Harvard Business Review

HBR.ORG SEPTEMBER–OCTOBER 2017

DOUBLE ISSUE

THE OVERCOMMITTED ORGANIZATION

HOW TO AVOID TEAM BURNOUT

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THE GREAT TRANSFORMER

Adi Ignatius with HBR creative director James de Vries

When Jeff Immelt announced that he was stepping down as chief executive of GE, the Wall Street view of his tenure was tepid. Analysts acknowledged his leadership through 9/11 and the Great Recession. But some also hammered him for the 30% decline in GE's share price and noted that the company's stock was the worst-performing component in the Dow Jones Industrial Average. Those points, while fair, obscure a bigger one: Immelt utterly remade the organization he inherited from Jack Welch.

In "How I Remade GE," which anchors our Spotlight package (page 41), Immelt calls the organization's revamping "the most consequential makeover in its history." The company Welch handed him was a productivity machine, a colossus of disparate businesses. But, Immelt says, "I believed that the company couldn't simultaneously be good at media, pet insurance, and making jet engines." He set out to fashion a simpler organization focused on industrial businesses—GE's traditional strength, where the company's enormous scale could drive growth.

In the same way that Welch embodied a certain approach to leadership, Immelt embodied the evolving thinking about leadership and management. Having exited financial services, media and entertainment, and appliances, he invested in wind turbines and other high-margin businesses that run on exceptionally long cycles. He also made a bold bet on digitization. His vision took 16 years to implement and will take more time to play out. Others complain about short-termism, but Immelt did something about it.

ADI IGNATIUS, EDITOR IN CHIEF

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Ron Kohavi traces his interest in online controlled experiments—the subject of his new article with Stefan Thomke—back to his days studying machine learning as a Stanford PhD candidate. That interest became a passion when he worked at Amazon, where he was the director of data mining and personalization. In 2005 he moved to Microsoft, where he's now a distinguished engineer and the leader of the Analysis & Experimentation team, which helps the company run about 15,000 experiments annually.

74 FEATURE
The Surprising Power of Online Experiments

Annie McKee believes it's time to finally blow up the myth that happiness doesn't matter at the office. In her work as an executive coach and as the director of the PennCLO executive doctoral program, she's known too many people who have sacrificed their emotional well-being to their careers, and she contends that they and their organizations have suffered the consequences. In this issue she explores her findings about the "happiness traps" that snag so many of us.

66 FEATURE
Happiness Traps

Raffaella Sadun has long been fascinated by the way economic growth—and hence, people's standard of living—varies so dramatically across countries. Her work led her to realize that macro-level differences are intimately related to firm-level dynamics—and that core management practices play an important role in determining a nation's economic performance. In an article cowritten with Nicholas Bloom and John Van Reenen, she focuses on firm-level performance, noting that even a brilliant strategy won't pay off unless a company takes simple managerial competence seriously.

120 FEATURE
Why Do We Undervalue Competent Management?

Tomas Chamorro-Premuzic grew up in the Villa Freud district of Buenos Aires, which boasts the world's highest concentration of psychotherapists. Although he started his career as a psychoanalyst, he found himself drawn to the study of negative personality traits—the subject of his latest article—after meeting Robert and Joyce Hogan at a conference and realizing that their work might help leaders avoid the behaviors that so often derail careers. Now the CEO of Hogan Assessments, Chamorro-Premuzic admits that he's still working on keeping his own dark side—a tendency to be overly excitable, imaginative, and skeptical—under control.

138 MANAGING YOURSELF
Could Your Personality Derail Your Career?

Masa is a graphic artist, illustrator, and Grammy Award–winning art director. Born in Venezuela and now based in Mexico, he creates images that blend references to surrealism, technology, and lost memories.

128 FEATURE
Management Is Much More Than a Science

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THE PROBLEM WITH PRODUCT PROLIFERATION

HBR ARTICLE BY **MARTIN MOCKER** AND **JEANNE W. ROSS**, MAY–JUNE

Unmanaged innovation frequently leads to excessive business complexity—in supply chain, sales and marketing, product development, IT, and administrative processes—resulting in higher expenses and difficulties for customers and employees. Every time customers are asked to enter the same data twice, or have to contact multiple people to get something done, it hurts the company. Every time employees can't access important information or their decisions are derailed by silos, it hurts the company. Too much innovation can even destroy a business.

This article is a healthy contrast to the notion that today's companies need to innovate at all costs to avoid becoming obsolete. I believe that one of the reasons companies keep relying heavily on innovation for proliferation is to continue feeling "safe." The article quotes executives at a financial services firm admitting that they are "addicted to innovation," illustrating this notion. Especially when a company is under pressure, whether because of changes in the market space or—as in the case of LEGO—because its patent is about to expire, it can become obsessed with innovation without considering the creep in complexity or the potential dilution of its value proposition.

I consider one of the solutions proposed by the authors—cross-functional teams—to be especially likely to enable innovation that benefits the company's entire value proposition, achieves synergies, and takes a more holistic approach that ultimately centers on improving or creating the best solutions for its customers.

Patrick Alex, investment analyst, Mountain Nazca Chile

I found the example about Philips particularly interesting. We live in a time when the most successful companies in the world are innovative, and one cannot but compare the performance of Philips with that of other companies with a strong innovation focus, such as Google and Apple. But I think innovation per se has little value. In my opinion, it is how innovation is positioned and organized (always along with a bit of luck) that makes a difference. Many organizations suffer from a lack of alignment between their innovation efforts and trying to create (real) value for customers. One way to assess whether those efforts are misdirected is to measure any increase in complexity for customers, as the authors describe.

Enrique Mendez, global product manager, Teijin Aramid

This article really helped shape my thinking about my company's mission to move from selling large semiconductor equipment systems to selling the services that accompany those systems. It has been (and still is) a tiring and extremely difficult journey. The authors are on the money when they assert that organizational alignment and a clear mission are key to successful innovation. Most of our internal stakeholders agree conceptually with our mission to leverage our large installed base of equipment by selling maintenance services. But not everybody seems on board when it comes to actual implementation. For example, how can we address the IT challenges that come with moving customers toward pay per usage and away from a fixed maintenance price? How can we align incentives for account managers who are selling equipment with incentives for those who are selling services? Reading this article makes me realize that we need to strengthen our efforts to build truly cross-functional teams (principle 2) and to get buy-in (principle 3) if we are to succeed in signaling problems earlier in the innovation process.

I also liked the clear break with some articles on innovation that have appeared in HBR in the past, which assert that a quantum leap is necessary to successfully "value innovate."

But I am somewhat confused after reading this article and one that appeared in the March–April 2017 issue: "Strategy in the Age of Superabundant Capital." The bottom line of that article is that executives need to be less critical in taking on new projects, given the current macroeconomic environment of low interest rates, meaning cheap cash. That article argued that "when the price of keys is low, it pays to unlock a lot of doors before deciding which one to walk through." Clearly, such thinking spurs innovation on a lot of fronts and can lead to a defocus. I would love to hear how that article (innovate because cash is cheap) might work with this one (focus on product integration rather than proliferation).

Erwin de Jong, director of sales and marketing, ASML Holding

"Many organizations suffer from a lack of alignment between their innovation efforts and trying to create (real) value for customers."

—ENRIQUE MENDEZ

Author Martin Mocker responds:

Here's my take: If opening all those doors (that is, investing in product innovations) had no impact on operations (difficulties for customers and employees), then there would be no problem, and you'd go ahead.

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Q: You've just returned from vacation. You have a major deadline coming up next week, not to mention a backlog of e-mails to answer, and several colleagues have asked for your help. How would you most likely manage your work?

29%	27%	24%	20%
Spend two days answering the e-mails and helping your colleagues, and then focus on your project.	Block off two afternoons for e-mails and meetings, but otherwise focus on your project.	Chip away at the e-mails and requests a little each day so that they don't distract you too much.	Archive the e-mails and help only with urgent questions until your deadline passes.

SOURCE "ARE YOU AT RISK OF GENEROSITY BURNOUT?" BY ADAM GRANT AND REB REBELE

Unfortunately, that's not the case at most large companies. Once you combine the operational impacts of all cases of opening another door (for example, adding "just one more product," along with separate processes and applications to support it), opening all those doors doesn't look like a no-regrets move anymore. Select your doors carefully!

