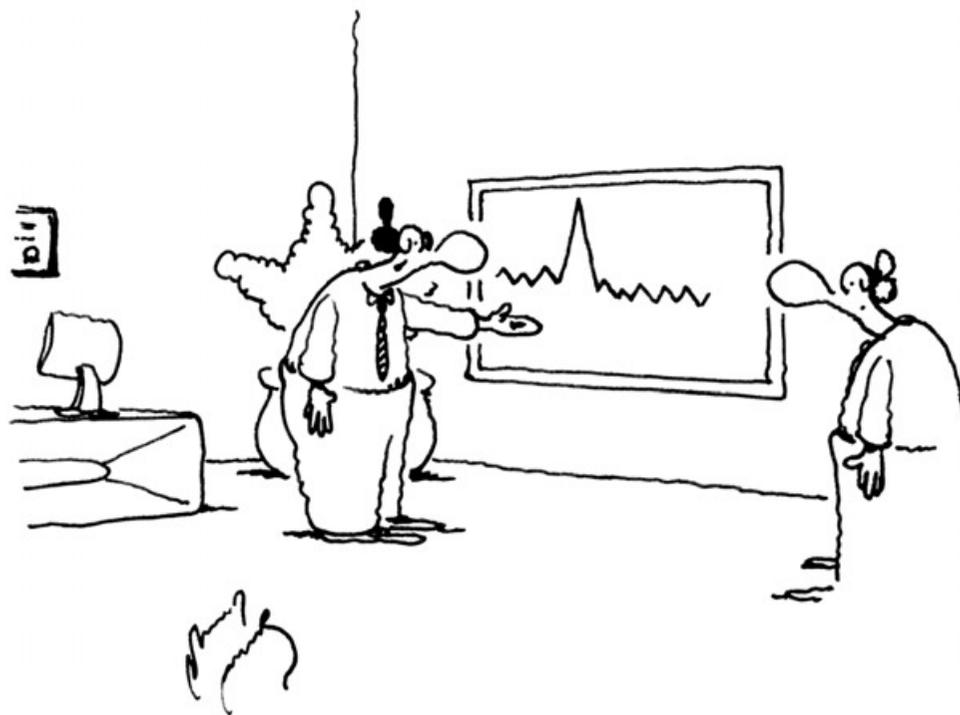
Leaders who are committed to practicing evidence-based management also need to brace themselves for a nasty side effect: When it is done right, it will undermine their power and prestige, which may prove unsettling to those who enjoy wielding influence. A former student of ours who worked at Netscape recalled a sentiment he'd once heard from James Barksdale back when he was CEO: "If the decision is going to be made by the facts, then everyone'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 count for a lot more." This anecdote illustrates that facts and evidence are great levelers of hi-

erarchy. Evidence-based practice changes power dynamics, replacing formal authority, reputation, and intuition with data. This means that senior leaders—often venerated for their wisdom and decisiveness—may lose some stature as their intuitions are replaced, at least at times, by judgments based on data available to virtually any educated person. 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?

If taken seriously, evidence-based management can change how every manager thinks and acts. It is, first and foremost, a way of seeing the world and thinking about the craft of management; it proceeds from the premise that using better, deeper logic and employing facts, to the extent possible, permits leaders to do their jobs more effectively. We believe that facing the hard facts and truth 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. 

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To order, see page 135.



"Oddly enough, that was the one time I asked the Magic 8 Ball."

Can market forces help cut carbon emissions?



This trader thinks they can.

Garth Edward is a trader in carbon emissions. He believes that his work can help companies meet the objectives set by governments to reduce carbon output. Through trading, companies that reduce their carbon emissions below the government targets can sell their surplus allowances to those companies that cannot reduce their emissions cost-effectively. Shell is a pioneer in carbon trading and a global leader in the industry. By establishing a financial value for emissions, Garth believes businesses now have a strong incentive to invest in energy efficiency. And that means a reduction in total emissions as the carbon market is extended across more industries and more countries. Find out how Shell is helping cap carbon output by visiting shell.com/garth

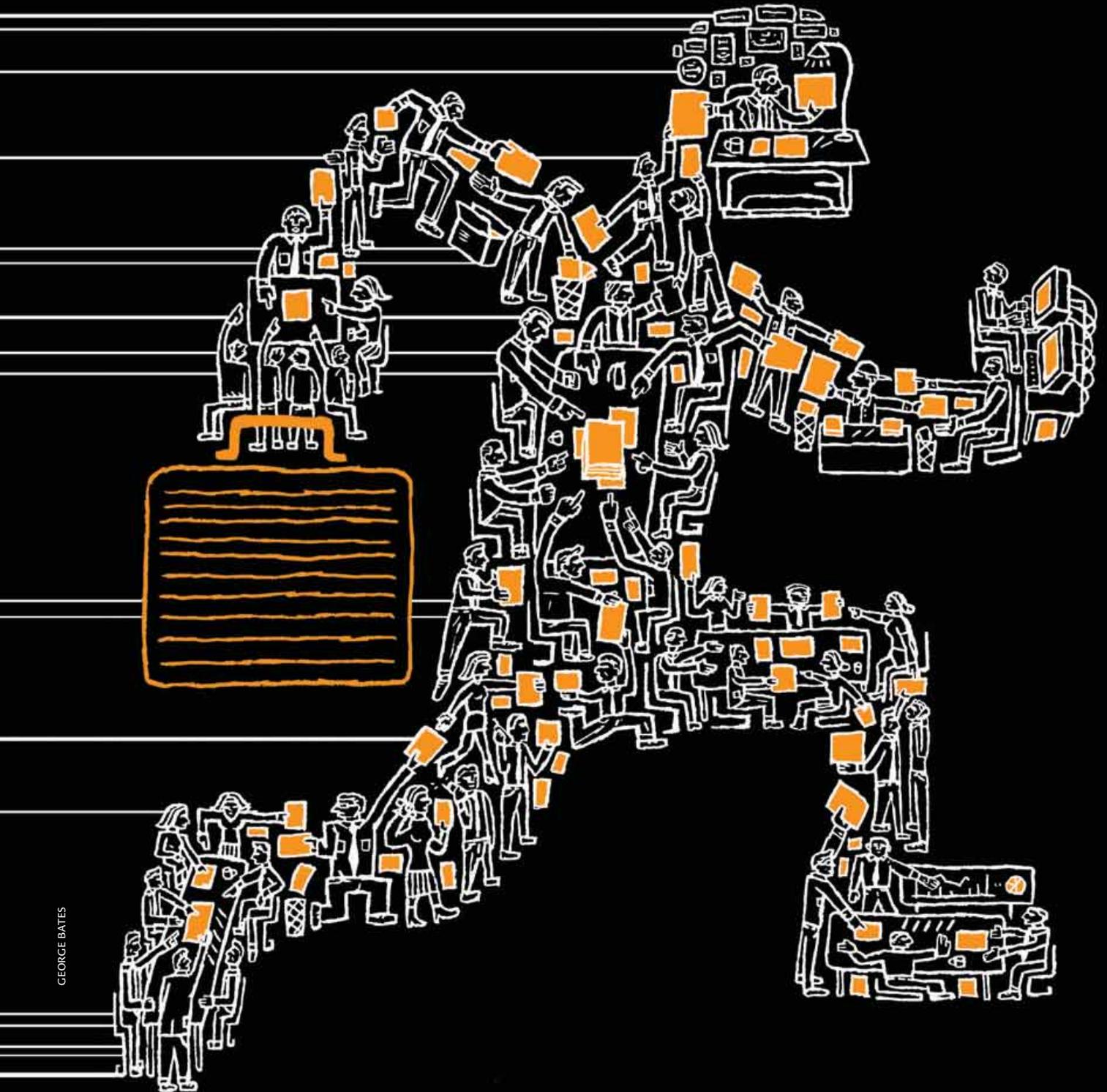


In most companies, strategic planning isn't about making decisions. It's about documenting choices that have already been made, often haphazardly. Leading firms are rethinking their approach to strategy development so they can make more, better, and faster decisions.

STOP MAKING PLANS *START MAKING DECISIONS*

by **Michael C. Mankins and Richard Steele**

IS STRATEGIC PLANNING COMPLETELY USELESS? That was the question the CEO of a global manufacturer recently asked himself. Two years earlier, he had launched an ambitious overhaul of the company's planning process. The old approach, which required business-unit heads to make regular presentations to the firm's executive committee, had broken down entirely. The ExCom members—the CEO, COO, CFO, CTO, and head of HR—had grown tired of sitting through endless PowerPoint presentations that provided them few opportunities to challenge the business units' assumptions or influence their strategies. And the unit heads had complained that the ExCom reviews were long on exhortation but short on executable advice. Worse, the reviews led to very few worthwhile decisions.



GEORGE BATES

DECISION MAKING

The revamped process incorporated state-of-the-art thinking about strategic planning. To avoid information overload, it limited each business to 15 “high-impact” exhibits describing the unit’s strategy. To ensure thoughtful discussions, it required that all presentations and supporting materials be distributed to the ExCom at least a week in advance. The review sessions themselves were restructured to allow ample time for give-and-take between the corporate team and the business-unit executives. And rather than force the unit heads to traipse off to headquarters for meetings, the ExCom agreed to spend an unprecedented six weeks each spring visiting all 22 units for daylong sessions. The intent was to make the strategy reviews longer, more focused, and more consequential.

It didn’t work. After using the new process for two planning cycles, the CEO gathered feedback from the participants through an anonymous survey. To his dismay, the report contained a litany of complaints: “It takes too much time.” “It’s at too high a level.” “It’s disconnected from the way we run the business.” And so on. Most damning of all, however, was the respondents’ near-universal view that the new approach produced very few real decisions. The CEO was dumbfounded. How could the company’s cutting-edge planning process still be so badly broken? More important, what should he do to make strategic planning drive more, better, and faster decisions?

Like this CEO, many executives have grown skeptical of strategic planning. Is it any wonder? Despite all the time and energy most companies put into strategic planning, the process is most often a barrier to good decision making, our research indicates. As a result, strategic planning doesn’t really influence most companies’ strategy.

In the following pages, we will demonstrate that the failure of most strategic planning is due to two factors: It is typically an annual process, and it is most often focused on individual business units. As such, the process is completely at odds with the way executives actually make important strategy decisions, which are neither constrained by the calendar nor defined by unit boundaries. Not surprisingly, then, senior executives routinely sidestep the planning process. They make the decisions that really shape their company’s strategy and determine its future – decisions about mergers and acquisitions, product launches, corporate restructurings, and the like – outside the planning process, typically in an ad hoc fashion, without rigorous analysis or productive debate. Critical decisions are made incorrectly or not at all. More than any-

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thing else, this disconnect – between the way planning works and the way decision making happens – explains the frustration, if not outright antipathy, most executives feel toward strategic planning.

But companies can fix the process if they attack its root problems. A small number of forward-looking companies have thrown out their calendar-driven, business-unit-focused planning processes and replaced them with continuous, issues-focused decision making. By changing the timing and focus of strategic planning, they’ve also changed the nature of top management’s discussions about strategy – from “review and approve” to “debate and decide,” meaning that senior executives seriously think through every major decision and its implications for the company’s performance and value. Indeed, these companies use the strategy development process to drive decision making. As a consequence, they make more than twice as many important strategic decisions each year as companies that follow the traditional planning model. (See the exhibit “Who Makes More Decisions?”) These companies have stopped making plans and started making decisions.

Where Planning Goes Wrong

In the fall of 2005, Marakon Associates, in collaboration with the Economist Intelligence Unit, surveyed senior executives from 156 large companies worldwide, all with sales of \$1 billion or more (40% of them had revenues over \$10 billion). We asked these executives how their companies developed long-range plans and how effectively they thought their planning processes drove strategic decisions.

The results of the survey confirmed what we have observed over many years of consulting: The timing and structure of strategic planning are obstacles to good decision making. Specifically, we found that companies with standard planning processes and practices make only 2.5 major strategic decisions each year, on average (by “major,” we mean they have the potential to increase company profits by 10% or more over the long term). It’s hard to imagine that with so few strategic decisions driving growth, these companies can keep moving forward and deliver the financial performance that investors expect.

Even worse, we suspect that the few decisions companies do reach are made in spite of the strategic planning process, not because of it. Indeed, the traditional planning model is so cumbersome and out of sync with the way executives want and need to make decisions that top managers all too often sidestep the process when making their biggest strategic choices.

With the big decisions being made outside the planning process, strategic planning becomes merely a codification of judgments top management has already made, rather than a vehicle for identifying and debating the crit-

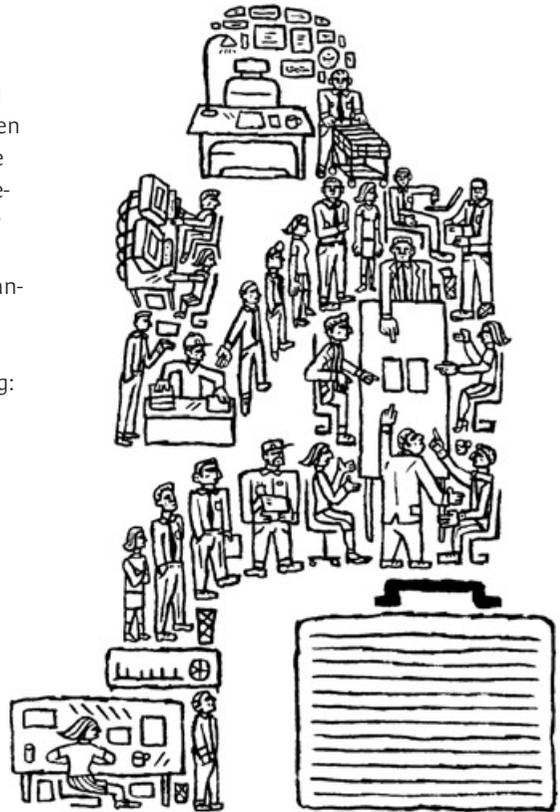
Who Makes More Decisions?

Companies see a dramatic increase in the quality of their decision making once they abandon the traditional planning model, which is calendar driven and focused on the business units. In our survey, the companies that broke most completely with the past made more than twice as many strategic decisions each year as companies wedded to tradition. What's more, the new structure of the planning process ensures that the decisions are probably the best that could have been made, given the information available to managers at the time.

Here are the average numbers of major strategic decisions reached per year in companies that take the following approaches to strategic planning:

<p>Annual review focused on business units</p> <p>2.5 DECISIONS PER YEAR</p>	<p>Annual review focused on issues</p> <p>3.5 DECISIONS PER YEAR</p>	<p>Continuous review focused on business units</p> <p>4.1 DECISIONS PER YEAR</p>	<p>Continuous review focused on issues</p> <p>6.1 DECISIONS PER YEAR</p>
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Source: Marakon Associates and the Economist Intelligence Unit



ical decisions that the company needs to make to produce superior performance. Over time, managers begin to question the value of strategic planning, withdraw from it, and come to rely on other processes for setting company strategy.

The calendar effect. At 66% of the companies in our survey, planning is a periodic event, often conducted as a precursor to the yearly budgeting and capital-approval processes. In fact, linking strategic planning to these other management processes is often cited as a best practice. But forcing strategic planning into an annual cycle risks making it irrelevant to executives, who must make many important decisions throughout the year.

There are two major drawbacks to such a rigid schedule. The first might be called the *time* problem. A once-a-year planning schedule simply does not give executives sufficient time to address the issues that most affect performance. According to our survey, companies that follow an annual planning calendar devote less than nine weeks per year to strategy development. That's barely two months to collect relevant facts, set strategic priorities, weigh competing alternatives, and make important strategic choices. Many issues – particularly those spanning multiple businesses, crossing geographic boundaries, or involving entire value chains – cannot be resolved effec-

tively in such a short time. It took Boeing, for example, almost two years to decide to outsource major activities such as wing manufacturing.

Constrained by the planning calendar, corporate executives face two choices: They can either not address these complex issues – in effect, throwing them in the “too-hard” bucket – or they can address them through some process other than strategic planning. In both cases, strategic planning is marginalized and separated from strategic decision making.

Then there's the *timing* problem. Even when executives allot sufficient time in strategy development to address tough issues, the timing of the process can create problems. At most companies, strategic planning is a batch process in which managers analyze market and competitor information, identify threats and opportunities, and then define a multiyear plan. But in the real world, managers make strategic decisions continuously, often motivated by an immediate need for action (or reaction). When a new competitor enters a market, for instance, or a rival introduces a new technology, executives must act quickly and decisively to safeguard the company's performance. But very few companies (less than 10%, according to our survey) have any sort of rigorous or disciplined process for responding to changes in the external

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environment. Instead, managers rely on ad hoc processes to correct course or make opportunistic moves. Once again, strategic planning is sidelined, and executives risk making poor decisions that have not been carefully thought through.

M&A decisions provide a particularly egregious example of the timing problem. Acquisition opportunities tend to emerge spontaneously, the result of changes in management at a target company, the actions of a competitor, or some other unpredictable event. Faced with a promising opportunity and limited time in which to act, executives can't wait until the opportunity is evaluated as part of the next annual planning cycle, so they assess the deal and make a quick decision. But because there's often no proper review process, the softer customer- and people-related issues so critical to effective integration of an acquired company can get shortchanged. It is no coincidence that failure to plan for integration is often cited as the primary cause of deal failure.

The business-unit effect. The organizational focus of the typical planning process compounds its calendar effects—or, perhaps more aptly, defects. Two-thirds of the executives we surveyed indicated that strategic planning at their companies is conducted business by business—that is, it is focused on units or groups of units. But 70% of the senior executives who responded to our survey stated they make decisions issue by issue. For example, should we enter China? Should we outsource manufacturing? Should we acquire our distributor? Given this mismatch between the way planning is organized and the way big decisions are made, it's hardly surprising that, once again, corporate leaders look elsewhere for guidance and inspiration. In fact, only 11% of the executives we surveyed believed strongly that planning was worth the effort.

The organizational focus of traditional strategic planning also creates distance, even antagonism, between

questions and an approved plan. Accordingly, local managers control the flow of information upward, and senior managers are presented only with information that shows each unit in the best possible light. Opportunities are highlighted; threats are downplayed or omitted.

Even if there's no subterfuge, senior corporate managers still have trouble engaging in constructive dialogue and debate because of what might be called information asymmetry. They just don't have the information they need to be helpful in guiding business units. So when they're presented with a strategic plan that's too good to be believed, they have only two real options: either reject it—a move that's all but unheard-of at most large companies—or play along and impose stretch targets to secure at least the promise that the unit will improve performance. In both cases, the review does little to drive decisions on issues. It's hardly surprising that only 13% of the executives we surveyed felt that top managers were effectively engaged in all aspects of strategy development at their companies—from target setting to debating alternatives to approving strategies and allocating resources.

Decision-Focused Strategic Planning

Strategic planning can't have impact if it doesn't drive decision making. And it can't drive decision making as long as it remains focused on individual business units and limited by the calendar. Over the past several years, we have observed that many of the best-performing companies have abandoned the traditional approach and are focusing explicitly on reaching decisions through the continuous identification and systematic resolution of strategic issues. (The sidebar "Continuous, Decision-Oriented Planning" presents a detailed example of the issues-oriented approach.) Although these

Strategy reviews often amount to little more than business tourism. The executive committee flies in for a day, sees the sights, meets the natives, and flies out.

corporate executives and business-unit managers. Consider, for example, the way most companies conduct strategy reviews—as formal meetings between senior managers and the heads of each business unit. While these reviews are intended to produce a fact-based dialogue, they often amount to little more than business tourism. The executive committee flies in for a day, sees the sights, meets the natives, and flies out. The business unit, for its part, puts in a lot of work preparing for this royal visit and is keen to make it smooth and trouble free. The unit hopes to escape with few unanswered

companies have found different specific solutions, all have made essentially the same fundamental changes to their planning and strategy development processes in order to produce more, better, and faster decisions.

They separate—but integrate—decision making and plan making. First and most important, a company must take decisions out of the traditional planning process and create a different, parallel process for developing strategy that helps executives identify the decisions they *need to make* to create more shareholder value over time. The output of this new process isn't a plan at all—it's a set of

The Disconnect Between Planning and Decision Making

How Executives Plan

66% PERIODICALLY

Percentage of surveyed executives saying their companies conduct strategic planning only at prescribed times

67% UNIT BY UNIT

Percentage saying planning is done unit by unit

How Executives Decide

100% CONTINUOUSLY

Percentage of executives saying strategic decisions are made without regard to the calendar

70% ISSUE BY ISSUE

Percentage saying decisions are made issue by issue

NO WONDER

ONLY 11% OF

EXECUTIVES ARE
HIGHLY SATISFIED

THAT STRATEGIC

PLANNING IS WORTH

THE EFFORT.

concrete decisions that management can codify into future business plans through the existing planning process, which remains in place. Identifying and making decisions is distinct from creating, monitoring, and updating a strategic plan, and the two sets of tasks require very different, but integrated, processes.

Boeing Commercial Airplanes (BCA) is a case in point. This business unit, Boeing's largest, has had a long-range business plan (LRBP) process for many years. The protracted cycles of commercial aircraft production require the unit's CEO, Alan Mulally, and his leadership team to take a long-term view of the business. Accordingly, the unit's LRBP contains a ten-year financial forecast, including projected revenues, backlogs, operating margins, and capital investments. BCA's leadership team reviews the business plan weekly to track the division's performance relative to the plan and to keep the organization focused on execution.

The weekly reviews were invaluable as a performance-monitoring tool at BCA, but they were not particularly effective at bringing new issues to the surface or driving strategic decision making. So in 2001, the unit's leadership team introduced a Strategy Integration Process focused on uncovering and addressing the business's most important strategic issues (such as determining the best go-to-market strategy for the business, driving the evolution of BCA's product strategy, or fueling growth in services). The team assigned to this process holds strategy integration meetings every Monday to track BCA's progress in resolving these long-term issues. Once a specific course of action is agreed upon and approved by BCA's leadership team, the long-range business plan is updated at the next weekly review to reflect the projected change in financial performance.

The time invested in the new decision-making process is more than compensated for by the time saved in the LRBP process, which is now solely focused on strategy execution. The company gets the best of both worlds—disci-

plined decision making and superior execution. BCA has maintained the value of the LRBP as an execution tool even as it has increased the quality and quantity of important decisions. Managers believe that the new process is at least partially responsible for the sharp turnaround in Boeing's performance since 2001.

They focus on a few key themes. High-performing companies typically focus their strategy discussions on a limited number of important issues or themes, many of which span multiple businesses. Moving away from a business-by-business planning model in this way has proved particularly helpful for large, complex organizations, where strategy discussions can quickly get bogged down as each division manager attempts to cover every aspect of the unit's strategy. Business-unit managers should remain involved in corporate-level strategy planning that affects their units. But a focus on issues rather than business units better aligns strategy development with decision making and investment.

Consider Microsoft. The world's leading software maker is a highly matrixed organization. No strategy can be effectively executed at the company without careful coordination across multiple functions and across two or more of Microsoft's seven business units, or, as executives refer to them, "P&Ls"—Client; Server and Tools; Information Worker; MSN; Microsoft Business Solutions; Mobile and Embedded Devices; and Home and Entertainment. In late 2004, faced with a perceived shortage of good investment ideas, CEO Steve Ballmer asked Robert Uhlener, Microsoft's corporate vice president of strategy, planning, and analysis, to devise a new strategic planning process for the company. Uhlener put in place a Growth and Performance Planning Process that starts with agreement by Ballmer's leadership team on a set of strategic themes—major issues like PC market growth, the entertainment market, and security—that cross business-unit boundaries. These themes not only frame the dialogue for Microsoft's annual strategy review, they also guide the units in fleshing

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out investment alternatives to fuel the company's growth. Dialogues between the P&L leaders and Ballmer's team focus on what the company can do to address each strategic theme, rather than on individual unit strategies. The early results of this new process are promising. "You have to be careful what you wish for," Uhlaner says. "Our new process has surfaced countless new opportunities for growth. We no longer worry about a dearth of investment ideas, but how best to fund them."