I wonder if Philips, LEGO, ING, and the other companies the authors investigated need to find themselves in a critical situation (because of expansion) in order to rediscover themselves and see that they should focus on integration more than on expansion, connect their innovation with customer service, and concentrate on a vision. Must they suffer to learn that they should refocus? Or is this something they could learn earlier?

Carlos Bulla, procurement manager, Amazon UK

Author Martin Mocker responds:
"Suffering" or pain (from, say, out-of-control costs) certainly makes many companies aware of excessive complexity. It's not the only trigger, though. Another is passion. For example, USAA didn't have much pain on the financial side. Its executives realized that integration (rather than variety) would help them better fulfill their mission of facilitating the financial security of their members. In the absence of pain or passion, companies are unlikely to change their behavior.

I have worked in a couple of companies that were "addicted to innovation," and growing that innovation often came at the expense of supporting well-established, top-earning existing products. In a few cases it cannibalized our higher-margin offerings. A pet peeve of mine is that many "innovative" products and solutions are not based on strong consumer needs or tension points. Rather, they exist to help executives achieve short-term key performance indicators. I love the ING Spain example: No product is introduced without knowing the likely impact on the whole bank. I agree that there's a need to articulate a clear mission for the innovation and to keep checking that the innovation is addressing whatever problem the team was trying to solve.

Kartik Jayaraman, senior manager, strategy & market opportunities, Global Markets CMI, Unilever

Having "lived" this at one of the companies mentioned in the article, throughout its many challenges in the early 2000s and its transformations in recent years (many of which I participated in), I certainly recognize the truths that the authors bring to light. And nearly every company I have worked for has had a similar problem with innovation. The complexity resulting from a desire to innovate, whether rational or not, does cripple organizations—sometimes through an ensuing lack of proper portfolio or product management—and generally confuses and angers customers.

The authors correctly point to cross-selling, bundling, and integration as approaches for getting around these pitfalls—but such efforts are not without their own challenges. Cross-selling requires complexity in setting the right incentives; otherwise salespeople will focus on what they like to sell or what they can sell to make their quotas. Cross-selling can also increase complexity in the sales cycle by adding products to the portfolio that might require the involvement of new decision makers (particularly in B2B engagements).

With bundling, complexity comes in the process of determining the right bundles and in developing the right understanding of the target customers (something USAA has done quite skillfully)—not always a trivial task.

Finally, integration is the most promising of solutions, but it can be difficult to implement. For example, software integrations require diligence and resolve to ensure that new releases don't introduce new complexity. Another risk is integration for integration's sake, whereby companies seek to integrate largely to lower costs but fail to consider the meaning for customers and whether the result provides them with any value.

Richard Tessell, director of marketing, renal home therapies, Baxter Healthcare

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Harvard Business Review Idea Watch

SEPTEMBER–OCTOBER 2017

WHEN HIRING EXECS, CONTEXT MATTERS MOST
Companies should consider the challenges specific to the role. *Plus* Why paying for online reviews can backfire, how companies really use big data, and more

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ILLUSTRATION BY ADAM QUEST

MOVE BEYOND A ONE-SIZE-FITS-ALL APPROACH.

WHEN HIRING EXECS, CONTEXT MATTERS MOST

When choosing a CEO, boards typically take into account the particular circumstances the company faces: Is it in need of a turnaround, say, or will it be scaling for growth? For a CFO position, they might ask, Are we about to do an initial public offering, or are we planning to grow by acquisition? In such cases, boards generally favor candidates with direct experience leading organizations through the situation at hand. But when hiring for and promoting people into lower-level leadership jobs, companies typically don't pay much attention to the contextual challenges specific to the role. They tend to prefer jack-of-all-trades candidates with varied backgrounds—a tack some in HR dub the "best athlete" approach.

A broad new quantitative study from the Washington-based research and advisory firm CEB (recently acquired by Gartner) suggests that companies will be more successful if they consider the particular leadership context when hiring for every level. Instead of taking on generalists trained to meet any management test, the researchers say, firms should use an assessment system that identifies candidates whose personality attributes and experience are custom-tailored to the contextual challenges of the position.

This conclusion is based on a three-year study of 9,000 leaders at 85 global companies. The researchers assessed leaders' personality attributes, tracked relevant experience, and solicited opinions about behavior, performance, and effectiveness from supervisors and direct reports. They also coded 60 variables that inform context, such as whether the job involves a high degree of uncertainty, requires managing a geographically dispersed team, or calls for cost cutting. As they crunched the data and worked to understand why some leaders succeeded while others underperformed, the biggest factor that emerged was how well a leader's personality, skills, and experience meshed with the specific challenges of the job. From an initial list of 300 contextual challenges, CEB identified the 27 that matter most. Some, such as growing market share and leading M&A, involve the external competitive landscape. Some, such as managing a broad portfolio of products and services, are related to company-wide issues or strategies. Some, such as transforming a high-conflict culture, apply at the team level. And some are confined to the position itself.

"Companies have been hiring and developing these generic workhorse leaders when what they really need is a thoroughbred whose strengths are specifically suited to a particular racetrack," says Jean Martin, CEB's talent solutions architect. CEB says that the need for more-tailored leaders results from greater complexity, a wider scope of responsibilities, and faster rates of company change than previously occurred.

The study was inspired by input CEB received five years ago. Companies and recruiters were increasingly using assessment tools and analytics to make hiring more data-driven and objective and less reliant on hiring managers' subjective judgments. But CEB began hearing that when it came time to make a final decision on a candidate, managers were overriding the assessment results and falling back on intuition. When CEB asked why they were ignoring their analytics, some said that the results were too general and didn't match candidates with the challenges they would actually have to confront. "There was a mismatch between what the planning process was showing as the right answer and what the decision makers felt was right," Martin says.

On the basis of that feedback, CEB's researchers began to look closely at whether context really matters. They found that it is an important and underrated predictor of leaders' success; in fact, the context-specific approach yields predictions that are three times as accurate, on average, as those from a one-size-fits-all approach. The identification of 27 key contextual challenges helps hiring managers articulate the biggest tests likely to be encountered in a given position. Recruiters can then search for candidates with the right mix of personality attributes (as measured by assessments) and experience.

Of course, many leadership positions, especially at high levels, involve multiple challenges. The researchers found that the number of challenges directly affects the odds of a new leader's success: Leadership roles involve, on average, seven of the 27 contextual challenges, and as that number rises, the odds that a leader will underperform rise too. (At 10 or more challenges, the chances of failure are 40%.) This may seem obvious: That jobs with more challenges are more challenging is, of course, tautological. But having a checklist of the specific things a new leader will encounter—and requiring hiring managers to articulate and quantify those things—can be useful.

A SELECTION OF CONTEXTUAL CHALLENGES

- Leading global or cross-cultural teams
- Transforming a high-conflict culture
- Leading through M&A
- Operating with high resource constraints
- Growing the business through innovation
- Growing the business through market share
- Growing the business through cost competitiveness
- Growing the business through geographic expansion
- Managing a broad portfolio of products and services

SOURCE CEB

COURTNEY ABRAHAM
"We've Shifted from a Gut-Driven Process to a Shared Language"

Three years ago the Adecco Group, a Zurich-based workforce solutions company, began a pilot project in North America that uses CEB's research to fill executive positions. Courtney Abraham, Adecco's global head of talent strategy and development, explained the company's motivation and results in a recent conversation with HBR. Edited excerpts follow.

Why did Adecco begin using this research? Like most other companies, we had a formal talent review process in which we looked at people's capabilities, strengths, and gaps. But it was a paper exercise, and we did it only for part of the organization. When it came to actually choosing someone for a position, it became totally subjective; it was based on the leader's intuition. I was hired three years ago to revamp the process.

Where did you start? We looked at best practices and at what other companies were doing to solve the problem—to take a subjective process and make it data-driven and actionable. And we needed a business case: the financial drivers and business rationale for finding talent and developing people for their next career moves. The most critical part of the new system is that it's contextual. We look at the six most important challenges someone will face in a new role and compare them to candidates' skills and competencies, motivations, and runways. We can then focus on what's needed for a successful transition. We've shifted from a gut-driven process to a shared language.