Like Microsoft, Diageo North America – a division of the international beer, wine, and spirits marketer – has recently changed the way it conducts strategic planning to allocate resources across its diverse portfolio. Diageo historically focused its planning efforts on individual brands. Brand managers were allowed to make the case for additional investment, no matter what the size of the brand or its strategic role in the portfolio. As a result, resource allocation was bedeviled by endless negotiations between the brands and corporate management. This political wrangling made it extremely difficult for Diageo's senior managers to establish a consistent approach to growth, because a lack of transparency prevented them from discerning, from the many requests for additional funding, which brands really deserved more resources and which did not.

Starting in 2001, Diageo overhauled its approach to strategy development. A crucial change was to focus planning on the factors that the company believed would most drive market growth – for example, an increase in the U.S. Hispanic population. By modeling the impact of these factors on the brand portfolio, Diageo has been better able to match its resources with the brands that have the most growth potential so that it can specify the strategies and investments each brand manager should develop, says Jim Moseley, senior vice president of consumer planning and research for Diageo North America. For example, the division now identifies certain brands for growth and earmarks specific resources for investment in these units. This focused approach has enabled the company to shorten the brand planning process and reduce the time spent on negotiations between the brands and division management. It has also given senior management greater confidence in each brand's ability to contribute to Diageo's growth.

They make strategy development continuous. Effective strategy planners spread strategy reviews throughout the year rather than squeeze them into a two- or three-month window. This allows senior executives to focus on one issue at a time until they reach a decision or set of decisions. Moreover, managers can add issues to the agenda as market and competitive conditions change, so there's no need for ad hoc processes. Senior executives can thus rely on a single strategic planning process – or, perhaps more aptly, a single strategic decision-making model – to drive decision making across the company.

Textron, a \$10 billion multi-industry company, has implemented a new, continuous strategy-development process built around a prioritized "decision agenda" comprising the company's most important issues and opportunities. Until 2004, Textron had a fairly traditional strategic planning process. Each spring, the company's operating units – businesses as diverse as Bell Helicopter, E-Z-Go golf cars, and Jacobsen turf maintenance equipment – would develop a five-year strategic plan based on standard templates. Unit managers would then review their strategic plans with Textron's management committee (the company's top five executives) during daylong sessions at each unit. Once the strategy reviews were com-

Traditional Planning

Companies that follow the traditional strategic planning model develop a strategy plan for each business unit at some point during the year. A cross-functional team dedicates less than nine weeks to developing the unit's plan. The executive committee reviews each plan – typically in daylong, on-site meetings – and rubber-stamps the results. The plans are consolidated to produce a company-wide strategic plan for review by the board of directors.

Once the strategic-planning cycle is complete, the units dedicate another eight to nine weeks to budgeting and capital planning (in most companies, these processes are not explicitly linked to strategic planning).

The executive committee then holds another round of meetings with each of the business units to negotiate performance targets, resource commitments, and (in many cases) compensation for managers.

The results: an approved but potentially unrealistic strategic plan for each business unit and a separate budget for each unit that is decoupled from the unit's strategic plan.

plete, the units incorporated the results, as best they could, into their annual operating plans and capital budgets.

In June 2004, dissatisfied with the quality and pace of the decision making that resulted from the company's strategy reviews, CEO Lewis Campbell asked Stuart Grief, Textron's vice president for strategy and business development, to rethink the company's strategic planning process. After carefully reviewing the company's practices and gathering feedback from its 30 top executives, Grief and his team designed a new Textron Strategy Process.

There were two important changes. First, rather than concentrate all of the operating-unit strategy reviews in the second quarter of each year, the company now spreads

strategy dialogues throughout the year—two to three units are reviewed per quarter. Second, rather than organize the management committee dialogues around business-unit plans, Textron now holds continuous reviews that are designed to address each strategic issue on the company's decision agenda. Both changes have enabled Textron's management committee to be much more effectively engaged in business-unit strategy development. The changes have also ensured that there's a forum in which cross-unit issues can be raised and addressed by top management, with input from relevant business-unit managers. The process has significantly increased the number of strategic decisions the company makes each year. As a result,

Continuous, Decision-Oriented Planning

Once the company as a whole has identified its most important strategic priorities (typically in an annual strategy update), executive committee dialogues, spread throughout the year, are set up to reach decisions on as many issues as possible. Since issues frequently span multiple business units, task forces are established to prepare the strategic and financial information that's needed to uncover and evaluate strategy alternatives for each issue. Preparation time may exceed nine weeks. The executive committee engages in two dialogues for each issue at three to four hours each.

The first dialogue focuses on reaching agreement on the facts surrounding the issue and on a set of viable alternatives. The second focuses on the evaluation of those alternatives and the selection of the best course of action. Once an issue is resolved, a new one is added to the agenda. Critical issues can be inserted into the planning process at any time as market and competitive conditions change.

Once a decision has been reached, the budgets and capital plans for the affected business units are updated to reflect the selected option. Consequently, the

strategic-planning process and the capital and budgeting processes are integrated. This significantly reduces the need for lengthy negotiations between the executive committee and unit management over the budget and capital plan.

The results: a concrete plan for addressing each key issue; for each business unit, a continuously updated budget and capital plan that is linked directly to the resolution of critical strategic issues; and more, faster, better decisions per year.



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Textron has gone from being an also-ran among its multi-industrial peers to a top-quartile performer over the past 18 months.

John Cullivan, the director of strategy at Cardinal Health, one of the world's leading health-care products and services companies, reports similar benefits from shifting to a continuous planning model. "Continuous decision making is tough to establish because it requires the reallocation of management time at the top levels of the company," he says. "But the process has enabled us to get sharper focus on the short-term performance of our vertical businesses and make faster progress on our longer-term priorities, some of which are horizontal opportunities that cut across businesses and thus are difficult to manage."

To facilitate continuous strategic decision making, Cardinal has made a series of important changes to its traditional planning process. At the corporate level, for example, the company has put in place a rolling six-month agenda for its executive committee dialogues, a practice that allows everyone inside Cardinal to know what issues management is working on and when decisions will be reached. Similar decision agendas are used at the business-unit and functional levels, ensuring that common standards are applied to all important decisions at the company. And to support continuous decision making at Cardinal, the company has trained "black belts" in new analytical tools and processes and deployed them throughout the organization. This provides each of the company's businesses and functions with the resources needed to address strategic priorities that emerge over time.

They structure strategy reviews to produce real decisions. The most common obstacles to decision making at large companies are disagreements among executives over past decisions, current alternatives, and even the facts presented to support strategic plans. Leading companies structure their strategy review sessions to overcome these problems.

At Textron, for example, strategic-issue reviews are organized around "facts, alternatives, and choices." Each issue is addressed in two half-day sessions with the company's management committee, allowing for eight to ten issues to be resolved throughout the year. In the first session, the management committee debates and reaches agreement on the relevant facts—information on the profitability of key markets, the actions of competitors, the purchase behavior of customers, and so on—and a limited set of viable strategy alternatives. The purpose of this first meeting is not to reach agreement on a specific course of action; rather, the meeting ensures that the group has the best possible information and a robust set of alternatives to consider. The second session is focused on evaluating these alternatives from a strategic and financial perspective and selecting the best course of action. By separating the dialogue around facts and alternatives from the

debate over choices, Textron's management committee avoids many of the bottlenecks that plague strategic decision making at most companies and reaches many more decisions than it otherwise would.

Like Textron, Cadbury Schweppes has changed the structure of its strategy dialogues to focus top managers more explicitly on decision making. In 2002, after acquiring and integrating gum-maker Adams—a move that significantly expanded Cadbury's product and geographic reach—the company realized it needed to rethink how it was conducting dialogues about strategy between the corporate center and the businesses. The company made two important changes. First, strategy dialogues were redesigned to incorporate a standard set of facts and metrics about consumers, customers, and competitors. This information helped get critical commercial choices in front of top managers, so that the choices were no longer buried in the business units. Second, senior executives' time was reallocated so they could pay more attention to markets that were crucial to realizing Cadbury's ten-year vision and to making important decisions.

Cadbury's top team now spends one full week per year in each of the countries that are most critical to driving the company's performance, so that important decisions can be informed by direct observation as well as through indirect analysis. Strategy dialogues are now based on a much deeper understanding of the markets. Cadbury's strategic reviews no longer merely consist of reviews of and approval of a strategic plan, and they produce many more important decisions.

•••

Done right, strategic planning can have an enormous impact on a company's performance and long-term value. By creating a planning process that enables managers to discover great numbers of hidden strategic issues and make more decisions, companies will open the door to many more opportunities for long-term growth and profitability. By embracing decision-focused planning, companies will almost certainly find that the quantity and quality of their decisions will improve. And—no coincidence—they will discover an improvement in the quality of the dialogue between senior corporate managers and unit managers. Corporate executives will gain a better understanding of the challenges their companies face, and unit managers will benefit fully from the experience and insights of the company's leaders. As Mark Reckitt, a director of group strategy at Cadbury Schweppes, puts it: "Continuous, decision-focused strategic planning has helped our top management team to streamline its agenda and work with business units and functional management to make far better business-strategy and commercial decisions." 

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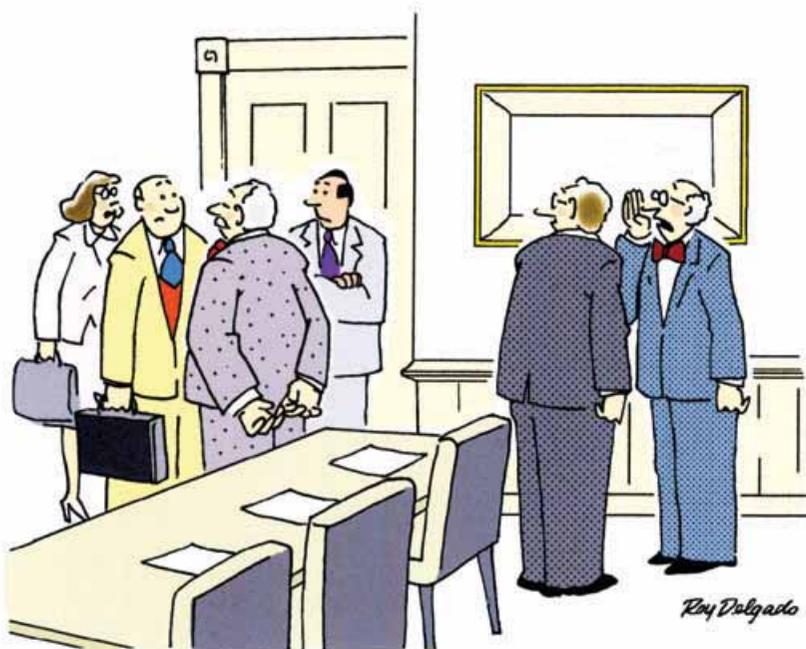
Heads or Tails

“Decision making was never quite as easy as rationalists would have us think Our brains are too limited.”

Amitai Etzioni
“Humble Decision Making”
Harvard Business Review
July–August 1989



Manage à Trois



“We did a Pareto analysis, a grid analysis, a decision tree, a force field analysis...and then the boss decided to go with his gut.”



"Looks like you've got all the data – what's the holdup?"



DAVE GÖPENTER...



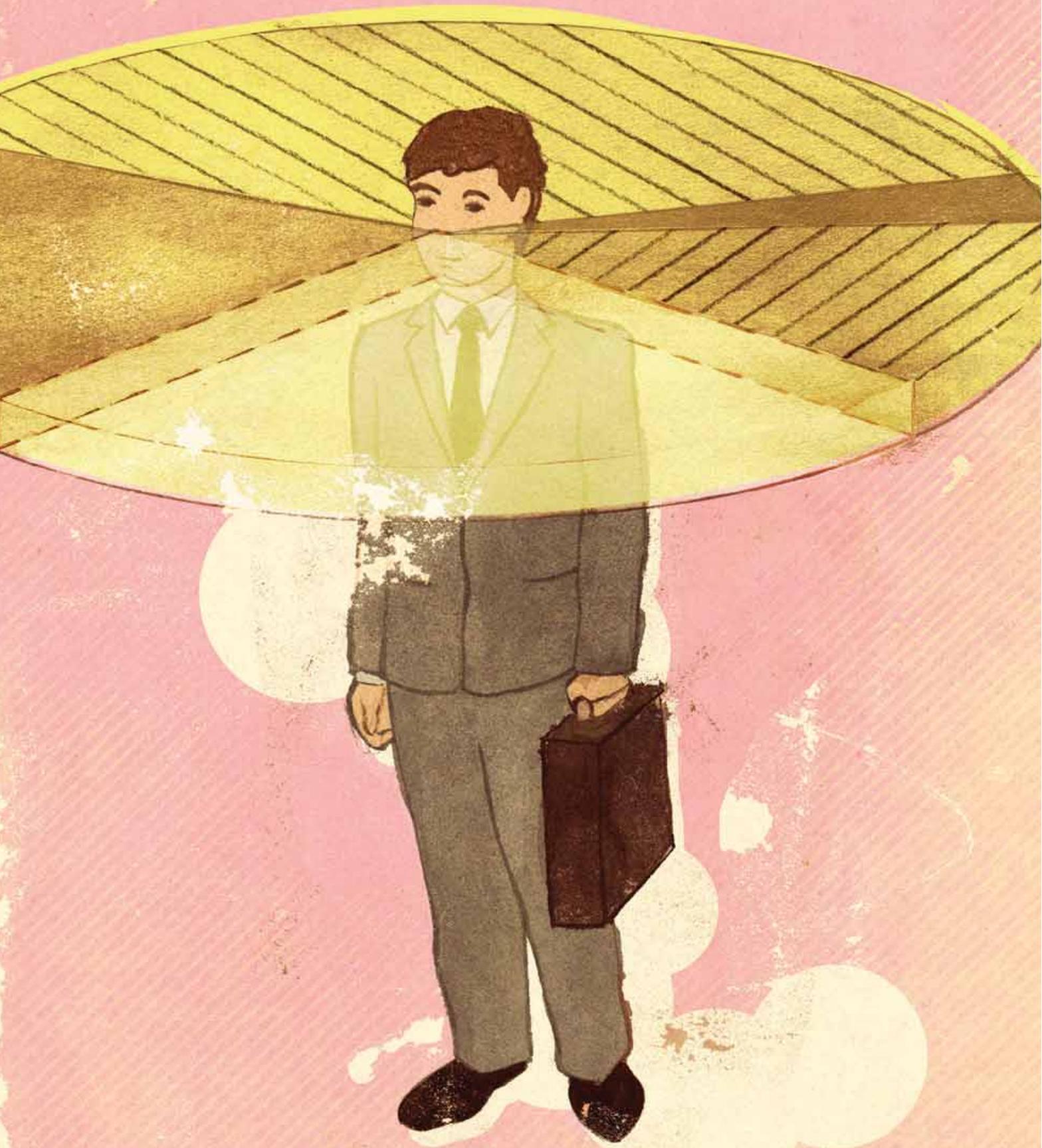
"If we change one molecule of this painkiller, we'll get an excellent hair spray. The sales people are deciding which way to go."

The “bounded awareness” phenomenon causes people to ignore critical information when making decisions. Learning to expand the limits of your awareness before you make an important choice will save you from asking “How did I miss that?” after the fact.

DECISIONS WITHOUT BLINDERS

by Max H. Bazerman and Dolly Chugh

BY THE TIME MERCK WITHDREW VIOXX from the market in September 2004 out of concern that the pain relief drug was causing heart attacks and strokes, more than 100 million prescriptions for it had been filled in the United States alone. Researchers now estimate that Vioxx may have been associated with as many as 25,000 heart attacks and strokes. And more than 1,000 claims have been filed against the company. Evidence of the drug’s hazards was publicly available as early as November



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2000, when the *New England Journal of Medicine* reported that four times as many patients taking Vioxx experienced myocardial infarctions as did those taking naproxen. In 2001, Merck's own report to federal regulators showed that 14.6% of Vioxx patients suffered from cardiovascular troubles while taking the drug; 2.5% developed serious problems, including heart attacks. So why, if the drug's risks had been published in 2000 and 2001, did so many doctors choose to prescribe it?

Social science research has shown that without realizing it, decision makers ignore certain critical information. Doctors, like the rest of us, are imperfect information processors. They face tremendous demands on their time and must make life-and-death decisions under highly

tion during the decision-making process. "The information that life serves is not necessarily the information that one would order from the menu," notes Dan Gilbert of Harvard University's psychology department, "but like polite dinner guests and other victims of circumstance, people generally seem to accept what is offered rather than banging their flatware and demanding carrots."

Most executives are not aware of the specific ways in which their awareness is limited. And failure to recognize those limitations can have grave consequences, as the Vioxx example demonstrates. Simply put, pain relief and profits may well have been within doctors' and executives' bounds of awareness, whereas the risks of Vioxx may have fallen outside these bounds.

Most people fail to bring the right information into their conscious awareness at the right time.

ambiguous circumstances. In the case of Vioxx, doctors more often than not received positive feedback from patients taking the drug. And, as we now know, the Merck sales force took unethical steps to make Vioxx appear safer than it was. So despite having access to information about the risks, doctors – even those who had read the *New England Journal of Medicine* article – may have been blinded to the actual extent of those risks.

And why did Merck's senior executives allow the product to stay on the market for so long? Evidence points to intentional misrepresentation by the sales force, but it is quite possible that some members of Merck's top management team did not fully understand how harmful the drug was. In fact, many respected individuals have vouched for the ethics of former chairman and CEO Raymond Gilmartin, insisting that he would have pulled Vioxx from the market earlier if he had believed that it was killing people. Although senior executives are, ultimately, responsible for what happens in their organizations, the lapse here may have been more in the quality of their decision making than in any intentional unethical behavior.

In this article, we'll examine the phenomenon of *bounded awareness* – when cognitive blinders prevent a person from seeing, seeking, using, or sharing highly relevant, easily accessible, and readily perceivable informa-

tion during the decision-making process. First, executives may fail to see or seek out key information needed to make a sound decision. Second, they may fail to use the information that they do see because they aren't aware of its relevance. Finally, executives may fail to share information with others, thereby bounding the organization's awareness.

Bounded awareness can occur at various points in the decision-making process. First, executives may fail to see or seek out key information needed to make a sound decision. Second, they may fail to use the information that they do see because they aren't aware of its relevance. Finally, executives may fail to share information with others, thereby bounding the organization's awareness.

Failure to See Information

The ability to focus on one task is undoubtedly useful, but focus also limits awareness. Consider a study by Cornell psychologist Ulric Neisser, for instance. Neisser had participants watch a videotape of two teams (wearing different-colored jerseys) passing basketballs and asked everyone to count the number of passes between players on one of the teams. The assignment was more difficult than it might sound, because each team had played at different times but their footage was superimposed onto one video. So focused were the subjects on their task that only 21% of them reported seeing a woman walking with an open umbrella among the players. But anyone who watches the video without an assignment notices the woman there for a significant part of the video. When we use this tape in the executive classroom, even fewer than 21% of executives spot the woman.

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That's cause for concern, since executives need to stay alert to peripheral threats and opportunities as well as concentrate on the job at hand. Failure to notice regulatory, political, or market-oriented changes in their environment will keep them from adapting their strategies so that their organizations can thrive.

People overlook more than just the information they aren't expecting, as Jeremy Wolfe and Todd Horowitz of Harvard Medical School and Naomi Kenner of Brigham and Women's Hospital in Boston have shown. These researchers replicated in a lab the process of screening for weapons at airports. Study participants screened bags for dangerous objects after having been told how often those objects would appear. When they were told that the objects would appear 50% of the time, participants had a 7% error rate. But when they were told that the objects would appear only 1% of the time, the error rate jumped to 30%. Since people didn't expect to see the objects, they gave up looking for them—or as Wolfe explains, “If you don't see it often, you often don't see it.”

Another area of perceptual blindness has to do with gradual change, as demonstrated in a study by Harvard

Business School's Francesca Gino with Max Bazerman. Participants were divided into two groups: one charged with estimating the amount of money in jars filled with pennies, the other with “auditing” the estimates of others. The estimators were rewarded not when they were accurate but when their high estimates were approved by the auditor. The auditors were rewarded for approving the estimates but penalized if caught accepting an extreme overestimate. When the first group gradually increased its numbers in comparison with the true value, the auditors were less likely to see the estimates as inflated and unethical than if the estimators suddenly moved to the same exaggerated number. In practice, this helps explain how the Enron and WorldCom scandals grew so huge. Small ethical transgressions that were originally overlooked snowballed into larger and larger crimes.

Fortunately, people can learn to be more observant of changes in their environment, which will help to remove their decision-making blinders. U.S. Secret Service agents, for instance, are trained to scan a crowd and notice when someone reaches into his coat or moves to the front of a pack, things most of us would be oblivious to. Similarly,

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executives can cultivate an awareness of what kind of information could directly affect their organizations. They should also assign responsibility to others for this task. Since different people will have different bounds of awareness, getting multiple views will be more apt to yield all the relevant data necessary for a fully informed decision. Psychologists Dan Lovallo and Daniel Kahneman discussed the wisdom of developing—or buying—an outsider’s perspective in “Delusions of Success: How Optimism Undermines Executives’ Decisions” (HBR July 2003). We second their advice because an outside view might help you see critical information that you could easily overlook when immersed in day-to-day activities.

Failure to Seek Information

The *Challenger* space shuttle disaster has been well reviewed through many analytic lenses, but for our purposes, let’s consider the decisions leading up to the launch. *Challenger* blasted off at the lowest temperature in the history of the shuttle program, a factor that led to the failure of the O-rings and, ultimately,

in their own bounded awareness and did not search for information that would argue against an invasion. Specifically, they failed to notice signs that their assessment of the situation in Iraq was wrong, particularly regarding the existence of weapons of mass destruction.

The most disturbing evidence comes from Richard Clarke’s account of the events of September 11 and 12, 2001. Clarke, the antiterrorism czar at the time, claims in his book *Against All Enemies* that on the night of September 11, he was directed by then–National Security Advisor Condoleezza Rice to go home for a few hours of sleep. When he returned to work the next morning, Clarke reports, Vice President Dick Cheney, Defense Secretary Donald Rumsfeld, and Deputy Secretary of Defense Paul Wolfowitz were discussing the role that Iraq must have played in the attack. We now know that this overly narrow assessment was wrong, but in the months that followed, the Bush administration conducted a motivated search to tie Iraq to 9/11 and terrorism. With such a confirmatory effort, information inconsistent with the preferred viewpoint lay outside the bounds of awareness.

The most worrisome version of the failure to seek information occurs when decision makers are motivated to favor a particular outcome.

to the death of all seven astronauts on board. The day before the disaster, executives at NASA argued about whether the combination of low temperature and O-ring failure would be a problem. But because no clear connection emerged between low temperatures and the O-rings in the seven prior launches when O-ring damage had occurred, they chose to continue on schedule.

Tragically, the decision makers did not seek out the temperatures for the 17 shuttle launches in which there was no O-ring failure. The data set of all 24 launches would have unambiguously pointed to the need to delay *Challenger*. Later analyses suggest that, given the low temperature, the probability of disaster exceeded 99%. Like many well-meaning executives, the scientists at NASA and Morton Thiokol limited their analysis to the data at hand—they failed to seek out the most relevant data.