What are the odds that the same candidate would be chosen under the old and new processes? Slim to none. Under the old system, we tended to look at the next person in the hierarchy, and if we didn't think he or she was ready, we made an outside hire. We went outside very frequently. Now we are much more likely to promote from within, but with our eyes wide open. Because we are developing people earlier in the process and have a better sense of the gaps in their skills and the challenges they will face in their new roles, we can use onboarding and development to actively coach and support them. Hiring from outside is a bigger risk, because we don't have as much data about candidates. We've also found that our internal hires are much more likely to be successful and to have early wins, because they understand our business, the people, and the competitive landscape.

Does the system risk having talent decisions turned over to an algorithm? Thankfully, no. At the end of the day, it's still a conversation. We look at the data points and consider all the inputs, but the decisions still rest with the leadership team.

PHOTOGRAPHY BY AGNES LOPEZ

CONTINUED FROM PAGE 20

For instance, firms might draw on such a list to revise responsibilities, streamline goals and objectives, or try to solve a particular problem (by shifting talent on a troubled team, perhaps) before a new leader takes charge.

The implications of the research go beyond hiring. For example, if success in a leadership role is context-specific, and if the context is apt to change quickly in a fast-moving business environment, firms might need to move leaders in and out of roles quickly. Awareness of contextual challenges can also change the way a company approaches development. "Once you recognize how well-suited leaders are to the context in which they're about to be placed, you can use that information to drive much more specific investments in development and find ways to coach people to account for the greatest areas of mismatch," Martin says.

This approach to managing talent might also lead companies to a greater awareness of their bench strength, particularly as large companies pilot the research. Focusing on who will thrive in specific contexts might make a company aware that it has many executives who are skilled at launching new products or competing for market share but very few who excel at cost cutting or managing turnarounds. And recognizing such gaps can be helpful as firms hire new people or plan executive development. CEB says that by gaining an understanding of how well suited different types of managers are to various challenges, companies will begin to think less about a talent "pipeline" (with its implication that a single candidate is "in line" for the next assignment) and more about a "portfolio" from which to identify the best fit.

CEB's research calls into question the usefulness of broad-based education and development programs aimed at creating versatile leaders who can thrive in any situation. "This research directly challenges the idea of the best-athlete manager," Martin says. In fact, two thirds of the top-performing leaders in the study weren't particularly well-rounded; they were what the researchers termed "spiky," meaning that they excelled at a few specific capabilities but were not above average in all. "Chasing managerial agility instead of allowing for specialization is ineffective," the researchers conclude.

HBR Reprint F1705A

ABOUT THE RESEARCH "The Power of Context in Driving Leader Success" (CEB white paper)

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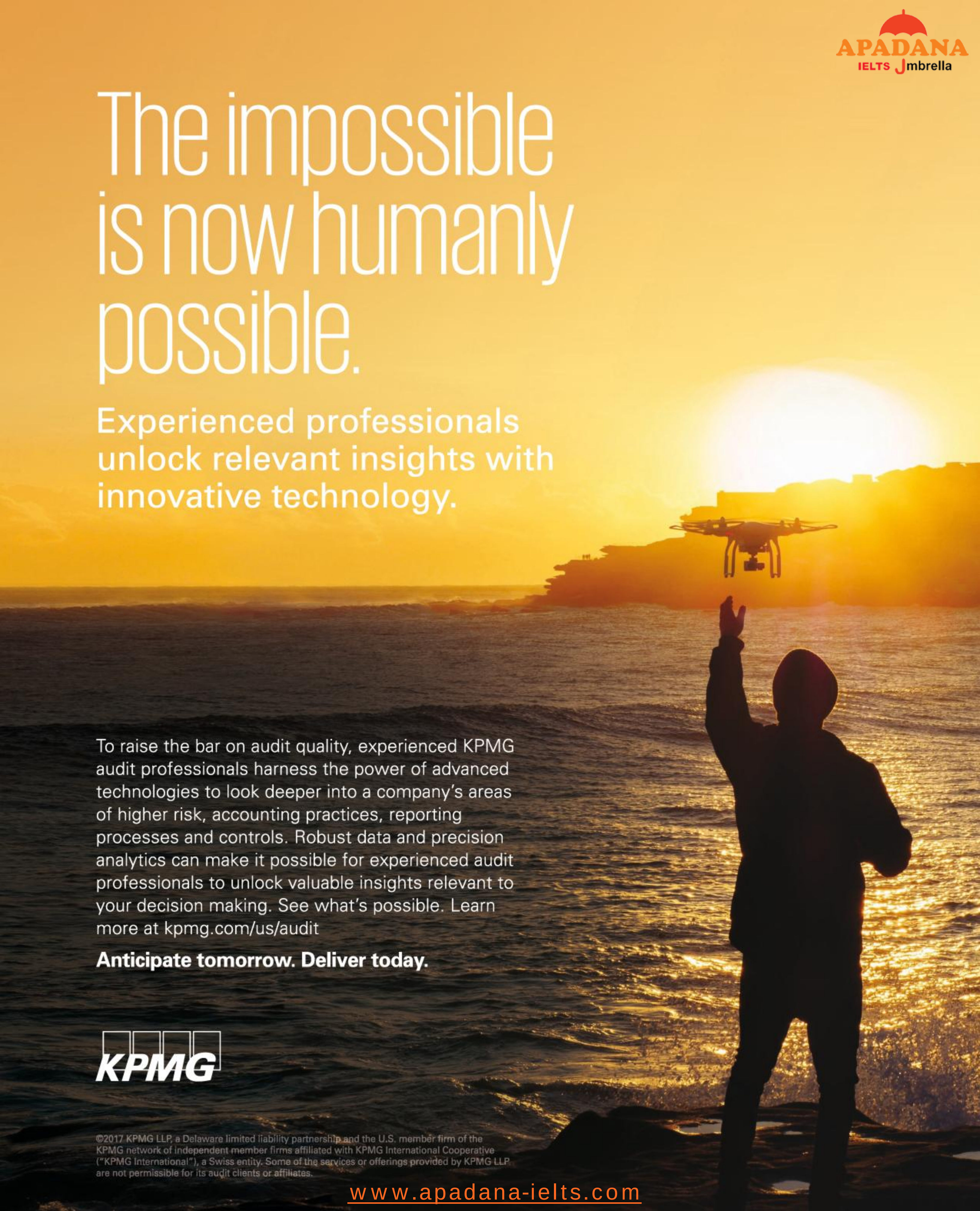
CROWDSOURCING

PAYING FOR ONLINE REVIEWS CAN BACKFIRE

Sites such as Yelp, TripAdvisor, and Amazon rely on user reviews to help guide purchases, but crowdsourced reviews are open to manipulation: Restaurants sometimes offer discounts to people who will write a positive Yelp review, and some companies have offered small payments in return for reviews. New research tests the effectiveness of such incentives. Researchers studied what happened when a Chinese company offered a 25-cent credit for a review. To its surprise, the number of reviews *dropped*—by 30%—in the month after the payment program began. The researchers found that people with many online connections were the least likely to participate, because they feared social disapproval or having their motives questioned. And these users had previously written more reviews than other people, so the change in their behavior caused a disproportionate drop in reviews, while "loners" with no online connections increased their reviewing slightly. "Nobody wants to be seen by their friends as a paid shill for brands," one researcher says. Companies trying to game crowdsourced reviews should proceed with caution. ■

ABOUT THE RESEARCH "Motivation of User-Generated Content: Social Connectedness Moderates the Effects of Monetary Rewards," by Yacheng Sun, Xiaojing Dong, and Shelby McIntyre (*Marketing Science,* forthcoming)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A STUDY OF 108 MANAGERS FOUND THAT THOSE WHO WERE PRIMED TO FEEL POWERFUL AT WORK SUFFERED A "POWER HANGOVER" AND WERE LESS ABLE TO RELAX AND ENJOY THEMSELVES AT HOME.

"HEAVY IS THE HEAD THAT WEARS THE CROWN: AN ACTOR-CENTRIC APPROACH TO DAILY PSYCHOLOGICAL POWER, ABUSIVE LEADER BEHAVIOR, AND PERCEIVED INCIVILITY," BY TREVOR FOULK ET AL.

MANAGEMENT
WHEN COMPASSION CONFLICTS WITH HONESTY

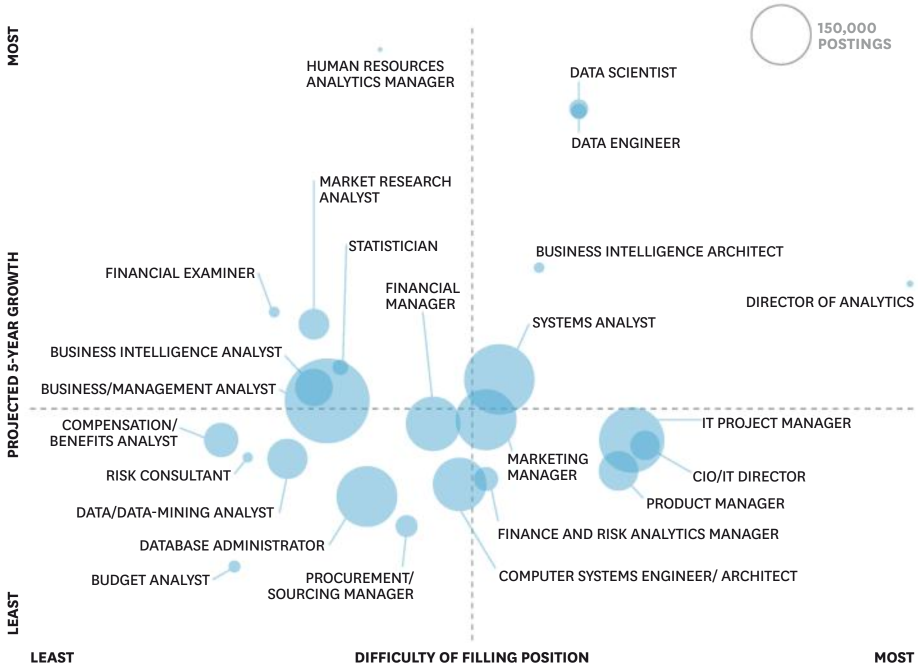
Imagine that a subordinate has turned in a subpar assignment. As his supervisor, you have a duty to offer constructive criticism, but it seems as though he's having a bad day. So you soft-pedal your feedback. Technically, that's lying, but it's motivated by compassion and the desire to avoid hurting another person's feelings.

This is an example of *prosocial lying*—a ubiquitous, ethically ambiguous, complex behavior. In the first paper to study its emotional underpinnings, researchers conducted three experiments to see how compassion influences the tendency to engage in prosocial lying. They found that when subjects were manipulated to feel compassion (in one case, they were told that the person they were evaluating had just suffered a death in the family; in another, they watched a film about starving children), or when they self-identified as having a high degree of compassion at all times, they were more likely to tell prosocial lies. Recognizing the link between compassion and prosocial lying can be important for managers, because the behavior can interfere with giving the direct feedback needed to help people perform at their best. ■

ABOUT THE RESEARCH "Lying Because We Care: Compassion Increases Prosocial Lying," by Matthew J. Lupoli, Lily Jampol, and Christopher Oveis (*Journal of Experimental Psychology: General*, 2017)

CAREERS
HOW DATA SCIENCE IS DISRUPTING THE JOB MARKET

It's no secret that jobs involving data science and analytics are growing quickly, leading to talent shortages. But nuances exist within that broad category, according to a study by IBM, Burning Glass, and the Business–Higher Education Forum. Researchers plotted job titles on a two-by-two matrix (shown below) according to the difficulty of filling each position and the number of new positions expected in the United States in the next five years. Data scientist, data engineer, and director of analytics are the fastest-growing and hardest-to-fill positions (with high costs to hire). The researchers hope their work will boost awareness among employers, educators, and workforce development officials of the looming "analytical capabilities divide"—and prompt those groups to train more people for the positions in greatest demand. ■



THE DATA SCIENCE/ANALYTICS LANDSCAPE

2,350,000
JOBS WERE LISTED IN THE U.S. IN 2015.

364,000
ADDITIONAL JOB LISTINGS ARE EXPECTED BY 2020.

BY 2020 THE DEMAND FOR DATA SCIENTISTS AND DATA ENGINEERS IS PROJECTED TO GROW BY **39%**

JOBS REMAIN OPEN FOR 45 DAYS, ON AVERAGE—
5 DAYS
LONGER THAN THE MARKET AVERAGE.

OPENINGS ARE ADVERTISED AT SALARIES OF
$80,265,
ON AVERAGE. THAT'S
$8,736
MORE THAN THE AVERAGE FOR ALL JOBS REQUIRING A BACHELOR'S OR GRADUATE DEGREE.

81% OF JOBS REQUIRE AT LEAST THREE YEARS OF EXPERIENCE.

SOURCE "THE QUANT CRUNCH: HOW THE DEMAND FOR DATA SCIENCE SKILLS IS DISRUPTING THE JOB MARKET" (BURNING GLASS TECHNOLOGIES, 2017)

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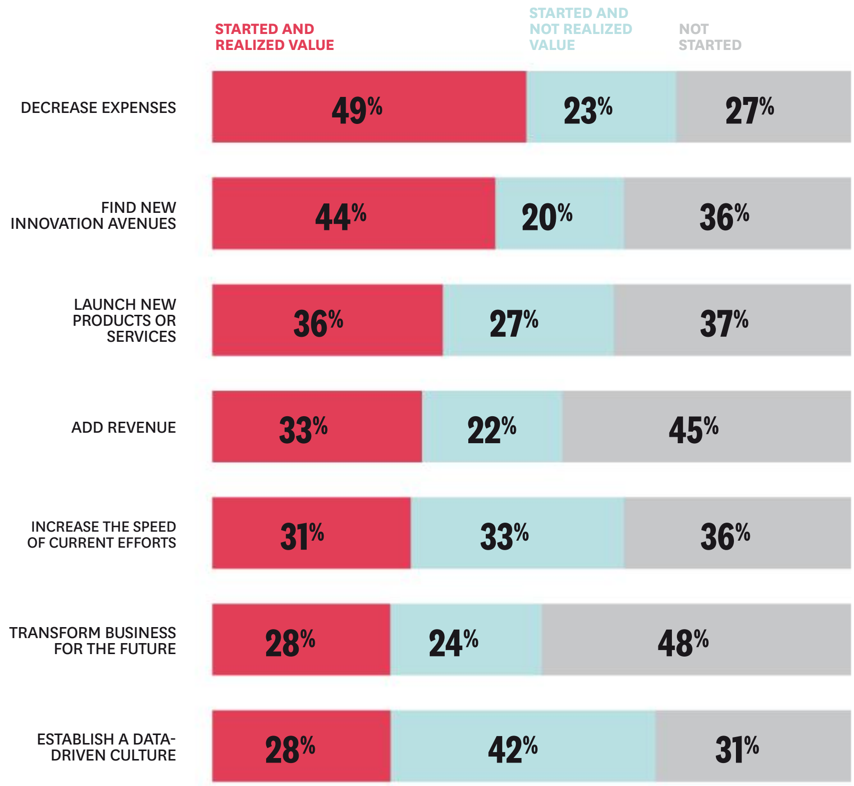
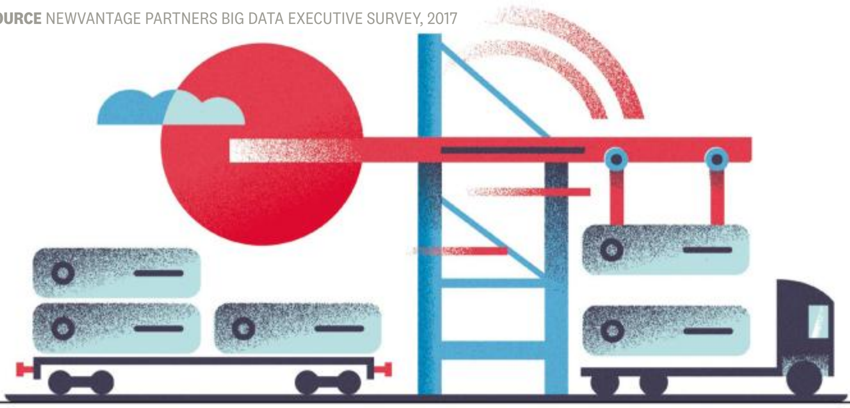
ANALYTICS
HOW COMPANIES REALLY USE BIG DATA

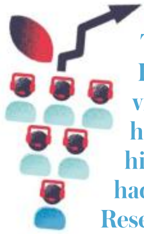
Firms are investing large sums in big data—but are they seeing any returns? NewVantage Partners, a consultancy, has been surveying C-suite executives at *Fortune* 1000 companies on this question since 2012. This year, for the first time, nearly half of respondents—48%—said that their firms are achieving measurable results from big-data initiatives; and 81% of respondents deemed their projects "successful." Other survey responses, charted below, indicate that the quickest wins are in cost reduction; a significant number of companies are also successfully using big data to drive innovation and launch new products or services. However, most executives say they are still a long way from creating a data-driven culture. ■



BECAUSE OF ROUNDING, SOME ROWS DON'T ADD UP TO 100%

SOURCE NEWVANTAGE PARTNERS BIG DATA EXECUTIVE SURVEY, 2017





Taste tests of products from 311 Bordeaux wineries revealed that vintners who used consultants to help with winemaking got higher average ratings—but had few outstanding ratings. Researchers believe that consultants' reliance on best practices reduces the odds of low-quality wine but also eliminates the uniqueness that can lead to exceptional vintages.