The most worrisome version of the failure to seek information occurs when decision makers are motivated to favor a particular outcome. Many people believe the Bush administration’s decision to invade Iraq was a mistake. We will not argue the general case here, but we do contend that the process leading up to the decision was flawed. Senior U.S. government officials were caught up

How can we be expected to seek out information that lies beyond our very awareness? The key is vigilance in considering what information actually addresses the decision you must reach. Imagine, for instance, that you are in a classroom and the professor gives you the sequence “2–4–6.” She then asks you to identify the specific rule she is thinking of that is consistent with the 2–4–6 sequence. In order to guess the rule, you can call out other sequences of three numbers, and the professor will tell you whether or not each sequence you offer follows her rule. You can query as many sequences as you like, but you have only one chance to guess the rule.

We use this exercise, adapted from psychologist P.C. Wason, in our executive education classes. We write 2–4–6 on the board and have a volunteer guess other sequences to determine the rule. The volunteer usually offers only a few sequences before making his final—and always incorrect—guess (most commonly, “numbers that go up by two” or “the difference between the first two numbers equals the difference between the last two numbers”). We then ask for another volunteer. This executive comes up with another hypothesis, tries sequences that are consistent with that hypothesis, and then guesses a rule—

again, incorrectly. At this stage, it is rare that we will have answered no to a sequence proposed by either executive, because the rule is “any three ascending numbers.”

Solving this problem requires participants to accumulate contradictory, rather than confirming, evidence. Thus, if your mind places the bounds of “numbers that go up by two” on the problem, you must try sequences that do not conform to find the actual rule. Trying 1–3–5, 10–12–14, 122–124–126, and so on will lead you to “confirm” that going up by two is correct, though it is not. Seeking disconfirming information is a powerful problem-solving approach, but it is rarely a part of our intuitive strategies.

That exercise had one correct answer, but in the real world, few decisions are so cut-and-dried. And yet, by the time information reaches an executive’s desk, it is often framed as a recommendation and supported by considerable data. While it’s true that executives must rely on others to streamline the data flow for them, they must also be skeptical of the absence of contradictory evidence: It is a red flag indicating highly bounded awareness. When an executive sees it, he should send team members back to search for and articulate the missing contradictory evidence.

Take, for example, the legendary flop of New Coke in 1985. In the mid-1980s, Pepsi was gaining ground on Coke, largely by shifting consumers’ attention to taste through the Pepsi Challenge taste tests. The success of Pepsi’s campaign also persuaded Coca-Cola executives to focus on the taste dimension – and to devote a massive amount of research and development to the reformulation of the 99-year-old Coke recipe.

Let’s put this situation in the context of the 2–4–6 puzzle. Pepsi’s focus on taste became the hypothesis at Coke’s headquarters. All the focus groups, taste tests, and reformulations that followed seemed to confirm that taste was the problem. However, executives didn’t attempt to collect contradictory evidence. Sergio Zyman, Coke’s chief marketing officer at the time, reflects, “We didn’t ask... ‘If we took away Coca-Cola and gave you New Coke, would you accept it?’” That question could have proved the taste theory wrong. Just as the way to test the “increase by 2 hypothesis” is not to say 1–3–5 but 1–3–6, the way to test the taste hypothesis is to test worse-tasting Coke recipes against Pepsi to see if Coke drinkers remain loyal.

Generating contradictory evidence should be part of everyone’s job. But one way to integrate this form of thinking is to assign a “devil’s inquisitor” role to a member of the group. This is not the same as a devil’s advocate, who argues against the status quo. By asking questions instead of arguing an alternate point of view, the devil’s inquisitor pushes people to look for evidence outside their bounds of awareness. Moreover, this role can be comfortably worn by those who are reluctant to take on the majority; it gives them a safe way to contribute.

How Can You Increase Your Awareness?

SEE Information

- >> **Know what you are looking for, and train your eyes.** Secret Service agents can scan a crowd to recognize risks. Business executives can do something similar by asking questions like “What if our strategy is wrong? How would we know?” Simply asking the questions will force you to pay attention to areas you’re typically unaware of.
- >> **Develop (or pay for) an outsider’s perspective.** Ask this person or group to tell you things you don’t see from your vantage point. Even if you know you can’t implement radical recommendations, having more data at hand is critical.

SEEK Information

- >> **Challenge the absence of disconfirming evidence.** Receiving recommendations without contradictory data is a red flag indicating that your team members are falling prey to bounded awareness. Assign someone to play the role of devil’s inquisitor (a person who asks questions, as opposed to a devil’s advocate, who argues an alternate point of view).
- >> **Undersearch in most contexts, but oversearch in important contexts.** Think about the implications of an error; if it would be extremely difficult to recover from, then oversearching is a wise strategy.

USE Information

- >> **Unpack the situation.** Make sure you’re not over-emphasizing one focal event and discounting other relevant information. By consciously thinking about the full context of your situation, you’re less likely to disregard important data.
- >> **Assume that the information you need exists in your organization.** It often does, and if you approach it with that mind-set, you’re more likely to discover it.

SHARE Information

- >> **Everyone has unique information; ask for it explicitly.** Meeting agendas for top executives should require updates from all members, thus increasing the probability that important individual information is shared.
- >> **Create structures that make information sharing the default.** Consider making one individual responsible for assembling information from many sources.

Failure to Use Information

Although it may be hard to believe, many executives simply disregard accessible and valuable information when they are making an important decision. Consider the case of Citibank in Japan. According to Insead's Mark Hunter, soon after the Financial Services Agency (FSA) was created in 1998, it undertook inspections of Japan's 19 major banks. Foreign banks came under intense scrutiny, and the license of the Tokyo branch of Credit Suisse Financial Products, the derivatives arm of Credit Suisse First Boston, was revoked in November 1999. The FSA's message was clear: Many formerly gray areas in banking were now unacceptable, such as cross selling financial products across corporate units. Even so, cross selling remained a core strategy for Citibank.

The FSA also made it clear that transactions aimed at concealing losses were illegal. In May 2000, it suspended Deutsche Bank's Tokyo securities unit from selling equity derivatives products for six months because the unit

Eventually, Citibank paid for its poor decisions. The FSA revoked the licenses of the company's four private-banking offices in September 2004. The FSA also damaged Citibank's reputation by claiming that the bank had cheated customers by tacking excessively high margins onto financial products. Why, in the face of mounting evidence of the FSA's enforcement practices, hadn't Citibank executives protected their own interests by stopping this questionable behavior in their Japanese offices? The information about FSA activities was available to Citibank executives, but their focus appeared to have been primarily on financial performance, and marginal violations of Japanese law lay outside their bounds of awareness.

It seems that success itself can create bounds that prevent executives from using readily available information. Swiss watchmakers invented quartz technology, but as Michael Tushman of Harvard Business School and his colleagues have shown, their dominance in mechanical watches prevented the Swiss from recognizing the future path of the entire watch industry. They essentially gave the quartz technology away and, as a result, lost most

Team members frequently discuss the information that they are all aware of and fail to share unique information with one another.

had sold securities designed to conceal the losses of corporate clients. That was one of many similar punishments levied against banks. In sum, the FSA sent unambiguous signals that hard-selling tactics and practices that would be tolerated elsewhere would lead to punishment in Japan.

In 2001, under pressure from the FSA, Citibank reported that it had offered products to about 40 companies that would let them transfer book losses on securities holdings and foreign exchange losses to later reporting periods. Obviously, upper-level managers at Citibank had seen newspaper accounts of the punishments of their competitors for this sort of behavior. Yet Citibank executives played aggressively and publicly in the gray areas of the Japanese marketplace. In 2003, to take one example, when a Tokyo fashion school sought a \$6.7 million loan, other bankers who saw the school's books turned it down. But Citibank's private bank found a solution: Six of its customers bought three buildings from the school. The school then bought them back a year later, for the same price plus rent and transaction fees, which added 26% to the cost. Citibank kept 11% for itself; its customers got the rest of the profit. Citibank's bounded awareness led it to miss warning signals from the Japanese government and to engage in many other inappropriate behaviors.

of the global watch market to U.S. and Japanese firms. More broadly, Tushman documents a common pattern: Success in a given technical area impairs firms from using new technologies outside that area, even when they are available in-house.

Another common pattern of bounded awareness is not using information about competitors. Don Moore of Carnegie Mellon University and his colleagues have found that decision makers may succeed at focusing on how well they can perform a task but tend to ignore how well the competition can do the same task. As a result, individuals are much more likely to compete on easy tasks, even when facing a great deal of competition, than to compete on harder tasks, despite the fact that it will also be harder for the competition. According to Moore, this tendency often leads firms to enter product domains that have easy access and to enter more difficult product domains too infrequently.

One way to decide if the information at your disposal is useful is to think about the actions of other parties involved and the rules governing their actions. For instance, imagine that you are thinking about acquiring a small firm with a great new product that fits your portfolio. The firm could be worth as little as \$5 million or as much as



\$10 million in the hands of current management, depending on valuation assumptions. Under your ownership, you believe, it would be worth roughly \$20 million because of the unique synergies that your company can create. You know that the other firm's founders hold three equal shares and that they have different opinions about the worth of their firm. How much do you offer?

If you learned that the founders have an agreement that they will sell the firm only if all three accept an offer, would your offer change? Or if instead you learned that any one of the three founders can force the sale of the firm (unless the other two buy her shares at an equivalent price, which you are fairly certain the others cannot afford), would that change your offer?

Once you realize that the other players' decisions will probably vary, the decision rule about the seller's reservation value (that is, the minimum price that the seller will accept) becomes very important. Imagine that the three founders place their reservation values for selling the firm at \$6 million, \$7 million, and \$9 million. Clearly, if one founder can force the sale, you can offer a much lower price than you could if all sellers must be in agreement.

For most negotiators, however, the decisions of other parties and the rules of the game lie outside their bounds of awareness. When we present this scenario to executives in our classes, they typically disregard the decision rule in effect, and they don't consider the likelihood that the founders would vary in their reservation values.

Executives can take steps to gain access to similarly critical information. One method is to "unpack" a situation, or make the full context of the relevant information clear. Individuals asked to predict how happy or unhappy they would be a few days after their favorite football team won or lost a game, for instance, tend to expect that their happiness will rely heavily on the game's outcome. But when Tim Wilson of the University of Virginia and his colleagues asked participants to list a dozen other things that were happening on the days following the game, they predicted that their happiness would depend far less on the outcome of the game. In other words, they "unpacked" the situation to bring easily available, but previously unused, information into awareness.

Research by Nick Epley of the University of Chicago and Eugene Caruso and Max Bazerman of Harvard University

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shows that people tend to take more credit than they deserve for a group's accomplishments. When four group members are each asked, "What percentage of the group's accomplishments is due to your ideas and work?" the sum of the four percentages typically far exceeds 100% (this finding applies to academic coauthors). But when they are asked instead, "What percentage of the group's accomplishments can be attributed to each of the four group members?" the degree of self-serving bias declines dramatically. Essentially, the latter question "unpacks" the contributions of the other members, bringing their contributions into the respondent's bounds of awareness.

Other questions that are likely to bring useful information within the bounds of awareness include: What information do we already know in our organization? What information is relevant to the problem at hand? Is

decision making. In a typical hidden profile task, group members are asked to identify the best choice from a number of options, such as the best person for a key executive position. When all group members are given all the information available about all the candidates, the vast majority of groups identify one specific candidate as the best choice. But in one version of the study, excellent information about the best candidate is distributed to only a few group members, while good (but not excellent) information about another candidate is common knowledge to everyone on the team. In that case, most groups choose the lesser candidate because members keep the information about the best candidate to themselves.

The failure to share unique information is a likely factor in the United States' inability to prevent the 9/11 attacks. According to the report of the 9/11 Commission, the

Executives must rely on others to streamline the data flow for them, but they must be skeptical of the absence of contradictory evidence: It's a red flag indicating highly bounded awareness.

it rational to ignore the information that we have not been using? Obviously, the more important the problem, the more care you should take to use the most appropriate inputs.

Failure to Share Information

Executives work in teams because, as the saying goes, two heads are better than one. Members are chosen to represent different parts of the organization so that the group can access different sources of information when making decisions and setting strategy. Yet research suggests that most groups have cognitive boundaries to sharing information. Team members frequently discuss the information that they are all aware of, and they typically fail to share unique information with one another. Why? Because it's much easier to discuss common information and because common information is more positively rewarded as others chime in with their support. Cognitively, individual executives don't realize the importance of sharing their own unique information and fail to seek unique information from others. That dysfunctional pattern undermines the very reason that organizations form diverse teams.

As an example, consider "hidden profile" tasks, developed by Gerald Stasser at the University of Ohio and now a common element of executive courses on group deci-

U.S. government had access to plenty of information that, collectively, should have been used to protect the nation. The White House, the CIA, the FBI, the Federal Aviation Administration, Congress, and many other parts of the government had some of the information needed to head off the attack. Both the Clinton/Gore and the Bush/Cheney administrations failed to adequately improve aviation security and antiterrorism intelligence; they passed up opportunities to mandate systems that would have allowed agencies to share available information. Although we cannot be sure that better information sharing would have prevented 9/11, we are certain that if we could replay history, wise individuals would opt for far better communications among the various organizations.

There are many ways to approach the integration of diverse knowledge in a group. Meetings should have agendas, and the agendas should specifically request individual reports, rather than assuming individuals who have unique information will speak up as needed. If accountability for critical issues lies in multiple areas, then one person or department can be held responsible for ensuring that individuals or groups share information. But before executives can consider the proper structural responses to a situation, they must first recognize the hidden profile effect. Only then can they bring unique information into the bounds of the group decision-making process.

Breaking Through Your Bounds

Focus is a good thing. Indeed, many executives have achieved their success because of their ability to focus intently on particular information. But when making important decisions, executives would be well advised to consider whether key information remains out of focus because of their bounded awareness. When executives at major U.S. airlines concentrated on aggressively pursuing market share, for instance, they lost sight of other critical strategic considerations and compromised profitability, customer satisfaction, and aviation security.

Of course, not every decision requires a person to consciously broaden his focus. In fact, one risk of describing the problem of bounded awareness is that executives could become hyperaware of their own limitations and, as a result, collect too much information for every choice they face. That would waste time and other valuable resources. But when something large is at stake – such as emergency preparedness or downsizing or marketing a potentially dangerous product – executives should be mindful of their natural bounds of awareness. In short, if an error would generate almost irrecoverable damage,

then they should insist on getting all the information they need to make a wise decision. In this regard, executives would do well to learn from high-level diplomats. Ambassadors tend to think intuitively about how negotiations with one country will affect neighboring countries. And diplomats seem to have developed a tendency to expand their bounds of awareness by collecting more information rather than less – a goal that might benefit corporate executives.

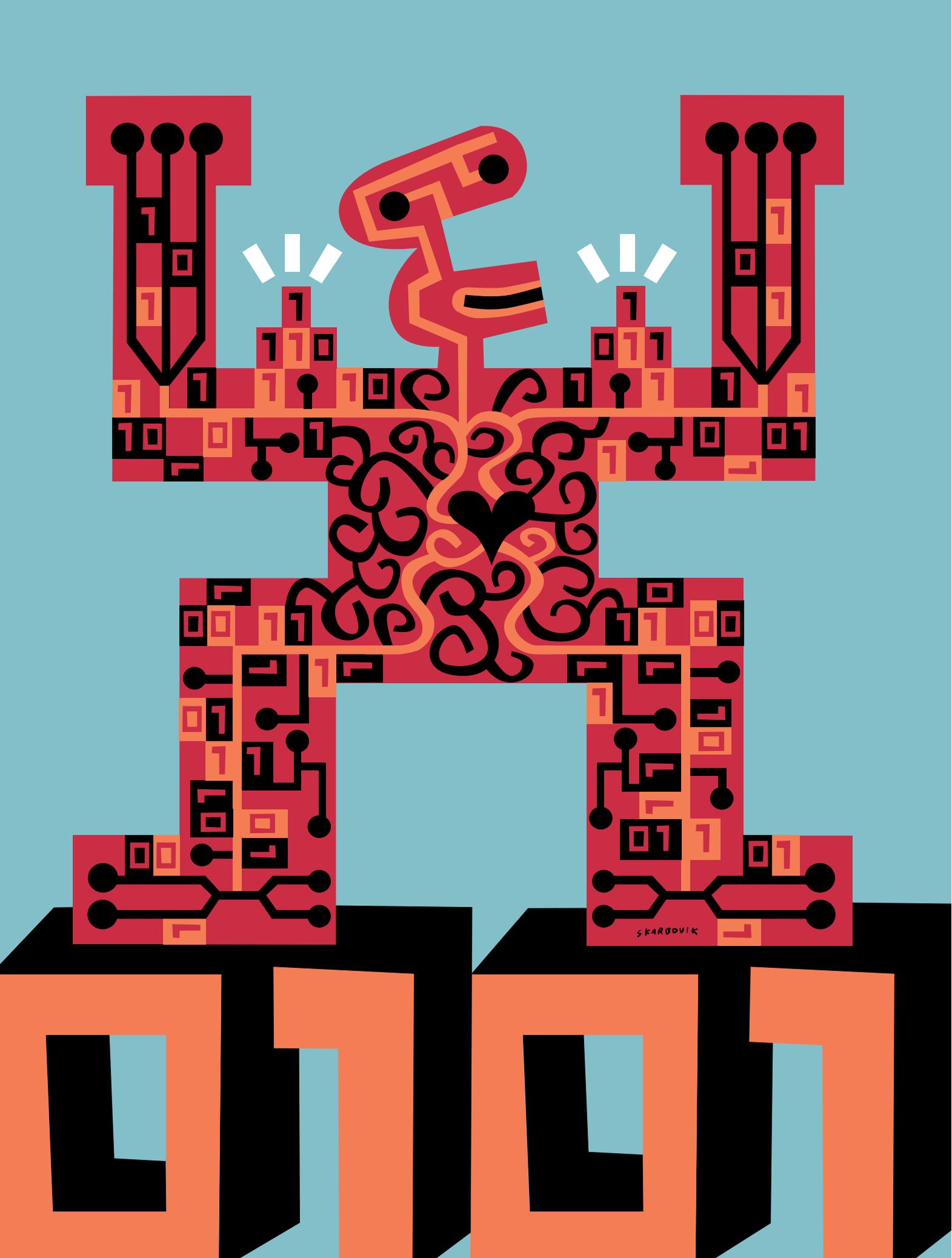
In their book *Why Not?*, Barry Nalebuff and Ian Ayres of Yale University provide another clear strategy for expanding the cognitive bounds of executives. They argue that people too often take the status quo as a given; by contrast, creative solutions emerge when we question common assumptions about how things work. Nalebuff and Ayres tell many stories of corporate success that have resulted from asking, “Why not?” – including the discovery that ketchup bottles would be more functional if they rested on their tops. To put that in our terms, you can learn to locate useful information outside your bounds of awareness by asking a simple question: Why not? 

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To order, see page 135.



“Maybe I’ll have the rabbit – then again, maybe I won’t have the rabbit.”



SKARDDVIK

Some companies have built their very businesses on their ability to collect, analyze, and act on data.

Every company can learn from what these firms do.

by Thomas H. Davenport

COMPETING ON ANALYTICS

WE ALL KNOW THE POWER of the killer app. Over the years, groundbreaking systems from companies such as American Airlines (electronic reservations), Otis Elevator (predictive maintenance), and American Hospital Supply (online ordering) have dramatically boosted their creators' revenues and reputations. These heralded – and coveted – applications amassed and applied data in ways that upended customer expectations and optimized operations to unprecedented degrees. They transformed technology from a supporting tool into a strategic weapon.

Companies questing for killer apps generally focus all their firepower on the one area that promises to create the greatest competitive advantage. But a new breed of company is upping the stakes. Organizations such as Amazon, Harrah's, Capital One, and the Boston Red Sox have dominated their fields by deploying industrial-strength analytics across a wide variety of activities. In essence, they are transforming their organizations into armies of killer apps and crunching their way to victory.

Organizations are competing on analytics not just because they can – business today is awash in data and data

DECISION MAKING

crunchers—but also because they should. At a time when firms in many industries offer similar products and use comparable technologies, business processes are among the last remaining points of differentiation. And analytics competitors wring every last drop of value from those processes. So, like other companies, they know what products their customers want, but they also know what prices those customers will pay, how many items each will buy in a lifetime, and what triggers will make people buy more. Like other companies, they know compensation costs and turnover rates, but they can also calculate how much personnel contribute to or detract from the bottom line and how salary levels relate to individuals' performance. Like other companies, they know when inventories are running low, but they can also predict problems with demand and supply chains, to achieve low rates of inventory and high rates of perfect orders.

And analytics competitors do all those things in a coordinated way, as part of an overarching strategy championed by top leadership and pushed down to decision makers at every level. Employees hired for their expertise with numbers or trained to recognize their importance are armed with the best evidence and the best quantitative tools. As a result, they make the best decisions: big and small, every day, over and over and over.

Although numerous organizations are embracing analytics, only a handful have achieved this level of proficiency. But analytics competitors are the leaders in their varied fields—consumer products, finance, retail, and travel and entertainment among them. Analytics has been instrumental to Capital One, which has exceeded 20% growth in earnings per share every year since it became a public company. It has allowed Amazon to dominate online retailing and turn a profit despite enormous investments in growth and infrastructure. In sports, the real secret weapon isn't steroids, but stats, as dramatic victories by the Boston Red Sox, the New England Patriots, and the Oakland A's attest.

At such organizations, virtuosity with data is often part of the brand. Progressive makes advertising hay from its detailed parsing of individual insurance rates. Amazon customers can watch the company learning about them as its service grows more targeted with frequent purchases. Thanks to Michael Lewis's best-selling book *Moneyball*, which demonstrated the power of statistics in professional baseball, the Oakland A's are almost as famous for their geeky number crunching as they are for their athletic prowess.

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To identify characteristics shared by analytics competitors, I and two of my colleagues at Babson College's Working Knowledge Research Center studied 32 organizations that have made a commitment to quantitative, fact-based analysis. Eleven of those organizations we classified as full-bore analytics competitors, meaning top management had announced that analytics was key to their strategies; they had multiple initiatives under way involving complex data and statistical analysis, and they managed analytical activity at the enterprise (not departmental) level.

This article lays out the characteristics and practices of these statistical masters and describes some of the very substantial changes other companies must undergo in order to compete on quantitative turf. As one would expect, the transformation requires a significant investment in technology, the accumulation of massive stores of data, and the formulation of companywide strategies for managing the data. But at least as important, it requires executives' vocal, unswerving commitment and willingness to change the way employees think, work, and are treated. As Gary Loveman, CEO of analytics competitor Harrah's, frequently puts it, "Do we think this is true? Or do we know?"

Anatomy of an Analytics Competitor

One analytics competitor that's at the top of its game is Marriott International. Over the past 20 years, the corporation has honed to a science its system for establishing the optimal price for guest rooms (the key analytics process in hotels, known as revenue management). Today, its ambitions are far grander. Through its Total Hotel Optimization program, Marriott has expanded its quantitative expertise to areas such as conference facilities and catering, and made related tools available over the Internet to property revenue managers and hotel owners. It has developed systems to optimize offerings to frequent customers and assess the likelihood of those customers' defecting to competitors. It has given local revenue managers the power to override the system's recommendations when certain local factors can't be predicted (like the large number of Hurricane Katrina evacuees arriving in Houston). The company has even created a revenue opportunity model, which computes actual revenues as a percentage of the optimal rates that could have been charged. That figure has grown from 83% to 91% as Marriott's revenue-management analytics has taken root throughout the enterprise. The word is out among property owners and franchisees: If you want to squeeze the most revenue from your inventory, Marriott's approach is the ticket.

Clearly, organizations such as Marriott don't behave like traditional companies. Customers notice the difference in every interaction; employees and vendors live the

difference every day. Our study found three key attributes among analytics competitors:

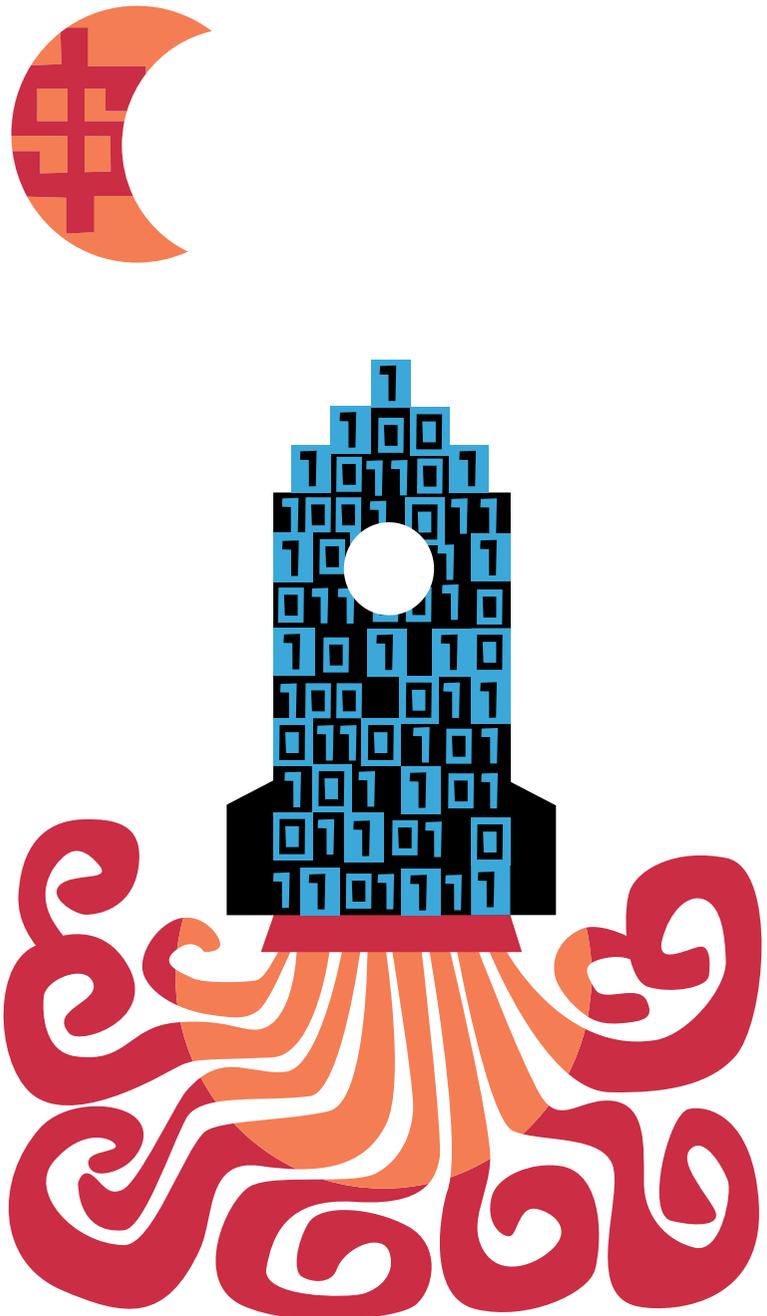
Widespread use of modeling and optimization. Any company can generate simple descriptive statistics about aspects of its business—average revenue per employee, for example, or average order size. But analytics competitors look well beyond basic statistics. These companies use predictive modeling to identify the most profitable customers—plus those with the greatest profit potential and the ones most likely to cancel their accounts. They pool data generated in-house and data acquired from outside sources (which they analyze more deeply than do their less statistically savvy competitors) for a comprehensive understanding of their customers. They optimize their supply chains and can thus determine the impact of an unexpected constraint, simulate alternatives, and route shipments around problems. They establish prices in real time to get the highest yield possible from each of their customer transactions. They create complex models of how their operational costs relate to their financial performance.

Leaders in analytics also use sophisticated experiments to measure the overall impact or “lift” of intervention strategies and then apply the results to continuously improve subsequent analyses. Capital One, for example, conducts more than 30,000 experiments a year, with different interest rates, incentives, direct-mail packaging, and other variables. Its goal is to maximize the likelihood both that potential customers will sign up for credit cards and that they will pay back Capital One.

Progressive employs similar experiments using widely available insurance industry data. The company defines narrow groups, or cells, of customers: for example, motorcycle riders ages 30 and above, with college educations, credit scores over a certain level, and no accidents. For each cell, the company performs a regression analysis to identify factors that most closely correlate with the losses that group engenders. It then sets prices for the cells, which should enable the company to earn a profit across a portfolio of customer groups, and uses simulation software to test the financial implications

of those hypotheses. With this approach, Progressive can profitably insure customers in traditionally high-risk categories. Other insurers reject high-risk customers out of hand, without bothering to delve more deeply into the data (although even traditional competitors, such as Allstate, are starting to embrace analytics as a strategy).

An enterprise approach. Analytics competitors understand that most business functions—even those, like marketing, that have historically depended on art rather than science—can be improved with sophisticated quantitative



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techniques. These organizations don't gain advantage from one killer app, but rather from multiple applications supporting many parts of the business – and, in a few cases, being rolled out for use by customers and suppliers.

UPS embodies the evolution from targeted analytics user to comprehensive analytics competitor. Although the company is among the world's most rigorous practitioners of operations research and industrial engineering, its capabilities were, until fairly recently, narrowly focused. Today, UPS is wielding its statistical skill to track the movement of packages and to anticipate and influence the actions of people – assessing the likelihood of customer attrition and identifying sources of problems. The UPS Customer Intelligence Group, for example, is able to accurately predict customer defections by examining usage patterns and complaints. When the data point to a potential defector, a salesperson contacts that customer to review and resolve the problem, dramatically reducing the loss of accounts. UPS still lacks the breadth of initiatives of a full-bore analytics competitor, but it is heading in that direction.

Analytics competitors treat all such activities from all provenances as a single, coherent initiative, often massed under one rubric, such as “information-based strategy” at Capital One or “information-based customer management” at Barclays Bank. These programs operate not just

under a common label but also under common leadership and with common technology and tools. In traditional companies, “business intelligence” (the term IT people use for analytics and reporting processes and software) is generally managed by departments; number-crunching functions select their own tools, control their own data warehouses, and train their own people. But that way, chaos lies. For one thing, the proliferation of user-developed spreadsheets and databases inevitably leads to multiple versions of key indicators within an organization. Furthermore, research has shown that between 20% and 40% of spreadsheets contain errors; the more spreadsheets floating around a company, therefore, the more fecund the breeding ground for mistakes. Analytics competitors, by contrast, field centralized groups to ensure that critical data and other resources are well managed and that different parts of the organization can share data easily, without the impediments of inconsistent formats, definitions, and standards.

Some analytics competitors apply the same enterprise approach to people as to technology. Procter & Gamble, for example, recently created a kind of überanalytics group consisting of more than 100 analysts from such functions as operations, supply chain, sales, consumer research, and marketing. Although most of the analysts are embedded in business operating units, the group is cen-

GOING TO BAT FOR STATS

The analysis-versus-instinct debate, a favorite of political commentators during the last two U.S. presidential elections, is raging in professional sports, thanks to several popular books and high-profile victories. For now, analysis seems to hold the lead.

Most notably, statistics are a major part of the selection and deployment of players. *Moneyball*, by Michael Lewis, focuses on the use of analytics in player selection for the Oakland A's – a team that wins on a shoestring. The New England Patriots, a team that devotes an enormous amount of attention to statistics, won three of the last four Super Bowls, and their payroll is currently ranked 24th in the league. The Boston Red Sox have embraced “sabermetrics” (the application of analysis to baseball), even going so far as to hire Bill James, the famous baseball statistician who popularized that term. Analytic HR strategies are taking hold in European soccer as well. One leading team, Italy's A.C. Milan, uses predictive models from its Milan Lab research center to prevent injuries by analyzing physiological, orthopedic, and psychological data from a variety of sources. A fast-rising English soccer team, the Bolton

Wanderers, is known for its manager's use of extensive data to evaluate players' performance.

Still, sports managers – like business leaders – are rarely fact-or-feeling purists. St. Louis Cardinals manager Tony La Russa, for example, brilliantly combines analytics with intuition to decide when to substitute a charged-up player in the batting lineup or whether to hire a spark-plug personality to improve morale. In his recent book, *Three Nights in August*, Buzz Bissinger describes that balance: “La Russa appreciated the information generated by computers. He studied the rows and the columns. But he also knew they could take you only so far in baseball, maybe even confuse you with a fog of overanalysis. As far as he knew, there was no way to quantify desire. And those numbers told him exactly what he needed to know when added to twenty-four years of managing experience.”

That final sentence is the key. Whether scrutinizing someone's performance record or observing the expression flitting across an employee's face, leaders consult their own experience to understand the “evidence” in all its forms.

Employees hired for their expertise with numbers or trained to recognize their importance are armed with the best evidence and the best quantitative tools. As a result, they make the best decisions.

trally managed. As a result of this consolidation, P&G can apply a critical mass of expertise to its most pressing issues. So, for example, sales and marketing analysts supply data on opportunities for growth in existing markets to analysts who design corporate supply networks. The supply chain analysts, in turn, apply their expertise in certain decision-analysis techniques to such new areas as competitive intelligence.

The group at P&G also raises the visibility of analytical and data-based decision making within the company. Previously, P&G's crack analysts had improved business processes and saved the firm money; but because they were squirreled away in dispersed domains, many executives didn't know what services they offered or how effective they could be. Now those executives are more likely to tap the company's deep pool of expertise for their projects. Meanwhile, masterful number crunching has become part of the story P&G tells to investors, the press, and the public.

Senior executive advocates. A companywide embrace of analytics impels changes in culture, processes, behavior, and skills for many employees. And so, like any major transition, it requires leadership from executives at the very top who have a passion for the quantitative approach. Ideally, the principal advocate is the CEO. Indeed, we found several chief executives who have driven the shift to analytics at their companies over the past few years, including Loveman of Harrah's, Jeff Bezos of Amazon, and Rich Fairbank of Capital One. Before he retired from the Sara Lee Bakery Group, former CEO Barry Beracha kept a sign on his desk that summed up his personal and organizational philosophy: "In God we trust. All others bring data." We did come across some companies in which a single functional or business unit leader was trying to push analytics throughout the organization, and a few were making some progress. But we found that these lower-level people lacked the clout, the perspective, and the cross-functional scope to change the culture in any meaningful way.

CEOs leading the analytics charge require both an appreciation of and a familiarity with the subject. A background in statistics isn't necessary, but those leaders must understand the theory behind various quantitative methods so that they recognize those methods' limitations –

which factors are being weighed and which ones aren't. When the CEOs need help grasping quantitative techniques, they turn to experts who understand the business and how analytics can be applied to it. We interviewed several leaders who had retained such advisers, and these executives stressed the need to find someone who can explain things in plain language and be trusted not to spin the numbers. A few CEOs we spoke with had surrounded themselves with very analytical people – professors, consultants, MIT graduates, and the like. But that was a personal preference rather than a necessary practice.

Of course, not all decisions should be grounded in analytics—at least not wholly so. Personnel matters, in particular, are often well and appropriately informed by instinct and anecdote. More organizations are subjecting recruiting and hiring decisions to statistical analysis (see the sidebar "Going to Bat for Stats"). But research shows that human beings can make quick, surprisingly accurate assessments of personality and character based on simple observations. For analytics-minded leaders, then, the challenge boils down to knowing when to run with the numbers and when to run with their guts.

Their Sources of Strength

Analytics competitors are more than simple number-crunching factories. Certainly, they apply technology—with a mixture of brute force and finesse—to multiple business problems. But they also direct their energies toward finding the right focus, building the right culture, and hiring the right people to make optimal use of the data they constantly churn. In the end, people and strategy, as much as information technology, give such organizations strength.

The right focus. Although analytics competitors encourage universal fact-based decisions, they must choose where to direct resource-intensive efforts. Generally, they pick several functions or initiatives that together serve an overarching strategy. Harrah's, for example, has aimed much of its analytical activity at increasing customer loyalty, customer service, and related areas like pricing and promotions. UPS has broadened its focus from logistics to customers, in the interest of providing superior service. While such multipronged strategies define analytics

In traditional companies, departments manage analytics—number-crunching functions select their own tools and train their own people. But that way, chaos lies.

competitors, executives we interviewed warned companies against becoming too diffuse in their initiatives or losing clear sight of the business purpose behind each.

Another consideration when allocating resources is how amenable certain functions are to deep analysis. There are at least seven common targets for analytical activity, and specific industries may present their own (see “Things You Can Count On”). Statistical models and algorithms that dangle the possibility of performance breakthroughs make some prospects especially tempting. Marketing, for example, has always been tough to quantify because it is rooted in psychology. But now consumer products companies can hone their market research using multiattribute utility theory—a tool for understanding and predicting consumer behaviors and decisions. Similarly, the advertising industry is adopting econometrics—statistical techniques for measuring the lift provided by different ads and promotions over time.

The most proficient analytics practitioners don’t just measure their own navels—they also help customers and vendors measure theirs. Wal-Mart, for example, insists that suppliers use its Retail Link system to monitor product movement by store, to plan promotions and layouts within stores, and to reduce stock-outs. E.&J. Gallo provides distributors with data and analysis on retailers’ costs and pricing so they can calculate the per-bottle profitability for each of Gallo’s 95 wines. The distributors, in turn, use that information to help retailers optimize their mixes while persuading them to add shelf space for Gallo products. Procter & Gamble offers data and analysis to its retail customers, as part of a program called Joint Value Creation, and to its suppliers to help improve responsiveness and reduce costs. Hospital supplier Owens & Minor furnishes similar services, enabling customers and suppliers to access and analyze their buying and selling data, track ordering patterns in search of consolidation opportunities, and move off-contract purchases to group contracts that include products distributed by Owens & Minor and its competitors. For example, Owens & Minor might show a hospital chain’s executives how much money they could save by consolidating purchases across multiple locations or help them see the trade-offs between increasing delivery frequency and carrying inventory.

The right culture. Culture is a soft concept; analytics is a hard discipline. Nonetheless, analytics competitors

must instill a companywide respect for measuring, testing, and evaluating quantitative evidence. Employees are urged to base decisions on hard facts. And they know that their performance is gauged the same way. Human resource organizations within analytics competitors are rigorous about applying metrics to compensation and rewards. Harrah’s, for example, has made a dramatic change from a rewards culture based on paternalism and tenure to one based on such meticulously collected performance measurements as financial and customer service results. Senior executives also set a consistent example with their own behavior, exhibiting a hunger for and confidence in fact and analysis. One exemplar of such leadership was Beracha of the Sara Lee Bakery Group, known to his employees as a “data dog” because he hounded them for data to support any assertion or hypothesis.

Not surprisingly, in an analytics culture, there’s sometimes tension between innovative or entrepreneurial impulses and the requirement for evidence. Some companies place less emphasis on blue-sky development, in which designers or engineers chase after a gleam in someone’s eye. In these organizations, R&D, like other functions, is rigorously metric-driven. At Yahoo, Progressive, and Capital One, process and product changes are tested on a small scale and implemented as they are validated. That approach, well established within various academic and business disciplines (including engineering, quality management, and psychology), can be applied to most corporate processes—even to not-so-obvious candidates, like human resources and customer service. HR, for example, might create profiles of managers’ personality traits and leadership styles and then test those managers in different situations. It could then compare data on individuals’ performance with data about personalities to determine what traits are most important to managing a project that is behind schedule, say, or helping a new group to assimilate.

There are, however, instances when a decision to change something or try something new must be made too quickly for extensive analysis, or when it’s not possible to gather data beforehand. For example, even though Amazon’s Jeff Bezos greatly prefers to rigorously quantify users’ reactions before rolling out new features, he couldn’t test the company’s search-inside-the-book offering without applying it to a critical mass of books (120,000,

to begin with). It was also expensive to develop, and that increased the risk. In this case, Bezos trusted his instincts and took a flier. And the feature did prove popular when introduced.

The right people. Analytical firms hire analytical people – and like all companies that compete on talent, they pursue the best. When Amazon needed a new head for its global supply chain, for example, it recruited Gang Yu, a professor of management science and software entrepreneur who is one of the world’s leading authorities on optimization analytics. Amazon’s business model requires the company to manage a constant flow of new products, suppliers, customers, and promotions, as well as deliver orders by promised dates. Since his arrival, Yu and his team have been designing and building sophisticated supply chain systems to optimize those processes. And while he tosses around phrases like “nonstationary stochastic processes,” he’s also good at explaining the new approaches to Amazon’s executives in clear business terms.

Established analytics competitors such as Capital One employ squadrons of analysts to conduct quantitative experiments and, with the results in hand, design credit card and other financial offers. These efforts call for a specialized skill set, as you can see from this job description (typical for a Capital One analyst):

High conceptual problem-solving and quantitative analytical aptitudes...Engineering, financial, consulting, and/or other analytical quantitative educational/work background. Ability to quickly learn how to use software applications. Experience with Excel models. Some graduate work preferred but not required (e.g., MBA). Some experience with project management methodology, process improvement tools (Lean, Six Sigma), or statistics preferred.

Other firms hire similar kinds of people, but analytics competitors have them in much greater numbers. Capital One is currently seeking three times as many analysts as operations people – hardly the common practice for a bank. “We are really a company of analysts,” one executive there noted. “It’s the primary job in this place.”

Good analysts must also have the ability to express complex ideas in simple terms and have the relationship skills to interact well with decision makers. One consumer products company with a 30-person analytics group looks for what it calls “PhDs with personality” – people with expertise in math, statistics, and data analysis who can also speak the language of business and help market their work internally and sometimes externally. The head of a customer analytics group at Wachovia Bank describes the rapport with others his group seeks: “We are trying

THINGS YOU CAN COUNT ON

Analytics competitors make expert use of statistics and modeling to improve a wide variety of functions. Here are some common applications:

FUNCTION	DESCRIPTION	EXEMPLARS
Supply chain	Simulate and optimize supply chain flows; reduce inventory and stock-outs.	Dell, Wal-Mart, Amazon
Customer selection, loyalty, and service	Identify customers with the greatest profit potential; increase likelihood that they will want the product or service offering; retain their loyalty.	Harrah’s, Capital One, Barclays
Pricing	Identify the price that will maximize yield, or profit.	Progressive, Marriott
Human capital	Select the best employees for particular tasks or jobs, at particular compensation levels.	New England Patriots, Oakland A’s, Boston Red Sox
Product and service quality	Detect quality problems early and minimize them.	Honda, Intel
Financial performance	Better understand the drivers of financial performance and the effects of nonfinancial factors.	MCI, Verizon
Research and development	Improve quality, efficacy, and, where applicable, safety of products and services.	Novartis, Amazon, Yahoo

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to build our people as part of the business team,” he explains. “We want them sitting at the business table, participating in a discussion of what the key issues are, determining what information needs the businesspeople have, and recommending actions to the business partners. We want this [analytics group] to be not just a general utility, but rather an active and critical part of the business unit’s success.”

Of course, a combination of analytical, business, and relationship skills may be difficult to find. When the software company SAS (a sponsor of this research, along with Intel) knows it will need an expert in state-of-the-art business applications such as predictive modeling or recursive partitioning (a form of decision tree analysis applied to very complex data sets), it begins recruiting up to 18 months before it expects to fill the position.

In fact, analytical talent may be to the early 2000s what programming talent was to the late 1990s. Unfortunately,

the U.S. and European labor markets aren’t exactly teeming with analytically sophisticated job candidates. Some organizations cope by contracting work to countries such as India, home to many statistical experts. That strategy may succeed when offshore analysts work on stand-alone problems. But if an iterative discussion with business decision makers is required, the distance can become a major barrier.

The right technology. Competing on analytics means competing on technology. And while the most serious competitors investigate the latest statistical algorithms and decision science approaches, they also constantly monitor and push the IT frontier. The analytics group at one consumer products company went so far as to build its own supercomputer because it felt that commercially available models were inadequate for its demands. Such heroic feats usually aren’t necessary, but serious analytics does require the following:

A data strategy. Companies have invested many millions of dollars in systems that snatch data from every conceivable source. Enterprise resource planning, customer relationship management, point-of-sale, and other systems ensure that no transaction or other significant exchange occurs without leaving a mark. But to compete on that information, companies must present it in standard formats, integrate it, store it in a data warehouse, and make it easily accessible to anyone and everyone. And they will need *a lot* of it. For example, a company may spend several years accumulating data on different marketing approaches before it has gathered enough to reliably analyze the effectiveness of an advertising campaign. Dell employed DDB Matrix, a unit of the advertising agency DDB Worldwide, to create (over a period of seven years) a database that includes 1.5 million records on all the computer maker’s print, radio, network TV, and cable ads, coupled with data on Dell sales for each region in which the ads appeared (before and after their appearance). That information allows Dell to fine-tune its promotions for every medium in every region.

Business intelligence software. The term “business intelligence,” which first popped up in the late 1980s, encompasses a wide array of processes

YOU KNOW YOU COMPETE ON ANALYTICS WHEN...

1. You apply sophisticated information systems and rigorous analysis not only to your core capability but also to a range of functions as varied as marketing and human resources.
2. Your senior executive team not only recognizes the importance of analytics capabilities but also makes their development and maintenance a primary focus.
3. You treat fact-based decision making not only as a best practice but also as a part of the culture that’s constantly emphasized and communicated by senior executives.
4. You hire not only people with analytical skills but a lot of people with *the very best* analytical skills – and consider them a key to your success.
5. You not only employ analytics in almost every function and department but also consider it so strategically important that you manage it at the enterprise level.
6. You not only are expert at number crunching but also invent proprietary metrics for use in key business processes.
7. You not only use copious data and in-house analysis but also share them with customers and suppliers.
8. You not only avidly consume data but also seize every opportunity to generate information, creating a “test and learn” culture based on numerous small experiments.
9. You not only have committed to competing on analytics but also have been building your capabilities for several years.
10. You not only emphasize the importance of analytics internally but also make quantitative capabilities part of your company’s story, to be shared in the annual report and in discussions with financial analysts.

The most proficient analytics practitioners don't just measure their own navels—they also help customers and vendors measure theirs.

and software used to collect, analyze, and disseminate data, all in the interests of better decision making. Business intelligence tools allow employees to extract, transform, and load (or ETL, as people in the industry would say) data for analysis and then make those analyses available in reports, alerts, and scorecards. The popularity of analytics competition is partly a response to the emergence of integrated packages of these tools.

Computing hardware. The volumes of data required for analytics applications may strain the capacity of low-end computers and servers. Many analytics competitors are converting their hardware to 64-bit processors that churn large amounts of data quickly.

The Long Road Ahead

Most companies in most industries have excellent reasons to pursue strategies shaped by analytics. Virtually all the organizations we identified as aggressive analytics competitors are clear leaders in their fields, and they attribute much of their success to the masterful exploitation of data. Rising global competition intensifies the need for this sort of proficiency. Western companies unable to beat their Indian or Chinese competitors on product cost, for example, can seek the upper hand through optimized business processes.