"THE IMPACT OF TECHNICAL CONSULTANTS ON THE QUALITY OF THEIR CLIENTS' PRODUCTS: EVIDENCE FROM THE BORDEAUX WINE INDUSTRY," BY JÉRÔME BARTHÉLEMY

JOB SATISFACTION
THE BENEFITS OF BEING A "LINCHPIN"

Consider two landscape maintenance workers. One is employed by a landscape company; the other cares for the grounds at the headquarters of his employer, a large multinational. They perform the same sorts of tasks, but one works at the core of his company, while the other is a peripheral staffer. New research introduces the "core versus peripheral position" scale, a tool to help people determine whether they are in a "linchpin" job—one at the core of their company (defined by the researchers as involving "criticality, nonsubstitutability, pervasiveness, and immediacy")—and examines how an employee's position on the scale affects engagement, meaning derived from work, job security, and burnout. Employees may intuitively understand that it's better to be directly involved in creating a company's primary product or service than to fill a support role, but this research represents a rigorous attempt to define and measure what that really means and to identify the benefits of being close to the core. Noncore workers are especially susceptible to low psychological well-being, the researchers say, and managers should recognize that fact and take steps to increase those workers' satisfaction and happiness. ■

ABOUT THE RESEARCH "Being an Organizational 'Lynchpin': Development and Validation of the Core-Versus-Peripheral Position Scale," by Lixin Jiang, Thomas M. Tripp, and Tahira M. Probst (*Journal of Occupational and Organizational Psychology*, 2017)


TO BREAK THE RULES,
YOU MUST FIRST MASTER
THEM.
THE VALLÉE DE JOUX. FOR MILLENNIA A HARSH, UNYIELDING ENVIRONMENT; AND SINCE 1875 THE HOME OF AUDEMARS PIGUET, IN THE VILLAGE OF LE BRASSUS. THE EARLY WATCHMAKERS WERE SHAPED HERE, IN AWE OF THE FORCE OF NATURE YET DRIVEN TO MASTER ITS MYSTERIES THROUGH THE COMPLEX MECHANICS OF THEIR CRAFT. STILL TODAY THIS PIONEERING SPIRIT INSPIRES US TO CONSTANTLY CHALLENGE THE CONVENTIONS OF FINE WATCHMAKING.
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DECISIONS
WHY WE HATE TO CHANGE OUR MINDS

People tend to dislike reversing their decisions, even in the face of irrefutable evidence that they've made the wrong call. New research seeks to better understand the roots of this aversion. In a series of six studies, researchers found that people who stick to their guns after being presented with convincing factual information that they are wrong are seen as more confident—but at the cost of being perceived as lacking in judgment. "The aversion to backing down may be partially misguided: advisable when it comes to maximizing how confident you seem; but misguided when it comes to maximizing perceptions that one has a good sense of judgment," the researchers write.

Which strategy will serve you better depends partly on domain and context. For instance, one experiment showed that when the decision is based on opinion rather than on fact, reversing yourself leads to lower assessments of judgment. In another experiment, participants were asked to imagine that either politicians or jurors were presented with evidence that their initial decision was misguided. The results showed that people viewed jurors who changed their minds in this circumstance as having good judgment—a quality that's especially important in the legal domain. And they saw politicians who held to their (incorrect) positions as highly confident, suggesting that obstinacy can be an effective strategy in an arena where "flip-floppers" and "wafflers" are frequently disparaged. Weighing the pros and cons of reversing a decision highlights one important fact: To avoid this dilemma, it's better to be right in the first place. ■

ABOUT THE RESEARCH "Backing Down: A (Partially) Misguided Aversion to Changing Our Minds," by Leslie K. John et al. (working paper)

HARVARD BUSINESS REVIEW SEPTEMBER–OCTOBER 1998

"The fundamental unit of [today's] economy is not the corporation but the individual. Tasks aren't assigned and controlled through a stable chain of management but rather are carried out autonomously by independent contractors. These electronically connected freelancers—e-lancers—join together into fluid and temporary networks to produce and sell goods and services. When the job is done—after a day, a month, a year—the network dissolves, and its members become independent agents again, circulating through the economy, seeking the next assignment."

"THE DAWN OF THE E-LANCE ECONOMY," BY THOMAS W. MALONE AND ROBERT J. LAUBACHER

REGULATION
THE UNINTENDED CONSEQUENCE OF HIRING A CHIEF RISK OFFICER

After the 2001 Enron scandal and the passage of the 2002 Sarbanes-Oxley Act, many banks began hiring chief risk officers (CROs) in response to the increasing demands for regulatory compliance. Fewer than 1% of big banks had a CRO in 2000; by 2006, nearly a quarter did. A study examining derivatives holdings at 157 large banks from 1995 to 2010 found that the hiring of CROs had a surprising effect: It led banks to engage in *more* trading of risky derivatives, not less. The researchers posit several reasons for this phenomenon, but the most compelling suggests that the appointment of a C-suite officer is a form of "moral licensing." They write: "In appointing CROs, banks signaled to trading desk managers that they worked at a 'risk averse' firm, and that risk management was someone else's job. This, we propose, reduced desk managers' self-managing of risky behavior and [lulled] them into a false sense of security, promoting exactly the behavior that regulation was intended to prevent." ■

ABOUT THE RESEARCH "The Hazards of Expert Control: Chief Risk Officers and Risky Derivatives," by Kim Pernell, Jiwook Jung, and Frank Dobbin (*American Sociological Review*, 2017)

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NEGOTIATION
YOU CAN HAVE TOO MANY OPTIONS

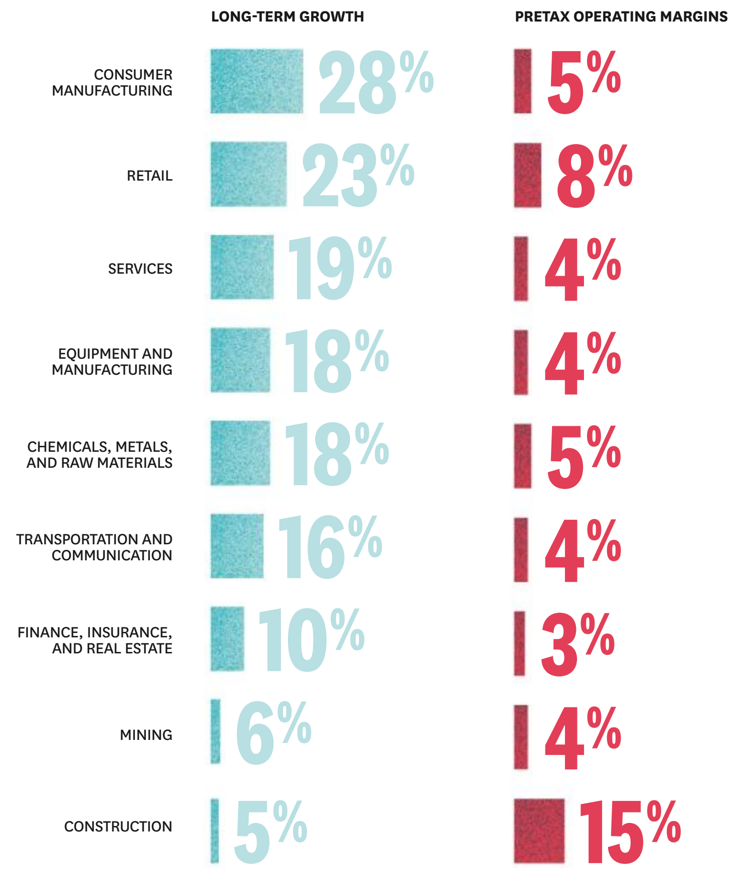
One of the first things people learn in a negotiation class is the concept of BATNA, or "best alternative to a negotiated agreement"—a fancy way of saying, "Have a good backup plan in case you don't reach a deal." In theory, having multiple offers—whether when looking for a job or trying to sell a car—increases one's leverage. But new research offers a surprise: In five studies involving 1,527 students, people who had multiple offers when entering into a negotiation performed worse than people who had just one. Why? In some cases, having several low offers caused people to underestimate the value of what they were selling. "The presence of additional offers shaped people's idea of what an 'appropriate' first offer would look like," inhibiting their ability to hold out for a better deal, the researchers say. Negotiators can use market intelligence to come up with a valuation before considering any offers. Having a single strong offer on the table rather than many undesirable offers can instill a feeling of power and confidence and allow for bolder negotiating strategies. ■