Companies just now embracing such strategies, however, will find that they take several years to come to fruition. The organizations in our study described a long, sometimes arduous journey. The UK Consumer Cards and Loans business within Barclays Bank, for example, spent five years executing its plan to apply analytics to the marketing of credit cards and other financial products. The company had to make process changes in virtually every aspect of its consumer business: underwriting risk, setting credit limits, servicing accounts, controlling fraud, cross selling, and so on. On the technical side, it had to integrate data on 10 million Barclaycard customers, improve the quality of the data, and build systems to step up data collection and analysis. In addition, the company embarked on a long series of small tests to begin learning how to attract and retain the best customers at the lowest price. And it had to hire new people with top-drawer quantitative skills.

Much of the time – and corresponding expense – that any company takes to become an analytics competitor will be devoted to technological tasks: refining the systems that produce transaction data, making data available in warehouses, selecting and implementing analytic software, and assembling the hardware and communications environment. And because those who don't record history are doomed not to learn from it, companies that have collected little information—or the wrong kind—will need to amass a sufficient body of data to support reliable forecasting. “We've been collecting data for six or seven years, but it's only become usable in the last two or three, because we needed time and experience to validate conclusions based on the data,” remarked a manager of customer data analytics at UPS.

And, of course, new analytics competitors will have to stock their personnel larders with fresh people. (When Gary Loveman became COO, and then CEO, of Harrah's, he brought in a group of statistical experts who could design and implement quantitatively based marketing campaigns and loyalty programs.) Existing employees, meanwhile, will require extensive training. They need to know what data are available and all the ways the information can be analyzed; and they must learn to recognize such peculiarities and shortcomings as missing data, duplication, and quality problems. An analytics-minded executive at Procter & Gamble suggested to me that firms should begin to keep managers in their jobs for longer periods because of the time required to master quantitative approaches to their businesses.

The German pathologist Rudolph Virchow famously called the task of science “to stake out the limits of the knowable.” Analytics competitors pursue a similar goal, although the universe they seek to know is a more circumscribed one of customer behavior, product movement, employee performance, and financial reactions. Every day, advances in technology and techniques give companies a better and better handle on the critical minutiae of their operations.

The Oakland A's aren't the only ones playing moneyball. Companies of every stripe want to be part of the game. 

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The job of the CEO, everyone knows, is to make decisions. And most of them do—countless times in the course of their tenures. But if those decisions are to have an impact, the organization must also, as a whole, decide to carry them out. Companies that don't, suffer from a culture of indecision.

In his 2001 article, Ram Charan, one of the world's preeminent counselors to CEOs, addresses the problem of how organizations that routinely refrain from acting on their CEOs' decisions can break free from institutionalized indecision. Usually, ambivalence or outright resistance arises because of a lack of dialogue with the people charged with implementing the decision in question. Charan calls such conversations "decisive dialogues," and he says they have four components: First, they must involve a sincere search for answers. Second, they must tolerate unpleasant truths. Third, they must invite a full range of views, spontaneously offered. And fourth, they must point the way to a course of action.

In organizations that have successfully shed a culture of indecision, discussion is always safe. Underperformance, however, is not.

CONQUERING A CULTURE OF INDECISION

Some people just can't make up their minds. The same goes for some companies. Leaders can eradicate indecision by transforming the tone and content of everyday conversations at their organizations.

D OES THIS SOUND FAMILIAR? You're sitting in the quarterly business review as a colleague plows through a two-inch-thick proposal for a big investment in a new product. When he finishes, the room falls quiet. People look left, right, or down, waiting for someone else to open the discussion. No one wants to comment – at least not until the boss shows which way he's leaning.

Finally, the CEO breaks the loud silence. He asks a few mildly skeptical questions to show he's done his due diligence. But it's clear that he has made

up his mind to back the project. Before long, the other meeting attendees are chiming in dutifully, careful to keep their comments positive. Judging from the remarks, it appears that everyone in the room supports the project.

But appearances can be deceiving. The head of a related division worries that the new product will take resources away from his operation. The vice president of manufacturing thinks that the first-year sales forecasts are wildly optimistic and will leave him with a warehouse full of unsold goods. Others in



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DECISION MAKING

the room are lukewarm because they don't see how they stand to gain from the project. But they keep their reservations to themselves, and the meeting breaks up inconclusively. Over the next few months, the project is slowly strangled to death in a series of strategy, budget, and operational reviews. It's not clear who's responsible for the killing, but it's plain that the true sentiment in the room was the opposite of the apparent consensus.

In my career as an adviser to large organizations and their leaders, I have witnessed many occasions even at the highest levels when silent lies and a lack of closure lead to false decisions. They are "false" because they eventually get undone by unspoken factors and inaction. And after a quarter century of firsthand observations, I have concluded that these instances of indecision share a family resemblance—a misfire in the personal interactions that are supposed to produce results. The people charged with reaching a decision and acting on it fail to connect and engage with one another. Intimidated by the group dynamics of hierarchy and constrained by formality and lack of trust, they speak their lines woodenly and without conviction. Lacking emotional commitment, the people who must carry out the plan don't act decisively.

These faulty interactions rarely occur in isolation. Far more often, they're typical of the way large and small decisions are made—or not made—throughout a company. The inability to take decisive action is rooted in the corporate culture and seems to employees to be impervious to change.

The key word here is "seems," because, in fact, leaders create a culture of indecisiveness, and leaders can break it. The primary instrument at their disposal is the human interactions—the dialogues—through which assumptions are challenged or go unchallenged, in-

formation is shared or not shared, disagreements are brought to the surface or papered over. Dialogue is the basic unit of work in an organization. The quality of the dialogue determines how people gather and process information, how they make decisions, and how they feel about one another and about the outcome of these decisions. Dialogue can lead to new ideas and speed as a competitive advantage. It is the single-most important factor underlying the productivity and growth of the knowledge worker. Indeed, the tone and content of dialogue shapes people's behaviors and beliefs—that is, the corporate culture—faster and more permanently than any reward system, structural change, or vision statement I've seen.

Breaking a culture of indecision requires a leader who can engender intellectual honesty and trust in the connections between people. By using each encounter with his or her employees as an opportunity to model open, honest, and decisive dialogue, the leader sets the tone for the entire organization.

But setting the tone is only the first step. To transform a culture of indecision, leaders must also see to it that the organization's *social operating mechanisms*—that is, the executive committee meetings, budget and strategy reviews, and other situations through which the people of a corporation do business—have honest dialogue at their center. These mechanisms set the stage. Tightly linked and consistently practiced, they establish clear lines of accountability for reaching decisions and executing them.

Follow-through and feedback are the final steps in creating a decisive culture. Successful leaders use follow-through and honest feedback to reward high achievers, coach those who are struggling, and redirect the behaviors of those blocking the organization's progress.

In sum, leaders can create a culture of decisive behavior through attention to their own dialogue, the careful design of social operating mechanisms, and appropriate follow-through and feedback.

It All Begins with Dialogue

Studies of successful companies often focus on their products, business models, or operational strengths: Microsoft's world-conquering Windows operating system, Dell's mass customization, Walmart's logistical prowess. Yet products and operational strengths aren't what really set the most successful organizations apart—they can all be rented or imitated. What can't be easily duplicated are the decisive dialogues and robust operating mechanisms and their links to feedback and follow-through. These factors constitute an organization's most enduring competitive advantage, and they are heavily dependent on the character of dialogue that a leader exhibits and thereby influences throughout the organization.

Decisive dialogue is easier to recognize than to define. It encourages incisiveness and creativity and brings coherence to seemingly fragmented and unrelated ideas. It allows tensions to surface and then resolves them by fully airing every relevant viewpoint. Because such dialogue is a process of intellectual inquiry rather than of advocacy, a search for truth rather than a contest, people feel emotionally committed to the outcome. The outcome seems "right" because people have helped shape it. They are energized and ready to act.

Not long ago, I observed the power of a leader's dialogue to shape a company's culture. The setting was the headquarters of a major U.S. multinational. The head of one of the company's largest business units was making a strategy presentation to the CEO and a few of his senior lieutenants. Sounding confident, almost cocky, the unit head laid out his strategy for taking his division from number three in Europe to number one. It was an ambitious plan that hinged on making rapid, sizable market-share gains in Germany, where the company's main competitor was locally based and

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four times his division's size. The CEO commended his unit head for the inspiring and visionary presentation, then initiated a dialogue to test whether the plan was realistic. "Just how are you going to make these gains?" he wondered aloud. "What other alternatives have you considered? What customers do you plan to acquire?" The unit manager hadn't thought that far ahead. "How have you defined the customers' needs in new and unique ways? How many salespeople do you have?" the CEO asked.

"Ten," answered the unit head.

"How many does your main competitor have?"

"Two hundred," came the sheepish reply.

The boss continued to press: "Who runs Germany for us? Wasn't he in another division up until about three months ago?"

Had the exchange stopped there, the CEO would have only humiliated and discouraged this unit head and sent a message to others in attendance that

the risks of thinking big were unacceptably high. But the CEO wasn't interested in killing the strategy and demoralizing the business unit team. Coaching through questioning, he wanted to inject some realism into the dialogue. Speaking bluntly, but not angrily or unkindly, he told the unit manager that he would need more than bravado to take on a formidable German competitor on its home turf. Instead of making a frontal assault, the CEO suggested, why not look for the competition's weak spots and win on speed of execution? Where are the gaps in your competitor's product line? Can you innovate something that can fill those gaps? What customers are the most likely buyers of such a product? Why not zero in on them? Instead of aiming for overall market-share gains, try resegmenting the market. Suddenly, what had appeared to be a dead end opened into new insights, and by the end of the meeting, it was decided that the manager would rethink the strategy and return in 90 days with a more realistic alternative.

A key player whose strategy proposal had been flatly rejected left the room feeling energized, challenged, and more sharply focused on the task at hand.

Think about what happened here. Although it might not have been obvious at first, the CEO was not trying to assert his authority or diminish the executive. He simply wanted to ensure that the competitive realities were not glossed over and to coach those in attendance on both business acumen and organizational capability as well as on the fine art of asking the right questions. He was challenging the proposed strategy not for personal reasons but for business reasons.

The dialogue affected people's attitudes and behavior in subtle and not so subtle ways: They walked away knowing that they should look for opportunities in unconventional ways and be prepared to answer the inevitable tough questions. They also knew that the CEO was on their side. They became more convinced that growth was possible and that action was necessary. And

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something else happened: They began to adopt the CEO's tone in subsequent meetings. When, for example, the head of the German unit met with his senior staff to brief them on the new approach to the German market, the questions he fired at his sales chief and product development head were pointed, precise, and aimed directly at putting the new strategy into action. He had picked up on his boss's style of relating to others as well as his way of eliciting, sifting, and analyzing information. The entire unit grew more determined and energized.

The chief executive didn't leave the matter there, though. He followed up with a one-page, handwritten letter to the unit head stating the essence of the dialogue and the actions to be executed. And in 90 days, they met again to discuss the revised strategy. (For more on fostering decisive dialogue, see the sidebar "Dialogue Killers.")

How Dialogue Becomes Action

The setting in which dialogue occurs is as important as the dialogue itself. The social operating mechanisms of decisive corporate cultures feature behaviors marked by four characteristics: openness, candor, informality, and closure. Openness means that the outcome is not predetermined. There's an honest search for alternatives and new discoveries. Questions like "What are we missing?" draw people in and signal the leader's willingness to hear all sides. Leaders create an atmosphere of safety that permits spirited discussion, group learning, and trust.

Candor is slightly different. It's a willingness to speak the unspeakable, to expose unfulfilled commitments, to air the conflicts that undermine apparent consensus. Candor means that people express their real opinions, not what they think team players are supposed to say. Candor helps wipe out the silent lies and pocket vetoes that occur when people agree to things they have no intention of acting on. It prevents the kind of unnecessary rework and revisiting of decisions that saps productivity.

Formality suppresses candor; informality encourages it. When presentations

and comments are stiff and prepackaged, they signal that the whole meeting has been carefully scripted and orchestrated. Informality has the opposite effect. It reduces defensiveness. People feel more comfortable asking questions and reacting honestly, and the spontaneity is energizing.

If informality loosens the atmosphere, closure imposes discipline. Closure means that at the end of the meeting, people know exactly what they are expected to do. Closure produces decisiveness by assigning accountability and deadlines to people in an open forum. It tests a leader's inner strength and intellectual resources. Lack of closure, coupled with a lack of sanctions, is the primary reason for a culture of indecision.

A robust social operating mechanism consistently includes these four characteristics. Such a mechanism has the right people participating in it, and it occurs with the right frequency.

When Dick Brown arrived at Electronic Data Systems (EDS) in early 1999, he resolved to create a culture that did

countability." EDS was losing business. Revenue was flat, earnings were on the decline, and the price of the company's stock was down sharply.

A central tenet of Brown's management philosophy is that "leaders get the behavior they tolerate." Shortly after he arrived at EDS, he installed six social operating mechanisms within one year that signaled he would not put up with the old culture of rampant individualism and information hoarding. One mechanism was the "performance call," as it is known around the company. Once a month, the top 100 or so EDS executives worldwide take part in a conference call where the past month's numbers and critical activities are reviewed in detail. Transparency and simultaneous information are the rules; information hoarding is no longer possible. Everyone knows who is on target for the year, who is ahead of projections, and who is behind. Those who are behind must explain the shortfall – and how they plan to get back on track. It's not enough for a manager to say she's

It's not enough for a manager to say she's assessing, reviewing, or analyzing a problem. Those aren't the words of someone who is acting.

more than pay lip service to the ideals of collaboration, openness, and decisiveness. He had a big job ahead of him. EDS was known for its bright, aggressive people, but employees had a reputation for competing against one another at least as often as they pulled together. The organization was marked by a culture of lone heroes. Individual operating units had little or no incentive for sharing information or cooperating with one another to win business. There were few sanctions for "lone" behaviors and for failure to meet performance goals. And indecision was rife. As one company veteran puts it, "Meetings, meetings, and more meetings. People couldn't make decisions, wouldn't make decisions. They didn't have to. No ac-

assessing, reviewing, or analyzing a problem. Those aren't the words of someone who is acting, Brown says. Those are the words of someone getting ready to act. To use them in front of Brown is to invite two questions in response: When you've finished your analysis, what are you going to do? And how soon are you going to do it? The only way that Brown's people can answer those questions satisfactorily is to make a decision and execute it.

The performance calls are also a mechanism for airing and resolving the conflicts inevitable in a large organization, particularly when it comes to cross selling in order to accelerate revenue growth. Two units may be pursuing the same customer, for example, or a



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- Teachers and faculty have more flexibility, increased access to educational resources, and can more efficiently handle administrative tasks

The school of the future just opened, and it's called North Point.

Conceived nearly eight years ago as a showcase school where advanced technology would be integral to all aspects of learning, North Point High School opened in August 2005 in rapidly growing Charles County, Maryland. Given its proximity to booming Washington, D.C., with its growing high-technology industries, Charles County designed the marquee school to attract businesses and families to the area.

At North Point, students in every classroom have anytime, anywhere access to the rich, multimedia learning content they need to make the most of their education, allowing students to learn at their own pace—a benefit that traditional schools can't easily or affordably provide. An intelligent, secure, reliable network infrastructure and IP Communications solutions from Cisco Systems is the foundation that makes it all possible.

The result? Advanced students move more quickly through the curriculum, while all students get the help they need more easily. For example, a North Point student struggling in geometry can use a wireless laptop to access the network and view animations that illustrate the relationships between angles, points, and lines to help the student grasp what would be otherwise challenging, abstract concepts.

A history teacher can answer a student's question about the Cuban missile crisis by showing the class archival news footage, accessed on demand using the network. North Point teachers and administrators also benefit from the network's enhanced communications capabilities that streamline administrative tasks and allow them to collaborate more effectively.

So what does the school of the future look like? Some have affectionately likened North Point—with its sleek hallways and glass walls—to a modern airport terminal. And that's the whole idea behind North Point: to prepare students for a smooth, successful departure, no matter where they're heading.

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customer serviced by one unit may be acquired by a customer serviced by another. Which unit should lead the pursuit? Which unit should service the merged entity? It's vitally important to resolve these questions. Letting them fester doesn't just drain emotional energy, it shrinks the organization's capacity to act decisively. Lack of speed becomes a competitive disadvantage.

Brown encourages people to bring these conflicts to the surface, both because he views them as a sign of organizational health and because they provide an opportunity to demonstrate the style of dialogue he advocates. He tries to create a safe environment for disagreement by reminding employees that the conflict isn't personal.

Conflict in any global organization is built in. And, Brown believes, it's essential if everyone is going to think in terms of the entire organization, not just one little corner of it. Instead of seeking the solution favorable to their unit, they'll look for the solution that's best for EDS and its shareholders. It sounds simple, even obvious. But in an organization once characterized by lone heroes and self-interest, highly visible exercises in conflict resolution remind people to align their interests with the company as a whole. It's not enough to state the message once and assume it will sink in. Behavior is changed through repetition. Stressing the message over and over in social operating mechanisms like the monthly performance calls – and rewarding or sanctioning people based on their adherence to it – is one of Brown's most powerful tools for producing the behavioral changes that usher in genuine cultural change.

Of course, no leader can or should attend every meeting, resolve every conflict, or make every decision. But by designing social operating mechanisms that promote free-flowing yet productive dialogue, leaders strongly influence how others perform these tasks. Indeed, it is through these mechanisms that the work of shaping a decisive culture gets done.

Another corporation that employs social operating mechanisms to create

Dialogue Killers

Is the dialogue in your meetings an energy drain? If it doesn't energize people and focus their work, watch for the following:

DANGLING DIALOGUE

Symptom: Confusion prevails. The meeting ends without a clear next step. People create their own self-serving interpretations of the meeting, and no one can be held accountable later when goals aren't met.

Remedy: Give the meeting closure by ensuring that everyone knows who will do what, by when. Do it in writing if necessary, and be specific.

INFORMATION CLOGS

Symptom: Failure to get all the relevant information into the open. An important fact or opinion comes to light after a decision has been reached, which reopens the decision. This pattern happens repeatedly.

Remedy: Ensure that the right people are in attendance in the first place. When missing information is discovered, disseminate it immediately. Make the expectation for openness and candor explicit by asking, "What's missing?" Use coaching and sanctions to correct information hoarding.

PIECEMEAL PERSPECTIVES

Symptom: People stick to narrow views and self-interests and fail to acknowledge that others have valid interests.

Remedy: Draw people out until you're sure all sides of the issue have been represented. Restate the common purpose repeatedly to keep everyone focused on the big picture. Generate alternatives. Use coaching to show people how their work contributes to the overall mission of the enterprise.

FREE-FOR-ALL

Symptom: By failing to direct the flow of the discussion, the leader allows negative behaviors to flourish. "Extortionists" hold the whole group for ransom until others see it their way; "sidetrackers" go off on tangents, recount history by saying "When I did this ten years ago..." or delve into unnecessary detail; "silent liars" do not express their true opinions, or they agree to things they have no intention of doing; and "dividers" create breaches within the group by seeking support for their viewpoint outside the social operating mechanism or have parallel discussions during the meeting.

Remedy: The leader must exercise inner strength by repeatedly signaling which behaviors are acceptable and by sanctioning those who persist in negative behavior. If less severe sanctions fail, the leader must be willing to remove the offending player from the group.

a decisive culture is multinational pharmaceutical giant Pharmacia. The company's approach illustrates a point I stress repeatedly to my clients: Structure divides; social operating mechanisms integrate. I hasten to add that structure is essential. If an organization didn't divide tasks, functions, and responsibilities, it would never get anything done. But social operating mech-

anisms are required to direct the various activities contained within a structure toward an objective. Well-designed mechanisms perform this integrating function. But no matter how well designed, the mechanisms also need decisive dialogue to work properly.

Two years after its 1995 merger with Upjohn, Pharmacia's CEO Fred Hassan set out to create an entirely new culture

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for the combined entity. The organization he envisioned would be collaborative, customer focused, and speedy. It would meld the disparate talents of a global enterprise to develop market-leading drugs – and do so faster than the competition. The primary mechanism for fostering collaboration: Leaders from several units and functions would engage in frequent, constructive dialogue.

The company's race to develop a new generation of antibiotics to treat drug-resistant infections afforded Pharmacia's management an opportunity to test the success of its culture-building efforts. Dr. Göran Ando, the chief of research and development, and Carrie Cox, the head of global business management, jointly created a social operating mechanism comprising some of the company's leading scientists, clinicians, and marketers. Just getting the three functions together regularly was a bold step. Typically, drug development proceeds by a series of handoffs. One

group of scientists does the basic work of drug discovery, then hands off its results to a second group, which steers the drug through a year or more of clinical trials. If and when it receives the Food and Drug Administration's stamp of approval, it's handed off to the

Few mechanisms encourage directness more effectively than performance and compensation reviews.

marketing people, who devise a marketing plan. Only then is the drug handed off to the sales department, which pitches it to doctors and hospitals. By supplanting this daisy-chain approach with one that made scientists, clinicians, and marketers jointly responsible for the entire flow of development

and marketing, the two leaders aimed to develop a drug that better met the needs of patients, had higher revenue potential, and gained speed as a competitive advantage. And they wanted to create a template for future collaborative efforts.

The company's reward system reinforced this collaborative model by explicitly linking compensation to the actions of the group. Every member's compensation would be based on the time to bring the drug to market, the time for the drug to reach peak profitable share, and total sales. The system gave group members a strong incentive to talk openly with one another and to share information freely. But the creative spark was missing. The first few times the drug development group met, it focused almost exclusively on their differences, which were considerable. Without trafficking in clichés, it is safe to say that scientists, clinicians, and marketers tend to have different ways of speaking, thinking, and relating. And each tended to defend what it viewed as its interests rather than the interests of shareholders and customers. It was at this point that Ando and Cox took charge of the dialogue, reminding the group that it was important to play well with others but even more important to produce a drug that met patients' needs and to beat the competition.

Acting together, the two leaders channeled conversation into productive dialogue focused on a common task. They shared what they knew about developing and marketing pharmaceuticals and demonstrated how scientists could learn to think a little like marketers, and marketers a little like scientists. They tackled the emotional challenge of resolving conflicts in the open in order to demonstrate how to disagree, sometimes strongly, without animosity and without losing sight of their common purpose.

Indeed, consider how one dialogue helped the group make a decision that turned a promising drug into a success story. To simplify the research and testing process, the group's scientists had begun to search for an antibiotic that



GE's Secret Weapon

Known for its state-of-the-art management practices, General Electric has forged a system of ten tightly linked social operating mechanisms. Vital to GE's success, these mechanisms set goals and priorities for the whole company as well as for its individual business units and track each unit's progress toward those goals. CEO Jack Welch also uses the system to evaluate senior managers within each unit and reward or sanction them according to their performance.

Three of the most widely imitated of these mechanisms are the Corporate Executive Council (CEC), which meets four times a year; the annual leadership and organizational reviews, known as Session C; and the annual strategy reviews, known as S-1 and S-2. Most large organizations have similar mechanisms. GE's, however, are notable for their intensity and duration; tight links to one another; follow-through; and uninhibited candor, closure, and decisiveness.

At the CEC, the company's senior leaders gather for two-and-a-half days of intensive collaboration and information exchange. As these leaders share best practices, assess the external business environment, and identify the company's most promising opportunities and most pressing problems, Welch has a chance to coach managers and observe their styles of working, thinking, and collaborating. Among the ten initiatives to emerge from these meetings in the past 14 years are GE's Six Sigma quality-improvement drive and its companywide e-commerce effort. These sessions aren't for the fainthearted—at times, the debates can resemble verbal combat. But by the time the CEC breaks up, everyone in attendance knows both what the corporate priorities are and what's expected of him or her.

At Session C meetings, Welch and GE's senior vice president for human resources, Bill Conaty, meet with the head of each business unit as well as his or her top HR executive to discuss leadership and organizational issues. In these intense 12- to 14-hour sessions, the attendees review the unit's prospective talent pool and its organizational priorities. Who needs to be promoted, rewarded, and developed? How? Who isn't making the

grade? Candor is mandatory, and so is execution. The dialogue goes back and forth and links with the strategy of the business unit. Welch follows up each session with a handwritten note reviewing the substance of the dialogue and action items. Through this mechanism, picking and evaluating people has become a core competence at GE. No wonder GE is known as "CEO University."

The unit head's progress in implementing that action plan is among the items on the agenda at the S-1 meeting, held about two months after Session C. Welch, his chief financial officer, and members of the office of the CEO meet individually with each unit head and his or her team to discuss strategy for the next three years. The strategy, which must incorporate the companywide themes and initiatives that emerged from the CEC meetings, is subjected to intensive scrutiny and reality testing by Welch and the senior staff. The dialogue in the sessions is informal, open, decisive, and full of valuable coaching from Welch on both business and human resources issues. As in Session C, the dialogue about strategy links with people and organizational issues. Again, Welch follows up with a handwritten note in which he sets out what he expects of the unit head as a result of the dialogue.

S-2 meetings, normally held in November, follow a similar agenda to the S-1 meeting, except that they are focused on a shorter time horizon, usually 12 to 15 months. Here, operational priorities and resource allocations are linked.

Taken together, the meetings link feedback, decision making, and assessment of the organization's capabilities and key people. The mechanism explicitly ties the goals and performance of each unit to the overall strategy of the corporation and places a premium on the development of the next generation of leaders. The process is unrelenting in its demand for managerial accountability. At the same time, Welch takes the opportunity to engage in follow-through and feedback that is candid, on point, and focused on decisiveness and execution. This operating system may be GE's most enduring competitive advantage.

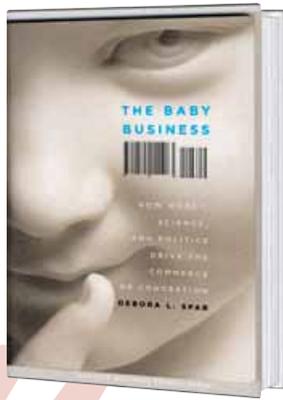
would be effective against a limited number of infections and would be used only as "salvage therapy" in acute cases, when conventional antibiotic therapies had failed. But intensive dialogue with the marketers yielded the information that doctors were receptive to a drug that would work against a wide spectrum of infections. They wanted a drug that could treat acute infections completely by starting treatment earlier in the course of the disease, either in large

doses through an intravenous drip or in smaller doses with a pill. The scientists shifted their focus, and the result was Zyvox, one of the major pharmaceutical success stories of recent years. It has become the poster drug in Pharmacia's campaign for a culture characterized by cross-functional collaboration and speedy execution. Through dialogue, the group created a product that neither the scientists, clinicians, nor marketers acting by themselves could have

envisioned or executed. And the mechanism that created this open dialogue is now standard practice at Pharmacia.

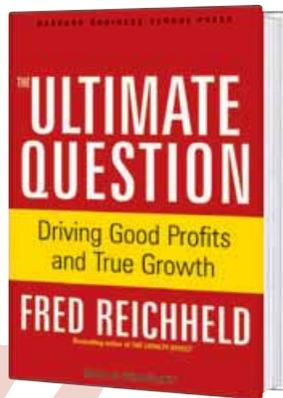
Follow-Through and Feedback

Follow-through is in the DNA of decisive cultures and takes place either in person, on the telephone, or in the routine conduct of a social operating mechanism. Lack of follow-through destroys the discipline of execution and encourages indecision.



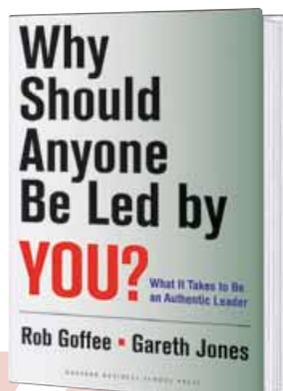
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A culture of indecision changes when groups of people are compelled to always be direct. And few mechanisms encourage directness more effectively than performance and compensation reviews, especially if they are explicitly linked to social operating mechanisms. Yet all too often, the performance review process is as ritualized and empty as the business meeting I described at the beginning of this article. Both the employee and his manager want to get the thing over with as quickly as possible. Check the appropriate box, keep up

must give honest feedback to their direct reports, especially to those who find themselves at the bottom of the rankings.

Brown recalls one encounter he had shortly after the first set of rankings was issued. An employee who had considered himself one of EDS’s best performers was shocked to find himself closer to the bottom of the roster than the top. “How could this be?” the employee asked. “I performed as well this year as I did last year, and last year my boss gave me a stellar review.” Brown replied that

By failing to provide honest feedback, leaders cheat their people by depriving them of the information they need to improve.

the good work, here’s your raise, and let’s be sure to do this again next year. Sorry – gotta run. There’s no genuine conversation, no feedback, and worst of all, no chance for the employee to learn the sometimes painful truths that will help her grow and develop. Great compensation systems die for lack of candid dialogue and leaders’ emotional fortitude.

At EDS, Dick Brown has devised an evaluation and review process that virtually forces managers to engage in candid dialogue with their subordinates. Everyone at the company is ranked in quintiles and rewarded according to how well they perform compared with their peers. It has proved to be one of the most controversial features of Dick Brown’s leadership – some employees view it as a Darwinian means of dividing winners from losers and pitting colleagues against one another.

That isn’t the objective of the ranking system, Brown insists. He views the ranking process as the most effective way to reward the company’s best performers and show laggards where they need to improve. But the system needs the right sort of dialogue to make it work as intended and serve its purpose of growing the talent pool. Leaders

he could think of two possible explanations. The first was that the employee wasn’t as good at his job as he thought he was. The second possibility was that even if the employee was doing as good a job as he did the previous year, his peers were doing better. “If you’re staying the same,” Brown concluded, “you’re falling behind.”

That exchange revealed the possibility – the likelihood, even – that the employee’s immediate superior had given him a less-than-honest review the year before rather than tackle the unpleasant task of telling him where he was coming up short. Brown understands why a manager might be tempted to duck such a painful conversation. Delivering negative feedback tests the strength of a leader. But critical feedback is part of what Brown calls “the heavy lifting of leadership.” Avoiding it, he says, “sentences the organization to mediocrity.” What’s more, by failing to provide honest feedback, leaders cheat their people by depriving them of the information they need to improve.

Feedback should be many things – candid; constructive; relentlessly focused on behavioral performance, accountability, and execution. One thing it shouldn’t be is surprising. “A leader

should be constructing his appraisal all year long," Brown says, "and giving his appraisal all year long. You have 20, 30, 60 opportunities a year to share your observations. Don't let those opportunities pass. If, at the end of the year, someone is truly surprised by what you have to say, that's a failure of leadership."

...

Ultimately, changing a culture of indecision is a matter of leadership. It's a matter of asking hard questions: How robust and effective are our social operating mechanisms? How well are they linked? Do they have the right people and the right frequency? Do they have a rhythm and operate consistently? Is follow-through built in? Are rewards and sanctions linked to the outcomes of the decisive dialogue? Most important, how productive is the dialogue within these mechanisms? Is our dialogue marked by openness, candor, informality, and closure?

Transforming a culture of indecision is an enormous and demanding task. It takes all the listening skills, business acumen, and operational experience that a corporate leader can summon. But just as important, the job demands emotional fortitude, follow-through, and inner strength. Asking the right questions; identifying and resolving conflicts; providing candid, constructive feedback; and differentiating people with sanctions and rewards is never easy. Frequently, it's downright unpleasant. No wonder many senior executives avoid the task. In the short term, they spare themselves considerable emotional wear and tear. But their evasion sets the tone for an organization that can't share intelligence, make decisions, or face conflicts, much less resolve them. Those who evade miss the very point of effective leadership. Leaders with the strength to insist on honest dialogue and follow-through will be rewarded not only with a decisive organization but also with a workforce that is energized, empowered, and engaged. 

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Before deciding on a course of action, prudent managers evaluate the situation confronting them. Unfortunately, some managers are cautious to a fault—taking costly steps to defend against unlikely outcomes. Others are overconfident—underestimating the range of potential outcomes. And still others are highly impressionable—allowing memorable events in the past to dictate their view of what might be possible now.

These are just three of the well-documented psychological traps that afflict most managers at some point, assert authors John S. Hammond, Ralph L. Keeney, and Howard Raiffa in their 1998 article. Still more pitfalls distort reasoning ability or cater to our own biases. Examples of the latter include the tendencies to stick with the status quo, to look for evidence confirming one's preferences, and to throw good money after bad because it's hard to admit making a mistake.

Techniques exist to overcome each one of these problems. For instance, since the way a problem is posed can influence how you think about it, try to reframe the question in various ways and ask yourself how your thinking might change for each version. Even if we can't eradicate the distortions ingrained in the way our minds work, we can build tests like this into our decision-making processes to improve the quality of the choices we make.

THE HIDDEN TRAPS IN DECISION MAKING

In making decisions, you may be at the mercy of your mind's strange workings. Here's how to catch thinking traps before they become judgment disasters.

MAKING DECISIONS is the most important job of any executive. It's also the toughest and the riskiest. Bad decisions can damage a business and a career, sometimes irreparably. So where do bad decisions come from? In many cases, they can be traced back to the way the decisions were made—the alternatives were not clearly defined, the right information was not collected, the costs and benefits were not accurately weighed. But sometimes the fault

lies not in the decision-making process but rather in the mind of the decision maker. The way the human brain works can sabotage our decisions.

Researchers have been studying the way our minds function in making decisions for half a century. This research, in the laboratory and in the field, has revealed that we use unconscious routines to cope with the complexity inherent in most decisions. These routines, known as *heuristics*, serve us well

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in most situations. In judging distance, for example, our minds frequently rely on a heuristic that equates clarity with proximity. The clearer an object appears, the closer we judge it to be. The fuzzier it appears, the farther away we assume it must be. This simple mental shortcut helps us to make the continuous stream of distance judgments required to navigate the world.

Yet, like most heuristics, it is not foolproof. On days that are hazier than normal, our eyes will tend to trick our minds into thinking that things are more distant than they actually are. Because the resulting distortion poses few dangers for most of us, we can safely ignore it. For airline pilots, though, the distortion can be catastrophic. That's why pilots are trained to use objective measures of distance in addition to their vision.

Researchers have identified a whole series of such flaws in the way we think in making decisions. Some, like the heuristic for clarity, are sensory misperceptions. Others take the form of biases. Others appear simply as irrational anomalies in our thinking. What makes all these traps so dangerous is their invisibility. Because they are hardwired into our thinking process, we fail to recognize them—even as we fall right into them.

For executives, whose success hinges on the many day-to-day decisions they make or approve, the psychological traps are especially dangerous. They can undermine everything from new-product development to acquisition and divestiture strategy to succession planning. While no one can rid his or her mind of these ingrained flaws, anyone can follow the lead of airline pilots and learn to understand the traps and compensate for them.

In this article, we examine a number of well-documented psychological traps that are particularly likely to undermine business decisions. In addition to review-

ing the causes and manifestations of these traps, we offer some specific ways managers can guard against them. It's important to remember, though, that the best defense is always awareness. Executives who attempt to familiarize themselves with these traps and the diverse forms they take will be better able to ensure that the decisions they make are sound and that the recommendations proposed by subordinates or associates are reliable.

The Anchoring Trap

How would you answer these two questions?

Is the population of Turkey greater than 35 million?

What's your best estimate of Turkey's population?

If you're like most people, the figure of 35 million cited in the first question (a figure we chose arbitrarily) influenced your answer to the second question. Over the years, we've posed those questions to many groups of people. In half the cases, we used 35 million in the first question; in the other half, we used 100 million. Without fail, the answers to the second question increase by many millions when the larger figure is used in the first question. This simple test illustrates the common and often pernicious mental phenomenon known as *anchoring*. When considering a decision, the

a stereotype about a person's skin color, accent, or dress. In business, one of the most common types of anchors is a past event or trend. A marketer attempting to project the sales of a product for the coming year often begins by looking at the sales volumes for past years. The old numbers become anchors, which the forecaster then adjusts based on other factors. This approach, while it may lead to a reasonably accurate estimate, tends to give too much weight to past events and not enough weight to other factors. In situations characterized by rapid changes in the marketplace, historical anchors can lead to poor forecasts and, in turn, misguided choices.

Because anchors can establish the terms on which a decision will be made, they are often used as a bargaining tactic by savvy negotiators. Consider the experience of a large consulting firm that was searching for new office space in San Francisco. Working with a commercial real-estate broker, the firm's partners identified a building that met all their criteria, and they set up a meeting with the building's owners. The owners opened the meeting by laying out the terms of a proposed contract: a ten-year lease; an initial monthly price of \$2.50 per square foot; annual price increases at the prevailing inflation rate; all interior improvements to be the tenant's responsibility; an option for the

Decision makers display a strong bias toward alternatives that perpetuate the status quo.

mind gives disproportionate weight to the first information it receives. Initial impressions, estimates, or data anchor subsequent thoughts and judgments.

Anchors take many guises. They can be as simple and seemingly innocuous as a comment offered by a colleague or a statistic appearing in the morning newspaper. They can be as insidious as

tenant to extend the lease for ten additional years under the same terms. Although the price was at the high end of current market rates, the consultants made a relatively modest counteroffer. They proposed an initial price in the midrange of market rates and asked the owners to share in the renovation expenses, but they accepted all the

John S. Hammond is a consultant on decision making and a former professor of Harvard Business School in Boston. Ralph L. Keeney is a professor at Duke University's Fuqua School of Business in Durham, North Carolina. Howard Raiffa is the Frank Plumpton Ramsey Professor of Managerial Economics (Emeritus) at Harvard Business School. They are the authors of Smart Choices: A Practical Guide to Making Better Decisions (Harvard Business School Press, 1998).

other terms. The consultants could have been much more aggressive and creative in their counterproposal—reducing the initial price to the low end of market rates, adjusting rates biennially rather than annually, putting a cap on the increases, defining different terms for extending the lease, and so forth—but their thinking was guided by the owners' initial proposal. The consultants had fallen into the anchoring trap, and as a result, they ended up paying a lot more for the space than they had to.

>> **What can you do about it?** The effect of anchors in decision making has been documented in thousands of experiments. Anchors influence the decisions not only of managers, but also of accountants and engineers, bankers and lawyers, consultants and stock analysts. No one can avoid their influence; they're just too widespread. But managers who are aware of the dangers of anchors can reduce their impact by using the following techniques:

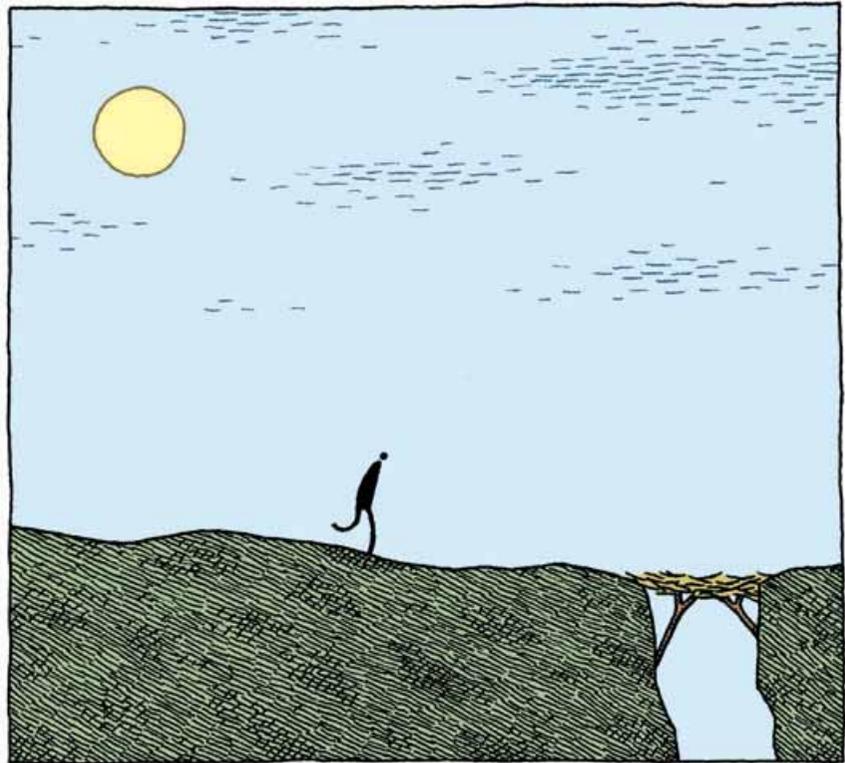
- Always view a problem from different perspectives. Try using alternative starting points and approaches rather than sticking with the first line of thought that occurs to you.

- Think about the problem on your own before consulting others to avoid becoming anchored by their ideas.

- Be open-minded. Seek information and opinions from a variety of people to widen your frame of reference and to push your mind in fresh directions.

- Be careful to avoid anchoring your advisers, consultants, and others from whom you solicit information and counsel. Tell them as little as possible about your own ideas, estimates, and tentative decisions. If you reveal too much, your own preconceptions may simply come back to you.

- Be particularly wary of anchors in negotiations. Think through your position before any negotiation begins in order to avoid being anchored by the other party's initial proposal. At the same time, look for opportunities to use anchors to your own advantage—if you're the seller, for example, suggest a high, but defensible, price as an opening gambit.



The Status-Quo Trap

We all like to believe that we make decisions rationally and objectively. But the fact is, we all carry biases, and those biases influence the choices we make. Decision makers display, for example, a strong bias toward alternatives that perpetuate the status quo. On a broad scale, we can see this tendency whenever a radically new product is introduced. The first automobiles, revealingly called “horseless carriages,” looked very much like the buggies they replaced. The first “electronic newspapers” appearing on the World Wide Web looked very much like their print precursors.

On a more familiar level, you may have succumbed to this bias in your personal financial decisions. People sometimes, for example, inherit shares of stock that they would never have bought themselves. Although it would be a straightforward, inexpensive proposition to sell those shares and put the money into a different investment, a surprising number of people don't sell. They find the status quo comfortable, and they avoid taking action that would upset it. “Maybe I'll rethink it later,” they say. But “later” is usually never.

The source of the status-quo trap lies deep within our psyches, in our desire to protect our egos from damage. Breaking from the status quo means taking action, and when we take action, we take responsibility, thus opening ourselves to criticism and to regret. Not surprisingly, we naturally look for reasons to do nothing. Sticking with the status quo represents, in most cases, the safer course because it puts us at less psychological risk.

Many experiments have shown the magnetic attraction of the status quo. In one, a group of people were randomly given one of two gifts of approximately the same value—half received a mug, the other half a Swiss chocolate bar. They were then told that they could easily exchange the gift they received for the other gift. While you might expect that about half would have wanted to make the exchange, only one in ten actually did. The status quo exerted its power even though it had been arbitrarily established only minutes before.

Other experiments have shown that the more choices you are given, the more pull the status quo has. More people will, for instance, choose the status quo when there are two alternatives to

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it rather than one: A and B instead of just A. Why? Choosing between A and B requires additional effort; selecting the status quo avoids that effort.

In business, where sins of commission (doing something) tend to be punished much more severely than sins of omission (doing nothing), the status quo holds a particularly strong attraction. Many mergers, for example, founder because the acquiring company avoids taking swift action to impose a new, more appropriate management structure on the acquired company. “Let’s not rock the boat right now,” the typical reasoning goes. “Let’s wait until the situation stabilizes.” But as time passes, the existing structure becomes more entrenched, and altering it becomes harder, not easier. Having failed to seize the occasion when change would have been expected, management finds itself stuck with the status quo.

>> **What can you do about it?** First of all, remember that in any given decision, maintaining the status quo may indeed be the best choice, but you don’t want to choose it just because it is comfortable. Once you become aware of the status-quo trap, you can use these techniques to lessen its pull:

- Always remind yourself of your objectives and examine how they would be served by the status quo. You may find that elements of the current situation act as barriers to your goals.

- Never think of the status quo as your only alternative. Identify other options and use them as counterbalances, carefully evaluating all the pluses and minuses.

- Ask yourself whether you would choose the status-quo alternative if, in fact, it weren’t the status quo.

- Avoid exaggerating the effort or cost involved in switching from the status quo.

- Remember that the desirability of the status quo will change over time. When comparing alternatives, always evaluate them in terms of the future as well as the present.

- If you have several alternatives that are superior to the status quo, don’t default to the status quo just because you’re

having a hard time picking the best alternative. Force yourself to choose.

The Sunk-Cost Trap

Another of our deep-seated biases is to make choices in a way that justifies past choices, even when the past choices no longer seem valid. Most of us have fallen into this trap. We may have refused, for example, to sell a stock or a mutual fund at a loss, forgoing other, more attractive investments. Or we may have poured enormous effort into improving the performance of an employee whom we

We tend to subconsciously decide what to do before figuring out why we want to do it.

knew we shouldn’t have hired in the first place. Our past decisions become what economists term *sunk costs*—old investments of time or money that are now irrecoverable. We know, rationally, that sunk costs are irrelevant to the present decision, but nevertheless they prey on our minds, leading us to make inappropriate decisions.

Why can’t people free themselves from past decisions? Frequently, it’s because they are unwilling, consciously or not, to admit to a mistake. Acknowledging a poor decision in one’s personal life may be purely a private matter, involving only one’s self-esteem, but in business, a bad decision is often a very public matter, inviting critical comments from colleagues or bosses. If you fire a poor performer whom you hired, you’re making a public admission of poor judgment. It seems psychologically safer to let him or her stay on, even though that choice only compounds the error.

The sunk-cost bias shows up with disturbing regularity in banking, where it can have particularly dire consequences. When a borrower’s business runs into trouble, a lender will often advance additional funds in hopes of providing the business with some breathing room to recover. If the business does have a good chance of coming back, that’s a wise investment. Otherwise, it’s just throwing good money after bad.

One of us helped a major U.S. bank recover after it made many bad loans to foreign businesses. We found that the bankers responsible for originating the problem loans were far more likely to advance additional funds—repeatedly, in many cases—than were bankers who took over the accounts after the original loans were made. Too often, the original bankers’ strategy—and loans—ended in failure. Having been trapped by an escalation of commitment, they had tried, consciously or unconsciously, to protect their earlier, flawed decisions. They had

fallen victim to the sunk-cost bias. The bank finally solved the problem by instituting a policy requiring that a loan be immediately reassigned to another banker as soon as any problem arose. The new banker was able to take a fresh, unbiased look at the merit of offering more funds.

Sometimes a corporate culture reinforces the sunk-cost trap. If the penalties for making a decision that leads to an unfavorable outcome are overly severe, managers will be motivated to let failed projects drag on endlessly—in the vain hope that they’ll somehow be able to transform them into successes. Executives should recognize that, in an uncertain world where unforeseeable events are common, good decisions can sometimes lead to bad outcomes. By acknowledging that some good ideas will end in failure, executives will encourage people to cut their losses rather than let them mount.

>> **What can you do about it?** For all decisions with a history, you will need to make a conscious effort to set aside any sunk costs—whether psychological or economic—that will muddy your thinking about the choice at hand. Try these techniques:

- Seek out and listen carefully to the views of people who were uninvolved with the earlier decisions and who are hence unlikely to be committed to them.