ABOUT THE RESEARCH "Bargaining Zone Distortion in Negotiations: The Elusive Power of Multiple Alternatives," by Michael Schaerer, David D. Loschelder, and Roderick I. Swaab (*Organizational Behavior and Human Decision Processes,* 2016)

FINANCE
THE CASE FOR FOCUSING ON GROWTH, NOT PROFITABILITY

Every manager hopes to drive both growth and profits. But if you have to prioritize one, which should it be? Research by Bain finds that in an age of abundant capital, when financing costs are low, companies in most industries (and especially those whose expected return on equity is greater than 4%) will create more value if they focus on growth. But doing so requires a shift in mentality. During the 1980s and 1990s, when financing costs were high, firms rightly focused on profitability, using methods such as reengineering and Six Sigma to cut costs. Even though financing costs are currently near historic lows, many firms still concentrate too much on cost cutting, owing to a dearth of innovation ideas, a poor approach to strategic investment planning, and a lack of talent and capabilities. "In earnings call after earnings call, we hear CEOs describe one or two bets—at most—on growth while devoting most of their time to showcasing the results of restructuring, offshoring, and other cost-focused initiatives," says Michael Mankins, a partner at Bain. The chart below compares the rise in equity value generated by a 1% increase in long-term growth with a similar increase in pretax operating margins, industry by industry. ■

RISE IN INTRINSIC EQUITY VALUE RESULTING FROM A 1% INCREASE IN:



SOURCE BAIN & COMPANY ANALYSIS OF 1,026 COMPANIES

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DEFEND YOUR RESEARCH

HEC associate professor Anne-Laure Sellier and her fellow researchers presented subjects in Israel and France with a photo and asked them to select the name of the person in the picture from a list of four or five options. Though the laws of chance say that subjects would choose correctly 20% to 25% of the time, they actually had a far higher success rate. The research team's conclusion:

WE LOOK LIKE OUR NAMES

PROFESSOR SELLIER, DEFEND YOUR RESEARCH

SELLIER: We weren't surprised by the results. They were what all five of us—Yonat Zwebner, Ruth Mayo, and Nir Rosenfeld from Hebrew University; Jacob Goldenberg from IDC Herzliya; and myself—expected. But other people had thought it was weird to suggest you could identify someone's name just by looking at a photograph. So Yonat proposed empirically testing it. We showed subjects a picture of, say, a Scott, and they picked "Scott" from the list of four or five options 25% to 40% of the time, which is significantly more often than they would just by chance. We replicated those results in France and Israel. If you're a Scott, there's something about you that betrays it. It's tattooed across your face.

HBR: What if it's just that the other names on the list were rarer and less likely? We controlled for that by offering only choices that were as popular as the actual name, based on the frequency of use. We controlled for most things we could think of, including ethnicity, name length, and the socioeconomic background of the subjects and of the people in the photos.

Wouldn't the results regress to chance if you did this 1,000 more times, though? Because our first studies involved human subjects, we couldn't use hundreds of faces to show the effect. So we turned to machine learning, reasoning that if Charlotte looks like a Charlotte, even a computer should be able to recognize her as one. We taught a computer what a Charlotte looks like by presenting a few Charlottes and what a non-Charlotte looks like by presenting an Amélie, a Claire, and so on. Then we fed the computer nearly 100,000 faces that it had never processed and, for each one, supplied two names—the real name of the person shown and a second possibility. The computer chose the correct name 54% to 64% of the time, which is significantly higher than the 50% chance level.

SUBJECTS PICKED THE CORRECT NAME OF THE PERSON IN THE PHOTO 25% TO 40% OF THE TIME.

Whoa. It was critical to get both human studies and this large computer study to convince our scientific reviewers that the effect was there. And since the research was published, the effect has been replicated by other researchers in the United States and by journalists in France.

What exactly is happening here? We know from plenty of research that people are strongly motivated to belong to a tribe and be recognized by it. Consider that in Peru thousands of years ago, some tribes would bind the skulls of their children to give them a specific shape so that an affiliation with the tribe would be immediately recognizable. Our research suggests we're still motivated to emphasize our affiliations. I want my tribe to identify me as being one of them as fast as possible, so I do things to make that easy for them: How I dress. The shape of my glasses. How I do my hair. Maybe the tattoos I have. We do this in subconscious ways, too. In America people presumably share a stereotype of what a Scott looks like—even though they can't draw a Scott—and Scotts want to fit that stereotype.

The power of nonverbal information is actually nothing new. Humans are complex machines; we barely understand how much processing we're doing. For example, the way someone enters an interview room and says hello explains a lot of the variance in evaluations of job applicants. Rich information is being processed and interpreted in those seconds. The same is true about the faces we present to our social environment.

COMPUTERS THAT HAD BEEN "TRAINED" WITH PHOTOS CHOSE THE CORRECT NAME 54% TO 64% OF THE TIME.

I don't think I'm doing anything to look like a Scott. We've known for a while that people typically underestimate—or

PUT A NAME TO THE FACE

Though you may feel that you're guessing, research suggests that something about these faces gives you a better-than-random chance of picking the right name. Answers below.

a. George
b. Scott
c. Adam
d. Bruce

a. Alex
b. Tyler
c. Scott
d. James

outright deny—how much they conform to society. You probably are doing something but just don't realize it.

How many attributes combine to make people see that I'm a Scott, and how important is the fact that I'm awfully good-looking? We don't have the answer to that. It may be one feature or a combination of several features. We do know that the hair seems important. In one study we cut out people's faces and asked subjects to determine names just by looking at the hair. And people were able to do that at a higher rate than chance. When we reversed it and kept the faces and cut the hair out, we got the same result.

We all belong to multiple tribes, though. Do I look like an American Scott, a New England Scott, or a writer Scott? If you ask me, you kind of look like F. Scott Fitzgerald, so you've got the writer and American part nailed. Maybe your tribe is American writers named Scott—we'd have to test it to be sure. Note that you may alter your appearance over time to adjust to different tribes. I spent more than a decade in the U.S., and I probably changed my facial appearance to belong there. Plenty of research suggests that we mimic people more than we realize. It's deeply ingrained and socially reinforced by the interactions we have over our lives. That explains, by the way, why a Scott today doesn't necessarily look like a Scott from 50 years ago.

I'm still having a hard time believing this is more than a fluke. We get that reaction a lot. But when we show the results to participants, they often say that they felt as if they were guessing randomly but sometimes felt they were right and couldn't explain it.

I also find that when I talk to business students about this and replace first names with brands, they really get it. Do Apple users look like Apple users? Or BMW drivers like BMW drivers? Marketers increasingly attempt to create "communities" of consumers around brands.

So brands are tribes? For strong brands, that may well be the case. This is the focus of my current investigation. When I started working on this project, I actually wanted to use brands, not names. In France a woman "marries" a scent long before she marries a person. We choose a perfume when we're young and typically stick with it. And I wanted to see if you could look at someone and correctly say, "She wears Chanel No. 5" or "She wears Obsession" just on the basis of her facial appearance.