- Examine why admitting to an earlier mistake distresses you. If the problem lies in your own wounded self-esteem, deal with it head-on. Remind yourself that even smart choices can have bad consequences, through no fault of the original decision maker, and that even the best and most experienced managers are not immune to errors in judgment. Remember the wise words of Warren Buffett: “When you find yourself in a hole, the best thing you can do is stop digging.”

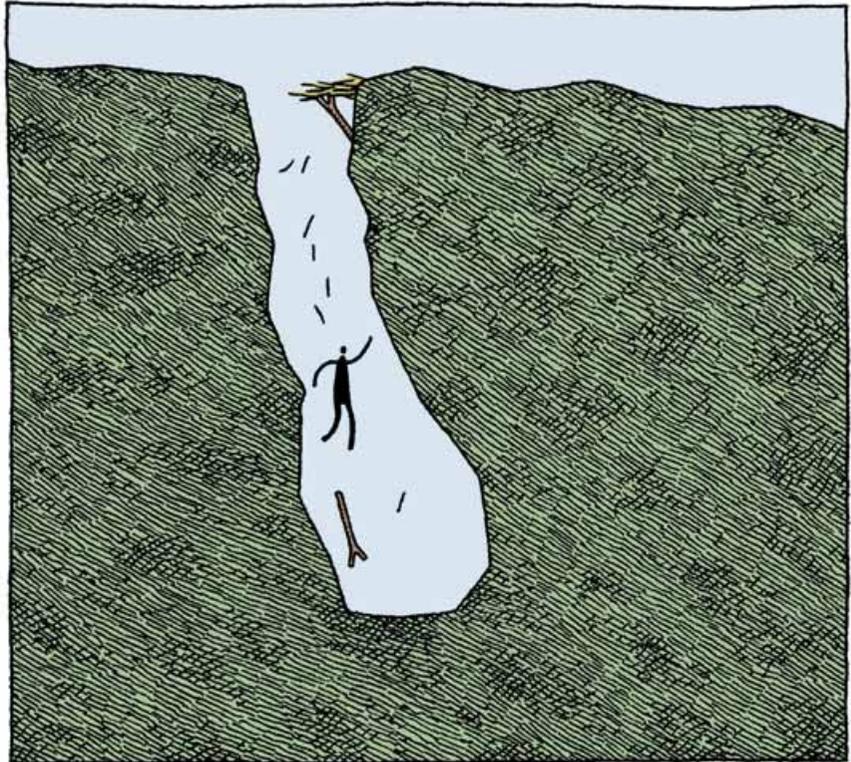
- Be on the lookout for the influence of sunk-cost biases in the decisions and recommendations made by your subordinates. Reassign responsibilities when necessary.

- Don’t cultivate a failure-fearing culture that leads employees to perpetuate their mistakes. In rewarding people, look at the quality of their decision making (taking into account what was known at the time their decisions were made), not just the quality of the outcomes.

The Confirming-Evidence Trap

Imagine that you’re the president of a successful midsize U.S. manufacturer considering whether to call off a planned plant expansion. For a while you’ve been concerned that your company won’t be able to sustain the rapid pace of growth of its exports. You fear that the value of the U.S. dollar will strengthen in coming months, making your goods more costly for overseas consumers and dampening demand. But before you put the brakes on the plant expansion, you decide to call up an acquaintance, the chief executive of a similar company that recently mothballed a new factory, to check her reasoning. She presents a strong case that other currencies are about to weaken significantly against the dollar. What do you do?

You’d better not let that conversation be the clincher, because you’ve probably just fallen victim to the confirming-evidence bias. This bias leads us to seek out information that supports our existing instinct or point of view while avoiding information that contradicts



it. What, after all, did you expect your acquaintance to give, other than a strong argument in favor of her own decision? The confirming-evidence bias not only affects where we go to collect evidence but also how we interpret the evidence we do receive, leading us to give too much weight to supporting information and too little to conflicting information.

In one psychological study of this phenomenon, two groups—one opposed to and one supporting capital punishment—each read two reports of carefully conducted research on the effectiveness of the death penalty as a deterrent to crime. One report concluded that the death penalty was effective; the other concluded it was not. Despite being exposed to solid scientific information supporting counterarguments, the members of both groups became even more convinced of the validity of their own position after reading both reports. They automatically accepted the supporting information and dismissed the conflicting information.

There are two fundamental psychological forces at work here. The first is our tendency to subconsciously decide

what we want to do before we figure out why we want to do it. The second is our inclination to be more engaged by things we like than by things we dislike—a tendency well documented even in babies. Naturally, then, we are drawn to information that supports our subconscious leanings.

>> **What can you do about it?** It’s not that you shouldn’t make the choice you’re subconsciously drawn to. It’s just that you want to be sure it’s the smart choice. You need to put it to the test. Here’s how:

- Always check to see whether you are examining all the evidence with equal rigor. Avoid the tendency to accept confirming evidence without question.

- Get someone you respect to play devil’s advocate, to argue against the decision you’re contemplating. Better yet, build the counterarguments yourself. What’s the strongest reason to do something else? The second strongest reason? The third? Consider the position with an open mind.

- Be honest with yourself about your motives. Are you really gathering information to help you make a smart choice, or are you just looking for evi-

DECISION MAKING

dence confirming what you think you'd like to do?

- In seeking the advice of others, don't ask leading questions that invite confirming evidence. And if you find that an adviser always seems to support your point of view, find a new adviser. Don't surround yourself with yes-men.

The Framing Trap

The first step in making a decision is to frame the question. It's also one of the most dangerous steps. The way a problem is framed can profoundly influence the choices you make. In a case involving automobile insurance, for example, framing made a \$200 million difference. To reduce insurance costs, two neighboring states, New Jersey and Pennsylvania, made similar changes in their laws. Each state gave drivers a new option: By accepting a limited right to sue, they could lower their premiums. But the two states framed the choice in very different ways: In New Jersey, you automatically got the limited right to sue unless you specified otherwise; in Pennsylvania, you got the full right to sue unless you specified otherwise. The different frames established different status quos, and, not surprisingly, most consumers defaulted to the status quo. As a result, in New Jersey about 80% of drivers chose the limited right to sue, but in Pennsylvania only 25% chose it. Because of the way it framed the choice, Pennsylvania failed to gain approximately \$200 million in expected insurance and litigation savings.

The framing trap can take many forms, and as the insurance example shows, it is often closely related to other psychological traps. A frame can establish the status quo or introduce an anchor. It can highlight sunk costs or lead you toward confirming evidence. Decision researchers have documented two types of frames that distort decision making with particular frequency:

Frames as gains versus losses. In a study patterned after a classic experiment by decision researchers Daniel Kahneman and Amos Tversky, one of us posed the following problem to a group of insurance professionals:

You are a marine property adjuster charged with minimizing the loss of cargo on three insured barges that sank yesterday off the coast of Alaska. Each barge holds \$200,000 worth of cargo, which will be lost if not salvaged within 72 hours. The owner of a local marine-salvage company gives you two options, both of which will cost the same:

Plan A: This plan will save the cargo of one of the three barges, worth \$200,000.

Plan B: This plan has a one-third probability of saving the cargo on all three barges, worth \$600,000, but has a two-thirds probability of saving nothing.

Which plan would you choose?

If you are like 71% of the respondents in the study, you chose the "less risky" Plan A, which will save one barge for sure. Another group in the study, however, was asked to choose between alternatives C and D:

Plan C: This plan will result in the loss of two of the three cargoes, worth \$400,000.

Plan D: This plan has a two-thirds probability of resulting in the loss of all three cargoes and the entire \$600,000 but has a one-third probability of losing no cargo.

Faced with this choice, 80% of these respondents preferred Plan D.

The pairs of alternatives are, of course, precisely equivalent—Plan A is the same as Plan C, and Plan B is the same as Plan D—they've just been framed in different ways. The strikingly different responses reveal that people are risk averse when a problem is posed in terms of gains (barges saved) but risk seeking when a problem is posed in terms of avoiding losses (barges lost). Furthermore, they tend to adopt the frame as it is presented to them rather than restating the problem in their own way.

Framing with different reference points. The same problem can also elicit very different responses when frames use different reference points. Let's say you have \$2,000 in your checking account and you are asked the following question:

Would you accept a fifty-fifty chance of either losing \$300 or winning \$500?

Would you accept the chance? What if you were asked this question:

Would you prefer to keep your checking account balance of \$2,000 or to accept a fifty-fifty chance of having either \$1,700 or \$2,500 in your account?

Once again, the two questions pose the same problem. While your answers to both questions should, rationally speaking, be the same, studies have shown that many people would refuse the fifty-fifty chance in the first question but accept it in the second. Their different reactions result from the different reference points presented in

A dramatic or traumatic event in your own life can also distort your thinking.

the two frames. The first frame, with its reference point of zero, emphasizes incremental gains and losses, and the thought of losing triggers a conservative response in many people's minds. The second frame, with its reference point of \$2,000, puts things into perspective by emphasizing the real financial impact of the decision.

>> **What can you do about it?** A poorly framed problem can undermine even the best-considered decision. But any adverse effect of framing can be limited by taking the following precautions:

- Don't automatically accept the initial frame, whether it was formulated by you or by someone else. Always try to reframe the problem in various ways. Look for distortions caused by the frames.

- Try posing problems in a neutral, redundant way that combines gains and losses or embraces different reference points. For example: Would you accept a fifty-fifty chance of either losing \$300, resulting in a bank balance of \$1,700, or winning \$500, resulting in a bank balance of \$2,500?

- Think hard throughout your decision-making process about the framing of the problem. At points throughout the process, particularly near the end, ask yourself how your thinking might change if the framing changed.

- When others recommend decisions, examine the way they framed the problem. Challenge them with different frames.

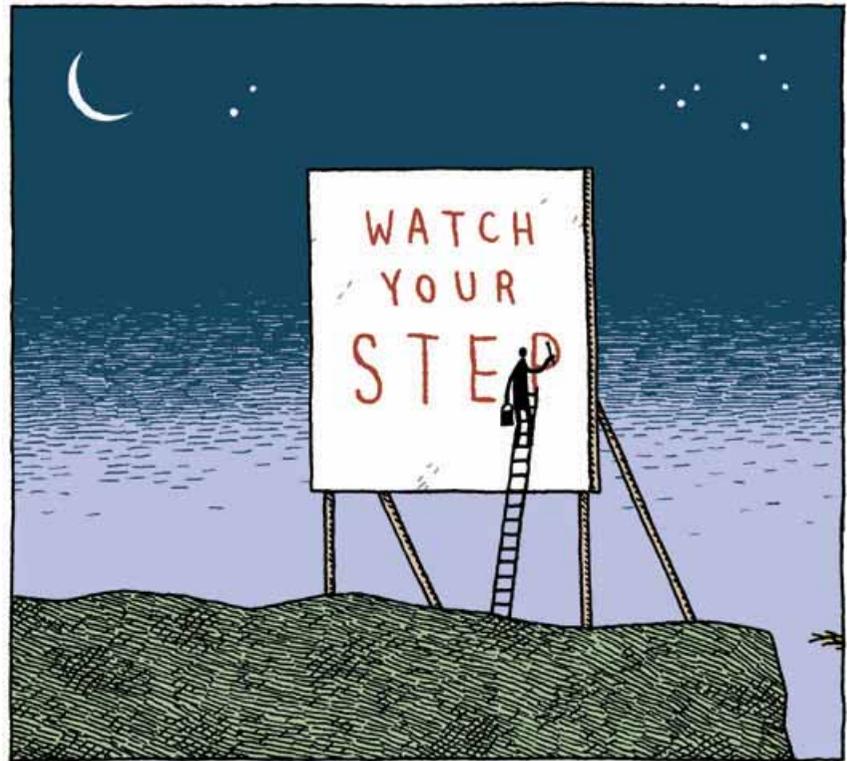
The Estimating and Forecasting Traps

Most of us are adept at making estimates about time, distance, weight, and volume. That's because we're constantly making judgments about these variables and getting quick feedback about the accuracy of those judgments. Through daily practice, our minds become finely calibrated.

Making estimates or forecasts about uncertain events, however, is a different matter. While managers continually make such estimates and forecasts, they rarely get clear feedback about their accuracy. If you judge, for example, that the likelihood of the price of oil falling to less than \$15 a barrel one year hence is about 40% and the price does indeed fall to that level, you can't tell whether you were right or wrong about the probability you estimated. The only way to gauge your accuracy would be to keep track of many, many similar judgments to see if, after the fact, the events you thought had a 40% chance of occurring actually did occur 40% of the time. That would require a great deal of data, carefully tracked over a long period of time. Weather forecasters and bookmakers have the opportunities and incentives to maintain such records, but the rest of us don't. As a result, our minds never become calibrated for making estimates in the face of uncertainty.

All of the traps we've discussed so far can influence the way we make decisions when confronted with uncertainty. But there's another set of traps that can have a particularly distorting effect in uncertain situations because they cloud our ability to assess probabilities. Let's look at three of the most common of these uncertainty traps:

The overconfidence trap. Even though most of us are not very good at making estimates or forecasts, we actually tend to be overconfident about our accuracy. That can lead to errors in judgment and, in turn, bad decisions. In one



series of tests, people were asked to forecast the next week's closing value for the Dow Jones Industrial Average. To account for uncertainty, they were then asked to estimate a range within which the closing value would likely fall. In picking the top number of the range, they were asked to choose a high estimate they thought had only a 1% chance of being exceeded by the closing value. Similarly, for the bottom end, they were told to pick a low estimate for which they thought there would be only a 1% chance of the closing value falling below it. If they were good at judging their forecasting accuracy, you'd expect the participants to be wrong only about 2% of the time. But hundreds of tests have shown that the actual Dow Jones averages fell outside the forecast ranges 20% to 30% of the time. Overly confident about the accuracy of their predictions, most people set too narrow a range of possibilities.

Think of the implications for business decisions, in which major initiatives and investments often hinge on ranges of estimates. If managers underestimate the high end or overestimate the low end of a crucial variable, they

may miss attractive opportunities or expose themselves to far greater risk than they realize. Much money has been wasted on ill-fated product-development projects because managers did not accurately account for the possibility of market failure.

The prudence trap. Another trap for forecasters takes the form of overcautiousness, or prudence. When faced with high-stakes decisions, we tend to adjust our estimates or forecasts "just to be on the safe side." Many years ago, for example, one of the Big Three U.S. automakers was deciding how many of a new-model car to produce in anticipation of its busiest sales season. The market-planning department, responsible for the decision, asked other departments to supply forecasts of key variables such as anticipated sales, dealer inventories, competitor actions, and costs. Knowing the purpose of the estimates, each department slanted its forecast to favor building more cars—"just to be safe." But the market planners took the numbers at face value and then made their own "just to be safe" adjustments. Not surprisingly, the number of cars produced far exceeded demand,

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and the company took six months to sell off the surplus, resorting in the end to promotional pricing.

Policy makers have gone so far as to codify overcautiousness in formal decision procedures. An extreme example is the methodology of “worst-case analysis,” which was once popular in the design of weapons systems and is still used in certain engineering and regulatory settings. Using this approach, engineers designed weapons to operate under the worst possible combination of circumstances, even though the odds of those circumstances actually coming to pass were infinitesimal. Worst-case analysis added enormous costs with no practical benefit (in fact, it often backfired by touching off an arms race), proving that too much prudence can sometimes be as dangerous as too little.

The recallability trap. Even if we are neither overly confident nor unduly prudent, we can still fall into a trap when making estimates or forecasts. Because we frequently base our predictions about future events on our memory of past events, we can be overly influenced by dramatic events – those that leave a strong impression on our memory. We all, for example, exaggerate the probability of rare but catastrophic occurrences such as plane crashes because they get disproportionate attention in the media. A dramatic or traumatic event in your own life can also distort your thinking. You will assign a higher probability to traffic accidents if you have passed one on the way to work, and you will assign a higher chance of someday dying of cancer yourself if a close friend has died of the disease.

In fact, anything that distorts your ability to recall events in a balanced way will distort your probability assessments. In one experiment, lists of well-known men and women were read to different groups of people. Unbeknownst to the subjects, each list had an equal number of men and women, but on some lists the men were more famous than the women while on others the women were more famous. Afterward,

the participants were asked to estimate the percentages of men and women on each list. Those who had heard the list with the more famous men thought there were more men on the list, while those who had heard the one with the more famous women thought there were more women.

Corporate lawyers often get caught in the recallability trap when defending liability suits. Their decisions about whether to settle a claim or take it to court usually hinge on their assessments of the possible outcomes of a trial. Because the media tend to aggressively publicize massive damage awards (while ignoring other, far more common trial outcomes), lawyers can overestimate the probability of a large award for the plaintiff. As a result, they offer larger settlements than are actually warranted.

>> What can you do about it? The best way to avoid the estimating and forecasting traps is to take a very disciplined approach to making forecasts and judging probabilities. For each of the three traps, some additional precautions can be taken:

- To reduce the effects of overconfidence in making estimates, always start by considering the extremes, the low and high ends of the possible range of values. This will help you avoid being anchored by an initial estimate. Then challenge your estimates of the extremes. Try to imagine circumstances where the actual figure would fall below your low or above your high, and adjust your range accordingly. Challenge the estimates of your subordinates and advisers in a similar fashion. They’re also susceptible to overconfidence.

- To avoid the prudence trap, always state your estimates honestly and explain to anyone who will be using them that they have not been adjusted. Emphasize the need for honest input to anyone who will be supplying you with estimates. Test estimates over a reasonable range to assess their impact. Take a second look at the more sensitive estimates.

- To minimize the distortion caused by variations in recallability, carefully

examine all your assumptions to ensure they’re not unduly influenced by your memory. Get actual statistics whenever possible. Try not to be guided by impressions.

Forewarned Is Forearmed

When it comes to business decisions, there’s rarely such a thing as a no-brainer. Our brains are always at work, sometimes, unfortunately, in ways that hinder rather than help us. At every stage of the decision-making process, misperceptions, biases, and other tricks of the mind can influence the choices we make. Highly complex and important decisions are the most prone to distortion because they tend to involve the most assumptions, the most estimates, and the most inputs from the most people. The higher the stakes, the higher the risk of being caught in a psychological trap.

The traps we’ve reviewed can all work in isolation. But, even more dangerous, they can work in concert, amplifying one another. A dramatic first impression might anchor our thinking, and then we might selectively seek out confirming evidence to justify our initial inclination. We make a hasty decision, and that decision establishes a new status quo. As our sunk costs mount, we become trapped, unable to find a propitious time to seek out a new and possibly better course. The psychological miscues cascade, making it harder and harder to choose wisely.

As we said at the outset, the best protection against all psychological traps—in isolation or in combination—is awareness. Forewarned is forearmed. Even if you can’t eradicate the distortions ingrained into the way your mind works, you can build tests and disciplines into your decision-making process that can uncover errors in thinking before they become errors in judgment. And taking action to understand and avoid psychological traps can have the added benefit of increasing your confidence in the choices you make. 

Reprint R0601K

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- RISK/RETURN: Is Your Company Too Risk Averse?

The Dangers of Feeling Like a Fake

I released a reverberating sigh of relief after reading Manfred F.R. Kets de Vries's article "The Dangers of Feeling Like a Fake" (September 2005). It was enlightening and, at some points, a bit painful to see myself reflected in many of the profiles of neurotic imposture. My wife read the article and simply said, "So, this is what is wrong with you."

But as helpful as the article was, Kets de Vries missed two opportunities to further enlighten your readers. First, while gender, birth order, and parenting

imposture an individual displays. Yet there was no discussion in the article about spirituality in the workplace or whether the degree to which an individual feels like a fake depends on how closely his work and personal lives are aligned. A leader's brains, skills, and talent are less leveraged in a position in which he feels like the job doesn't have much, or enough, to do with his greater purpose in life.

The article has given me better perspective on some of my self-defeating behaviors and thoughts and has prompted me to consciously change how I respond to my challenging leadership positions and the expectations that come with those positions.

Shawn Dove
 Vice President
 Mentor/National Mentoring Partnership
 The Mentoring Partnership of New York
 New York



I read with great interest "The Dangers of Feeling Like a Fake," particularly the sidebar "Women and the Impostor Phenomenon." I find it curious, if not astounding, that HBR would publish an article that makes the inflammatory suggestion that neurosis can occur in working women simply because they had stay-at-home mothers. It is even more curious given that the author, who clearly represents himself as a knowledgeable person on this subject, is a man.

Kets de Vries couldn't be more wrong about career junctures and women's considerations of their roles. I became a widow ten years ago and have raised two children by myself. I started a consulting company three and a half years ago, and I volunteer in a variety of orga-

were all mentioned in the article as contributors to the phenomenon of neurotic imposture, I found it odd that, especially in America, the issue of race was not discussed. I suspect that many of my fellow African-American colleagues – particularly the men – secretly and understandably experience the symptoms of neurotic imposture. Future studies of this issue should include a focus on the uneven playing field that race issues create in corporate America.

Second, spirituality must have some kind of impact on the level of neurotic

We welcome letters from all readers wishing to comment on articles in this issue. Early responses have the best chance of being published. Please be concise and include your title, company affiliation, location, and phone number. E-mail us at hbr_letters@hbsp.harvard.edu; send faxes to 617-783-7493; or write to The Editor, Harvard Business Review, 60 Harvard Way, Boston, MA 02163. HBR reserves the right to solicit and edit letters and to republish letters as reprints.

nizations. I have held many positions of authority in commercial industry, and I work closely with senior military officials on national-defense supply chain management. Yes, I had a stay-at-home mother, but I have never felt “fraudulent” or confused in any of my business roles or at critical junctures in my life and career.

The author’s assertion that women are insecure because they work in male-dominated environments suggests he has not been exposed to the thousands of talented women who are blazing new trails in government and technology development. As a member of the board of directors of the nonprofit organization Women in Technology, I can safely say that women are quite secure in their roles and, as ever, determined to elimi-

nate the sort of nonsense advanced by “The Dangers of Feeling Like a Fake.”

Mary Ann Wagner

*President and Founder
XIO Strategies
McLean, Virginia*

Kets de Vries responds: Shawn Dove is right to refer to the race issue, which is a problem not only in the United States but also worldwide. His observations certainly warrant further research. I also very much like his comment about alignment. I visit too many organizations that have gulag qualities, where there seems to be no alignment between employees’ personal and work lives. Psychologist Donald Winnicott refers to an individual’s true and false selves. That is, if too much of a person’s

false self is dominant, he or she may have a hard time feeling “real.” Because of space constraints, I wasn’t able to discuss this phenomenon in the article, but I do in one of my forthcoming books.

Mary Ann Wagner is right to present her argument, but I would suggest that her view of women in business may be specific to the North American context in which she lives. Many of my observations concerning women are derived from discussions with female psychiatrists and psychoanalysts in Europe. In the Nordic countries, for example, which are among the most free of gender bias in the world, dual-career families are the norm. Moreover, many women in these countries have very senior jobs. But even these accomplished women, and their American counterparts, may not



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DECISION MAKING

always be as secure as Wagner appears to be. At least that is what my female coaches tell me about high-powered female U.S. executives in our various programs. Wagner also might want to talk with professional women in Latin and Asian countries; their experiences may be quite different from hers.

Confessions of a Trusted Counselor

Years ago, Jan Carlzon, the legendary CEO of Scandinavian Airlines, told me that “the greatest challenge of a leader is to get talented executives with different experience to work productively together on the real and most urgent challenges facing the business.” I was reminded of Carlzon’s words when I read David Nadler’s “Confessions of a Trusted Counselor” (September 2005).