The issue with brands, though, is one of reverse causality. You may wear Chanel No. 5 as a result of looking like the stereotypical wearer, while our theory is that the brand causes you to change your look.

PEOPLE WHO LOOKED JUST AT SOMEONE'S HAIR CHOSE THE CORRECT NAME AT A RATE HIGHER THAN CHANCE.

You never answered my question about whether excessive attractiveness is part of being a Scott. Seriously, I'm really handsome.
I'd say that seems like such a Scott thing to say, but we haven't studied that yet.

Interview by **Scott Berinato**
HBR Reprint F1705B

ANSWERS: LEFT, SCOTT; RIGHT, JAMES

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HOW I DID IT

SOUQ.COM'S CEO ON BUILDING AN E-COMMERCE POWERHOUSE IN THE MIDDLE EAST

Winning trust in regions where payments are made in cash by Ronaldo Mouchawar

When we founded Souq.com, in 2005, the Middle East was not an obvious place for an e-commerce start-up. To be sure, it had tremendous potential: It had a total population of more than 350 million people, half of whom were younger than 25. But the region was highly fragmented, consisting of many countries with relatively small populations (apart from Egypt), each with its own laws and customs, logistics systems, and payment infrastructure. Personal computer and broadband penetration rates were low.

Since its launch, however, Souq has become the largest e-commerce provider in the Middle East and one of its fastest-growing businesses. Today it operates in seven countries representing more than 135 million people. Our team has grown from five employees to more than 3,000, including software engineers and digital marketers, call-center professionals and delivery staffers. Beyond Souq's direct success are the opportunities we have created for others: Many merchants on our site have expanded from selling fewer than a dozen products a week to turning over millions of items and dollars each year. Small wonder that Amazon decided in March of this year to acquire Souq rather than enter the region directly. Given our installed base and integrated payment and delivery operations, it will be much easier for Souq and Amazon to expand e-commerce in the region together than they could as separate businesses.

So how did we get here?

BRANDING FOR COMMERCE

The story begins in 2000, when I joined forces with Maktoob, the first successful web portal in the Middle East. Having studied engineering at Northeastern, in Boston, in the mid-1990s, I had gotten involved in a few digital start-ups. Maktoob held enormous promise because it was the only portal around that didn't require users to be fluent in English (just a small percentage of Arabic-speakers are comfortable using English), which meant it could scale up.

At the time, Yahoo and other mainstream portals were experimenting successfully with commerce in the United States. We believed that this model could be replicated in our region, so we looked for ways to use Maktoob's growing popularity to create an e-commerce business of some kind. Although Maktoob was ideal for helping individuals connect, we concluded after a few projects that we should create a separate commerce-only website. Users who came to Maktoob typically wanted to communicate or get information. They rarely came to buy. The few who did purchase products came expressly to do that. So we decided that our commerce site should have its own brand and identity.

In 2006 I bought the Souq.com domain name (*souq* is the Arabic word for "market"; Aleppo, my hometown, is famous for its souqs), and we set up offices in Dubai, part of the United Arab Emirates. The UAE had a growing number of young, tech-savvy consumers and presented relatively few logistical challenges, owing to its well-functioning transport infrastructure.

We launched Souq.com as an auction website, along the lines of eBay, and then diversified into automobile and real estate classified verticals. The website took off almost at once, and we expanded our operations into Saudi Arabia. The business grew fast, and by the end of 2009, when we became independent of Maktoob, we were recording auction transactions worth more than 3 million UAE dirhams a month (close to US$1 million). But it quickly became apparent that our growth prospects were limited. To begin with, the increasing adoption of smartphones in the region meant that more and more of our customers were going online with their mobile devices instead of their laptops. We would have to make Souq an app business rather than just a website. The importance of mobility seems obvious now, but back in 2010 shopping on a mobile phone was still a new concept, even in developed economies, where consumers had grown up around desktops and laptops. We launched our first app in 2012. Now more than 70% of our visits and transactions are via smartphone.

But the really big opportunity, as we had seen with the growth of Amazon in the United States, lay less in bringing together individual buyers and sellers than in linking customers with retail merchants. Our future was in B2C.

THE B2C SWITCH

We made the switch to a B2C-only business in 2010, just after Wisam Daoud joined us as CTO from eBay. We announced that we would no longer run auctions and classifieds, even though they collectively accounted for approximately 80% of the company's business (fixed-price sales accounted for the remaining 20%). Moreover, it was a challenge to move our merchants and customers from a site on which they could list products pretty much as they liked to a site where goods are categorized by half a million or more SKUs.

We went live in May 2010, initially in Egypt and quickly after that in other geographies. The risk and our efforts paid off, and although we lost most of our transaction volume almost overnight when we closed down the auction site, we more than made up for it within six months and started doubling our revenue every quarter.

Of course, the switch was not without its challenges. We had no problem acquiring individual customers, thanks to the success of the auction site, but getting retailers to sign on wasn't easy. We started with small businesses, which had the most to gain from e-commerce, pounding the pavement shop by shop. We soon realized that offering them access to customers was not enough; we would have to help them with payment and delivery. Our success in facing those challenges is central to the Souq story.

As we were launching our revamped e-commerce site in the UAE, I got a call from one of the merchants using Souq. "I need to know if you are serious about this project," he said. That struck me as odd—I was living in the office with my team and working day and night to make the transition happen. So I invited him to come and meet with us.

"I was a petroleum engineer," he explained. "I used to make more than $10,000 a month. However, about a year ago, I started importing watches and selling them on Souq, and it has been so successful that I have given up petroleum engineering. So I need to know that you guys are going to stick around and make this relaunch work."

I couldn't sleep that night as the implications of his words sank in. Of course, enabling other businesses is what a marketplace does—and this engineer is only one of many people who have made themselves into independent traders on our site. But it is humbling to be so directly confronted by the human consequences of your business decisions.

ENABLING PAYMENT

Payment was not a big problem in the UAE. Credit cards were widely available and could be used online, so all we needed was the functionality to take online payments. However, to expand to other countries in the region, we would have to enable alternative payment methods, including cash on delivery. In Saudi Arabia, which is now one of our biggest geographies, credit card use online was not widespread; although the use of credit cards that charge interest is now sharia-compliant, customers still prefer to pay cash. In Egypt, another large opportunity, few people can meet the deposit requirements to get a card. If we accepted only credit cards, we would restrict ourselves to a tiny portion of potential customers; meanwhile, some other company would find a way to solve those problems and grow.

Linking to checking accounts was a major software-design challenge, because Souq would have to interface with systems at many banks that operated on differing IT infrastructures and yet give its users a uniform experience. We decided, therefore, to treat our payment system as a distinct entrepreneurial venture rather than just another in-house development project. We figured that we'd get a better payment product faster by tapping into the energy and creativity of the young entrepreneurs rising up around us. A growing community of ambitious, tech-savvy people were in or returning to the Middle East, and we believed that we could be a potential magnet for that talent and passion. Eventually we made the payment business its own company, led by Omar Soudodi, a key member of the Souq team. Launched under the brand PayFort, it has since become the leading online payment provider in the Middle East, and Souq transactions make up less than half its business today.

That left us with the problem of how to manage cash payments. We initially tried to get customers to pay before the merchants shipped their products, but we met with much resistance. E-commerce was still a new idea in our region, and people were hesitant to pay for stuff they could see only on a small screen. The alternative, of course, was cash on delivery, but that would put a burden on the merchant, who would have to pay for a delivery and, if the customer was not available to take it, a return as well. It would also be a struggle for some merchants to keep track of deliveries and payments. In any event, processing cash takes time, increasing the likelihood that money would not get to the merchant's bank account for several weeks, thus delaying access to working capital—a critical issue in many fast-moving consumer goods categories.

ALTHOUGH THE USE OF CREDIT CARDS THAT CHARGE INTEREST IS NOW SHARIA-COMPLIANT, CUSTOMERS STILL PREFER TO PAY CASH.

Engineering and software came to the rescue. We designed a digital offering for merchants and couriers that performs multiple functions. To begin with, a cash customer's range of product options on Souq is a function of his or her cash-purchase history, both in general and with a particular merchant: the more transactions the customer has completed, the more expensive the products within reach. When a COD occurs, the courier accepts the cash payment and instantly records it on his phone. The next time he returns to one of our sorting centers, he deposits all the money he has received, and the system credits the appropriate merchants' accounts immediately.