Often, the understated and hidden tension in advising a CEO is the need to frame or reframe an issue (or issues) that the CEO doesn’t want to confront—an issue that could sabotage the leader’s ambitions and agenda if it goes unaddressed. But a CEO’s adviser must be aware of an executive team’s behaviors and social patterns; these factors can affect the CEO’s ability to get things accomplished.

Passive-aggressive behavior by executive team members delays and undermines change at an organization. I’ve seen CEOs held ransom by powerful executives and senior teams—sometimes because they are genuinely concerned by the actions the CEO proposed and, other times, because furthering the CEO’s agenda for the company interferes with their agendas and authority. Equally tricky for advisers is working with executive teams that focus on facts, numbers, and fixing the current problem but have a blind spot regarding the cultural and social patterns of work.

Leaders often will not acknowledge there is a problem unless they see a solution. A CEO adviser’s task is to help frame these sometimes systemic challenges, provide an alternative perspective on the issues, and help the CEO put to work the members of the executive

team who need to adapt, change, and become part of the solution.

Donald L. Laurie
Managing Director
Oyster International
Boston

The loyalty, communications, and assessment dilemmas that David Nadler describes in “Confessions of a Trusted Counselor” can be ameliorated by applying a combination of CEO peer groups and coaching models, an approach that TEC International uses with CEOs in companies around the world. Each group meets monthly and is composed of 12 to 16 non-competitive, diverse companies. An independent professional chair leads each group and, between group meetings, also consults individually with the CEOs.

It’s easy for a CEO to shut out the lone voice of a coach. It’s much harder for that CEO to resist the experience and advice of 15 peers. The CEO peer group is committed to increasing its members’ effectiveness. Executives challenge one another and hold one another accountable to their commitments. The chair is limited to working only with the CEO under a confidentiality agreement. CEO peers do not report to one another or to others in the group, nor do they do business with one another. Thus, members have no obligation to communicate with their boards, and they have no contact with other CEOs’ employees, who might try to use them as a conduit to the CEO.

The temptations facing a coach or adviser in isolation—overidentification, ego, and friendship—are largely eliminated through the existence of the independent CEO peer group. Chairs generally establish boundaries in their relationships. Even when deep friendships develop, they are not universal, and the rest of the peer group will confront the parties in question when necessary. In my experience, group intelligence is infinitely superior to the opinions and experiences of one even well-intentioned and knowledgeable adviser.

Lewis C. Haskell
Vice President, U.S. Field Operations
TEC International
San Diego

Nadler responds: These two letters raise important and connected issues related to advising CEOs. Donald Laurie brings up the relationship between the executive team’s dynamics and the CEO’s behavior, a matter my coauthors and I examined at length in *Executive Teams* (Jossey-Bass, 1997). In fact, the reactions of an executive team can be varied. I’ve encountered situations in which the team is desperate for the CEO to act differently—and to be more effective. It welcomes a new adviser with open arms, and the warm welcome continues as long as the consultation is effective. Other times, as Laurie points out, the executive team may fear or resent the appearance of a new actor on the stage. You can try to win the team’s trust by the way in which you work with the team and with the CEO, but it doesn’t always work. Sometimes the team’s reaction to an outsider is indicative of deeper problems, and that ultimately limits what you can do.

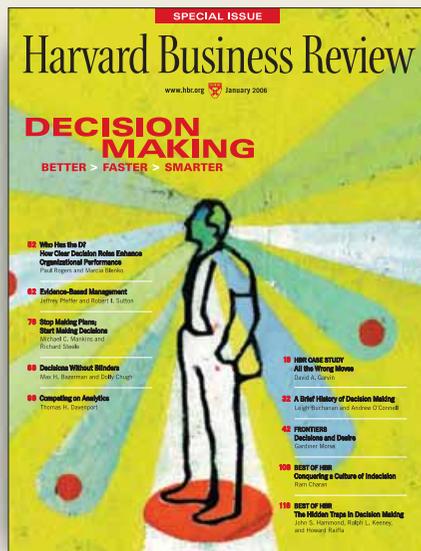
You can’t work with the CEO in a vacuum. That’s why I don’t particularly like the term “executive coaching.” It implies a limited, one-on-one relationship. I strongly believe (and recent research supports) that you have to work with the CEO in context. That means taking into account the executive team, the board of directors, the broader group of senior managers at the company, the organization as a whole, and other outside constituents.

I would agree with Lewis Haskell that there is great value in CEOs talking to peers, but I don’t see peer coaching as a replacement for the consultation provided by a trusted adviser. Peer coaching is still coaching. Peers have only the CEO’s reported data to work with; they can’t understand, assess, and work within the context that the CEO faces. Ultimately, we are all very poor observers of our own behavior. For the CEO who has reduced feedback channels, this problem is magnified.

The most effective consulting that a trusted adviser can provide is just-in-time advice when a problem presents itself. Periodic peer coaching simply can’t provide this. 

EXECUTIVE SUMMARIES

January 2006



“ The trick in decision making is to avoid becoming either mindlessly global or hopelessly local. ”

— page 52

52 | Who Has the D? How Clear Decision Roles Enhance Organizational Performance

Paul Rogers and Marcia Blenko

Decisions are the coin of the realm in business. But even in highly respected companies, decisions can get stuck inside the organization like loose change. As a result, the entire decision-making process can stall, usually at one of four bottlenecks: global versus local, center versus business unit, function versus function, and inside versus outside partners.

Decision-making bottlenecks can occur whenever there is ambiguity or tension over who gets to decide what. For example, do marketers or product developers get to decide the features of a new product? Should a major capital investment depend on the approval of the business unit that will own it, or should headquarters make the final call? Which decisions can be delegated to an outsourcing partner, and which must be made internally?

Bain consultants Paul Rogers and Marcia Blenko use an approach called RAPID (recommend, agree, perform, input, and decide) to help companies unclog their decision-making bottlenecks by explicitly defining roles and responsibilities. For example, British American Tobacco struck a new balance between global and local decision making to take advantage of the company's scale while maintaining its agility in local markets. At Wyeth Pharmaceuticals, a growth opportunity revealed the need to push more decisions down to the business units. And at the UK department-store chain John Lewis, buyers and sales staff clarified their decision roles in order to implement a new strategy for selling its salt and pepper mills.

When revamping its decision-making process, a company must take some practical steps: Align decision roles with the most important sources of value, make sure that decisions are made by the right people at the right levels of the organization, and let the people who will live with the new process help design it.

Reprint R0601D; HBR OnPoint 3021

HBR CASE STUDY

18 | All the Wrong Moves*David A. Garvin*

Nutrorm's products have been gaining national attention. In particular, sales of the company's organic, performance-enhancing sports supplement powder, ChargeUp, have gone through the roof. Now the new and improved version, called ChargeUp with Lipitrene, has recently hit the market, and expectations are high.

CEO Don Rifkin has tried hard to build an inclusive, democratic culture at this successful company. But the organization's open decision-making process has proved problematic, especially during times of conflict and crisis—and a crisis there is.

Several months after ChargeUp with Lipitrene is initially released, an investigator from the Minnesota state department of health calls Rifkin to report "11 cases of gastrointestinal distress" among those using the supplement. Nutrorm's top executives must now decide whether to recall the product or not.

The head of R&D, Steve Ford, insists there is nothing wrong with the new ChargeUp, citing elaborate toxicity studies in animals and humans. Meanwhile, the heads of PR and legal want to stem any negative publicity by recalling the product and issuing a press release to that effect. The company decides to recall the supplement—but, two weeks later, the health department investigator calls back with good news: The people who had become ill, it turns out, had actually picked up a bug from their gym's smoothie bar. In other words, Nutrorm is exonerated. But the close call is so close that a consultant is brought in to review the company's methods for making decisions. Among the many questions he's asking is, What's the right decision-making process for Nutrorm?

Commenting on this fictional case study are Christopher J. McCormick, the president and CEO of L.L.Bean; Hauke Moje, a partner at Roland Berger Strategy Consultants; Ralph Biggadike, a professor of professional practice at Columbia Business School; and Paul Domorski, the vice president of service operations at Avaya.

Reprint R0601A**32 | A Brief History of Decision Making***Leigh Buchanan and Andrew O'Connell*

Sometime around the middle of the past century, telephone executive Chester Barnard imported the term *decision making* from public administration into the business world. There it began to replace narrower terms, like "resource allocation" and "policy making," shifting the way managers thought about their role from continuous, Hamlet-like deliberation toward a crisp series of conclusions reached and actions taken.

Yet, decision making is, of course, a broad and ancient human pursuit, flowing back to a time when people sought guidance from the stars. From those earliest days, we have strived to invent better tools for the purpose, from the Hindu-Arabic systems for numbering and algebra, to Aristotle's systematic empiricism, to friar Occam's advances in logic, to Francis Bacon's inductive reasoning, to Descartes's application of the scientific method. A growing sophistication with managing risk, along with a nuanced understanding of human behavior and advances in technology that support and mimic cognitive processes, has improved decision making in many situations.

Even so, the history of decision-making strategies—captured in this time line and examined in the four accompanying essays on risk, group dynamics, technology, and instinct—has not marched steadily toward perfect rationalism. Twentieth-century theorists showed that the costs of acquiring information lead executives to make do with only good-enough decisions. Worse, people decide against their own economic interests even when they know better. And in the absence of emotion, it's impossible to make any decisions at all. Erroneous framing, bounded awareness, excessive optimism: The debunking of Descartes's rational man threatens to swamp our confidence in our choices. Is it really surprising, then, that even as technology dramatically increases our access to information, Malcolm Gladwell extols the virtues of gut decisions made, literally, in the blink of an eye?

Reprint R0601B**42 | Decisions and Desire***Gardiner Morse*

When we make decisions, we're not always in charge. One moment we hottheadedly let our emotions get the better of us; the next, we're paralyzed by uncertainty. Then we'll pull a brilliant decision out of thin air—and wonder how we did it. Though we may have no idea how decision making happens, neuroscientists peering deep into our brains are beginning to get the picture. What they're finding may not be what you want to hear, but it's worth listening.

We have dog brains, basically, with human cortexes stuck on top. By watching the brain in action as it deliberates and decides, neuroscientists are finding that not a second goes by that our animal brains aren't conferring with our modern cortexes to influence their choices. Scientists have discovered, for example, that the "reward" circuits in the brain that activate in response to cocaine, chocolate, sex, and music also find pleasure in the mere anticipation of making money—or getting revenge. And the "aversion" circuits that react to the threat of physical pain also respond with disgust when we feel cheated by a partner.

In this article, HBR senior editor Gardiner Morse describes the experiments that illuminate the aggressive participation of our emotion-driven animal brains in decision making. This research also shows that our emotional brains needn't always operate beneath our radar. While our dog brains sometimes hijack our higher cognitive functions to drive bad, or at least illogical, decisions, they play an important part in rational decision making as well. The more we understand about how we make decisions, the better we can manage them.

Reprint R0601C

62 | Evidence-Based Management

Jeffrey Pfeffer and Robert I. Sutton

For the most part, managers looking to cure their organizational ills rely on obsolete knowledge they picked up in school, long-standing but never proven traditions, patterns gleaned from experience, methods they happen to be skilled in applying, and information from vendors. They could learn a thing or two from practitioners of evidence-based medicine, a movement that has taken the medical establishment by storm over the past decade. A growing number of physicians are eschewing the usual, flawed resources and are instead identifying, disseminating, and applying research that is soundly conducted and clinically relevant. It's time for managers to do the same.

The challenge is, quite simply, to ground decisions in the latest and best knowledge of what actually works. In some ways, that's more difficult to do in business than in medicine. The evidence is weaker in business; almost anyone can (and many people do) claim to be a management expert; and a motley crew of sources—Shakespeare, Billy Graham, Jack Welch, Attila the Hun—are used to generate management advice. Still, it makes sense that when managers act on better logic and strong evidence, their companies will beat the competition.

Like medicine, management is learned through practice and experience. Yet managers (like doctors) can practice their craft more effectively if they relentlessly seek new knowledge and insight, from both inside and outside their companies, so they can keep updating their assumptions, skills, and knowledge.

Reprint R0601E; HBR OnPoint 298X; OnPoint collection “To Make the Best Decisions, Demand the Best Data” 3048

76 | Stop Making Plans; Start Making Decisions

Michael C. Mankins and Richard Steele

Many executives have grown skeptical of strategic planning. Is it any wonder? Despite all the time and energy that go into it, strategic planning most often acts as a barrier to good decision making and does little to influence strategy.

Strategic planning fails because of two factors: It typically occurs annually, and it focuses on individual business units. As such, the process is completely at odds with the way executives actually make important strategy decisions, which are neither constrained by the calendar nor defined by unit boundaries. Thus, according to a survey of 156 large companies, senior executives often make strategic decisions outside the planning process, in an ad hoc fashion and without rigorous analysis or productive debate.

But companies can fix the process if they attack its root problems. A few forward-looking firms have thrown out their calendar-driven, business-unit-focused planning procedures and replaced them with continuous, issues-focused decision making. In doing so, they rely on several basic principles: They separate, but integrate, decision making and plan making. They focus on a few key themes. And they structure strategy reviews to produce real decisions.

When companies change the timing and focus of strategic planning, they also change the nature of senior management's discussions about strategy—from “review and approve” to “debate and decide,” in which top executives actively think through every major decision and its implications for the company's performance and value. The authors have found that these companies make more than twice as many important strategic decisions per year as companies that follow the traditional planning model.

Reprint R0601F; HBR OnPoint 2971; OnPoint collection “What Makes a Decisive Leadership Team, 2nd Edition” 3056

88 | Decisions Without Blinders

Max H. Bazerman and Dolly Chugh

By the time Merck withdrew its pain relief drug Vioxx from the market in 2004, more than 100 million prescriptions had been filled in the United States alone. Yet researchers now estimate that Vioxx may have been associated with as many as 25,000 heart attacks and strokes. Evidence of the drug's risks was available as early as 2000, so why did so many doctors keep prescribing it?

The answer, say the authors, involves the phenomenon of *bounded awareness*—when cognitive blinders prevent a person from seeing, seeking, using, or sharing highly relevant, easily accessible, and readily perceivable information during the decision-making process. Doctors prescribing Vioxx, for instance, more often than not received positive feedback from patients. So, despite having access to information about the risks, physicians may have been blinded to the actual extent of the risks.

Bounded awareness can occur at three points in the decision-making process. First, executives may fail to see or seek out the important information needed to make a sound decision. Second, they may fail to use the information that they do see because they aren't aware of its relevance. Third, executives may fail to share information with others, thereby bounding the organization's awareness.

Drawing on examples such as the *Challenger* disaster and Citibank's failures in Japan, this article examines what prevents executives from seeing what's right in front of them and offers advice on how to increase awareness.

Of course, not every decision requires executives to consciously broaden their focus. Collecting too much information for every decision would waste time and other valuable resources. The key is being mindful. If executives think an error could generate almost irrecoverable damage, then they should insist on getting all the information they need to make a wise decision.

Reprint R0601G; HBR OnPoint 2998; OnPoint collection “To Make the Best Decisions, Demand the Best Data” 3048

98 | Competing on Analytics

Thomas H. Davenport

We all know the power of the killer app. It's not just a support tool; it's a strategic weapon.

Companies questing for killer apps generally focus all their firepower on the one area that promises to create the greatest competitive advantage. But a new breed of organization has upped the stakes: Amazon, Harrah's, Capital One, and the Boston Red Sox have all dominated their fields by deploying industrial-strength analytics across a wide variety of activities.

At a time when firms in many industries offer similar products and use comparable technologies, business processes are among the few remaining points of differentiation—and analytics competitors wring every last drop of value from those processes. Employees hired for their expertise with numbers or trained to recognize their importance are armed with the best evidence and the best quantitative tools. As a result, they make the best decisions.

In companies that compete on analytics, senior executives make it clear—from the top down—that analytics is central to strategy. Such organizations launch multiple initiatives involving complex data and statistical analysis, and quantitative activity is managed at the enterprise (not departmental) level.

In this article, professor Thomas H. Davenport lays out the characteristics and practices of these statistical masters and describes some of the very substantial changes other companies must undergo in order to compete on quantitative turf. As one would expect, the transformation requires a significant investment in technology, the accumulation of massive stores of data, and the formulation of company-wide strategies for managing the data. But, at least as important, it also requires executives' vocal, unswerving commitment and willingness to change the way employees think, work, and are treated.

Reprint R0601H; HBR OnPoint 3005; OnPoint collection "To Make the Best Decisions, Demand the Best Data" 3048

108 | Conquering a Culture of Indecision

Ram Charan

The single greatest cause of corporate underperformance is the failure to execute. According to author Ram Charan, such failures usually result from misfires in personal interactions. And these faulty interactions rarely occur in isolation, Charan says in this article originally published in 2001. More often than not, they're typical of the way large and small decisions are made (or not made) throughout an organization. The inability to take decisive action is rooted in a company's culture.

Leaders create this culture of indecisiveness, Charan says—and they can break it by doing three things: First, they must engender intellectual honesty in the connections between people. Second, they must see to it that the organization's *social operating mechanisms*—the meetings, reviews, and other situations through which people in the corporation transact business—have honest dialogue at their cores. And third, leaders must ensure that feedback and follow-through are used to reward high achievers, coach those who are struggling, and discourage those whose behaviors are blocking the organization's progress.

By taking these three approaches and using every encounter as an opportunity to model open and honest dialogue, leaders can set the tone for an organization, moving it from paralysis to action.

Reprint R0601J

118 | The Hidden Traps in Decision Making

John S. Hammond, Ralph L. Keeney, and Howard Raiffa

Bad decisions can often be traced back to the way the decisions were made—the alternatives were not clearly defined, the right information was not collected, the costs and benefits were not accurately weighed. But sometimes the fault lies not in the decision-making process but rather in the mind of the decision maker. The way the human brain works can sabotage the choices we make.

In this article, first published in 1998, John Hammond, Ralph Keeney, and Howard Raiffa examine eight psychological traps that can affect the way we make business decisions. The *anchoring trap* leads us to give disproportionate weight to the first information we receive. The *status-quo trap* biases us toward maintaining the current situation—even when better alternatives exist. The *sunk-cost trap* inclines us to perpetuate the mistakes of the past. The *confirming-evidence trap* leads us to seek out information supporting an existing predilection and to discount opposing information. The *framing trap* occurs when we misstate a problem, undermining the entire decision-making process. The *over-confidence trap* makes us overestimate the accuracy of our forecasts. The *prudence trap* leads us to be overcautious when we make estimates about uncertain events. And the *recallability trap* prompts us to give undue weight to recent, dramatic events.

The best way to avoid all the traps is awareness—forewarned is forearmed. But executives can also take other simple steps to protect themselves and their organizations from these mental lapses. The authors describe what managers can do to ensure that their important business decisions are sound and reliable.

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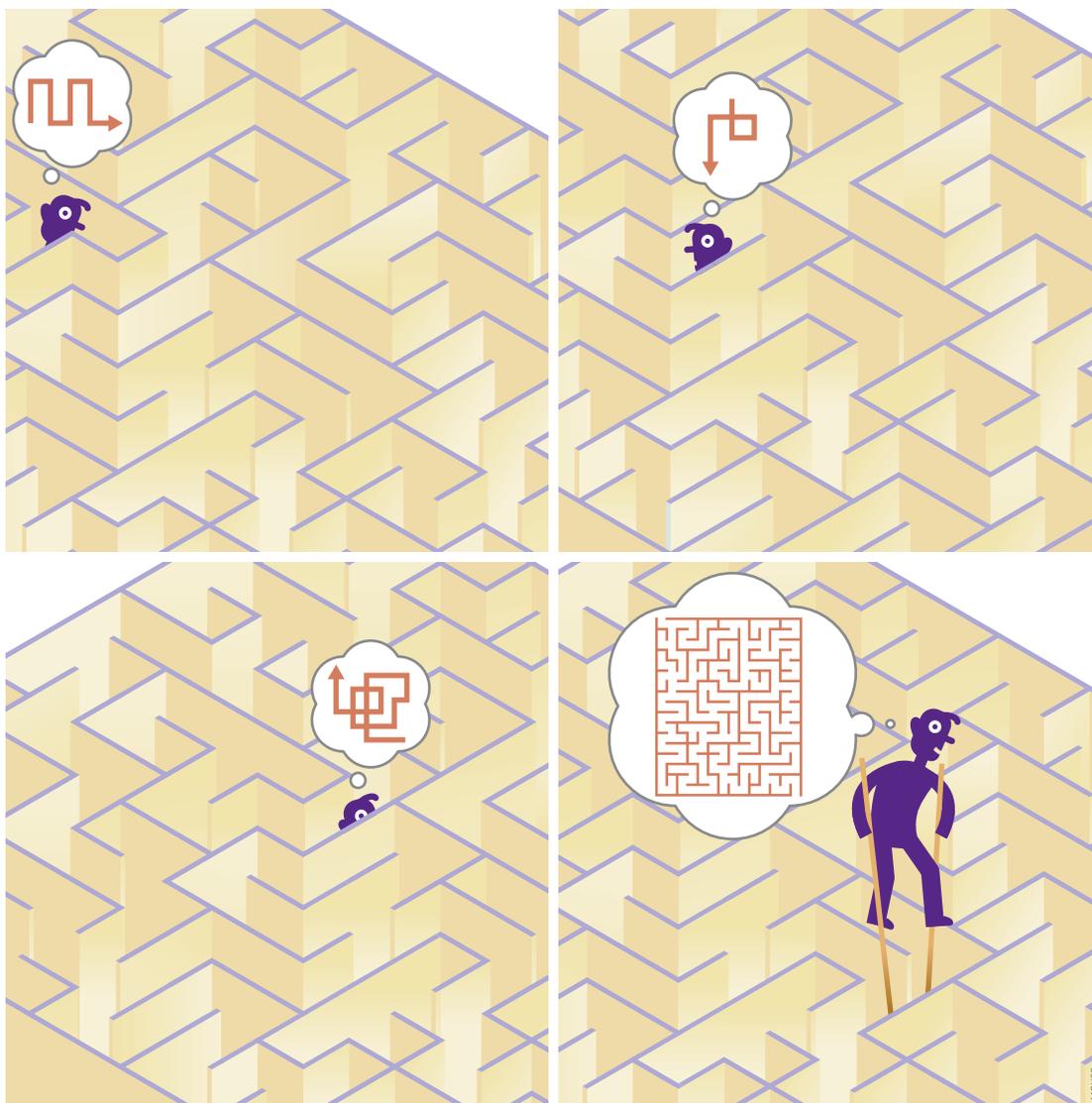
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Volume 84, Number 1



The View from Above

The socially responsible catchphrase “Think globally, act locally” is also excellent advice for problem solvers. Although few are sufficiently exalted to make the big-picture decisions that move entire companies, everyone benefits from an understanding of where his particular decision piece fits into the larger puzzle.

Seekers of the big picture should consider looking not wide but deep. The longer you stay in one place, the more details you amass and the more comprehensive your understanding, explain Dorothy Leonard and Walter Swap in their book *Deep Smarts* (Harvard Business School Press, 2005). Unfortunately, even decades of experience may not produce enough perspective. In “Humble Decision Making” (HBR July–August 1989), Amitai Etzioni observes that escalating complexity creates an “inability to know more than part of what we would need to make a genuinely rational decision.” Etzioni proposes an alternative: “mixed scanning,” which applies focused trial and error, bet hedging, and procrastination to make the best use of partial knowledge.

That message should reassure decision makers. Just because you’re not sitting in the catbird seat doesn’t mean you’re stuck as a mouse in a maze.

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