MANAGING DELIVERY

The primary logistics systems taken for granted in the developed world were still evolving in the Arab world. For example, many countries in the Middle East don't have postal codes (a notable exception is Egypt, which inherited a relatively sophisticated postal system from the British). That makes locating an unfamiliar residential address very challenging. One solution, of course, would be to deliver at pickup points, but we believed that consumers would not flock to online shopping if they had to go pick up a parcel every time they bought something. We would also need control over logistics to make COD payments possible. Third-party couriers took too long to process and reconcile payments.

SINCE CUSTOMERS USED PHONES TO BUY FROM US, WE COULD GEOLOCATE THEM FOR DELIVERY PURPOSES AND ALERT THEM TO ARRIVAL TIMES.

We decided to try managing deliveries ourselves in a few UAE cities. We hired some drivers and thought about how to make the process faster and more accurate. Once again, mobile apps came to our rescue. By this time, phones had map software and were starting to incorporate geolocation features. Since customers used phones to buy from us, we could geolocate them for delivery purposes, which helped get around the address problem, and we could alert them to arrival times to ensure that they would be there to take delivery and pay.

We realized very soon that our tech-enabled delivery would be much quicker than anything a courier partner could offer. In fact, it would be an opportunity, because we could also offer the delivery service to third parties. So once again we ended up launching a separate business: Q Express, which now reaches 80% of our customers. We have warehouses that accept goods directly from suppliers, and we have a service for collecting goods from vendors and taking them to our sorting centers, from which they are delivered to customers.

Practically every part of this system now runs off mobile apps, which means it is always evolving and improving. For example, we are currently investing in a delivery marketplace app (Wing) whereby individual drivers or small companies can make themselves available to run deliveries for our merchants or for us. This app lets us access drivers when we need extra capacity and lets our drivers find jobs when we can't provide them. It is a potentially disruptive business model in the way that car-sharing apps are, because it doesn't involve owning and controlling the assets, which is what Q Express and more-conventional logistics companies do.

Our delivery offering has proved remarkably resilient, even during civil disturbance. When the 2011 revolution in Egypt took place, for example, employees could work remotely as long as the internet and mobile networks were functioning, and delivery staffers could keep abreast of events and avoid trouble spots by communicating on their phones. So we continued to do business and make deliveries within curfew hours through most of the unrest. The internet was completely out only a couple of days, and there was just one week during which we could not operate.

LOOKING BEYOND OIL

When you think back on a story like ours, success may seem to have been inevitable. But it certainly wasn't when we started out. To begin with, raising money was a big challenge. Local venture funds did not understand tech, and most capital was invested in infrastructure, construction, and the petroleum sector. You could find many investors in Dubai for a mall or office blocks—but not for internet companies.

So I had to look for investors outside the Middle East. Our first backers were Tiger Global, a New York–based VC fund looking for investment opportunities that leveraged the internet in emerging regions, and Naspers, a South African media group. These companies suited us because we needed the advice of expert investors.

In the past two years, though, we have watched the development of an entrepreneurial ecosystem that has helped people become savvier about digital. Part of the reason is a growing acknowledgment that oil will not last forever and that the money that comes from it should go into industries with better growth prospects. The Saudis, for example, are investing in the digital space. There's also more interest in using oil money to develop the region's capabilities. With 50% of its population under 25, it is increasingly clear that the Middle East needs to create meaningful and enduring jobs.

Amazon's purchase of Souq is a major step forward in this respect. The company shares Souq's values and our focus on the customer, technology, and innovation, and it brings deep pockets and great expertise. We have plenty to look forward to together: The Middle East still has huge e-commerce potential, and we are currently operating in only a few geographies. Even in our existing markets, online sales account for barely 2% of retail sales—compared with 8% in the United States, 12% in Europe, and up to 15% in China. These are exciting times for Middle Eastern tech entrepreneurs, and we will see more and more investment like Amazon's in new businesses, bringing the opportunities and the jobs we all aspire to create.

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LEADING TRANSFORMATION

HOW JEFFREY IMMELT REMADE GE
And what he learned along the way

GE'S GLOBAL GROWTH EXPERIMENT
The company pushed cross-business collaboration.

REINVENTING TALENT MANAGEMENT
How GE uses analytics to guide a more digital, far-flung workforce

HOW I REMADE GE AND WHAT I LEARNED ALONG THE WAY

BY JEFFREY R. IMMELT

PHOTOGRAPHY BY TONY LUONG

A CEO HAS DIFFERENT TASKS IN DIFFERENT CYCLES. SOME CEOS ARE FOUNDERS AND BUILDERS. OTHERS HAVE THE LUXURY OF MANAGING MOMENTUM THROUGH A STABLE ECONOMY OR A PERIOD WHEN BUSINESS MODELS AREN'T BEING DISRUPTED. MY TASK WAS DIFFERENT: REMAKING A HISTORIC AND ICONIC COMPANY DURING AN EXTREMELY VOLATILE TIME.

I led a team of 300,000 people for 6,000 days. I led through recessions, bubbles, and geopolitical risk. I saw at least three "black swan" events. New competitors emerged, business models changed, and we ushered in an entirely new way to invest. But we didn't just persevere; we transformed the company. GE is well positioned to win in the future.

The changes that took in the world from 2001, when I assumed the company's leadership, to 2017 are too numerous to mention. The task of the CEO has never been as difficult as it is today. In that vein, my story is one of progress versus perfection. The outcomes of my decisions will play out over decades, but we never feared taking big steps to create long-term value.

For the past 16 years GE has been undergoing the most consequential makeover in its history. We were a classic conglomerate. Now people are calling us a 125-year-old start-up—we're a digital industrial company that's defining the future of the internet of things. Change is in our DNA: We compete in today's world to solve tomorrow's challenges. We have endured because we have the determination to shape our own future. Although we're still on the journey, we've made great strides in revamping our strategy, portfolio, global footprint, workforce, and culture. GE is famous for creating and religiously implementing processes for managing virtually everything we do. The task of transformation is no different. But my aim in this article—written on the eve of my announcement to transition the leadership of the company—is to share what I've learned more broadly about how to lead a giant organization through massive changes. There are several lessons.

First, you must be disciplined and focused. You need a point of view. Your initiatives should be interconnected—and it's the leader's job to connect the dots for everyone in the organization. All the major initiatives we implemented during my tenure as CEO were aimed at making GE one of the 21st century's most valuable technology-driven industrial companies—one that can grow; one that can generate greater productivity for ourselves and our customers.

The second lesson concerns the journey a leader must embark on before undertaking a transformation. You have to go through a period of rewiring your brain—getting yourself to the point of profoundly believing that the world is changing and that the survival of your company depends on either anticipating the change or being in the vanguard of those reacting to it.

Third, you have to get people in your organization to see the need for change as existential. Fourth, you have to be all in—you must make a bold, sustained commitment to the transformation.

Fifth, you must be resilient. I subscribe to the words of the great philosopher Mike Tyson, who said, "Everyone has a plan until they get punched in the mouth." It is so difficult to predict events. It is difficult to sustain transformation during tough times, but it's the only way to create a better future.

Sixth, during the transformation you have to listen and act at the same time. You need to allow new thoughts to constantly come in, and you need to be open to the reality that your organization will have to pivot when it learns something new, while still having the courage to push people forward.

Finally, you must embrace new kinds of talent, a new culture, and new ways of doing things. We have hired tens of thousands of people—managers at all levels; software developers and engineers; data scientists; and folks in sales, marketing, HR, and other functions—many of them outside the United States. In 2001, 43% of our workforce was outside the United States; today 65% is.

Before delving into each lesson, I'll describe the transformations we've undertaken.

THE TRANSFORMATIONS

During my time at the helm, we did five things that were transformative. We radically changed our portfolio by focusing on our core industrial businesses and divesting slower-growth, low-tech, and nonindustrial businesses (except for the portion of GE Capital that supports our industrial businesses). We reestablished GE as a technology company: I more than doubled our investment in R&D. We became a truly global company, with a strong local presence in the 180 countries we serve. We became a major force in the technologies that will drive productivity in this era: the industrial internet and additive manufacturing. And we made GE a vastly simpler company in terms of how it runs—it now has much less administration and shorter cycle times, is more decentralized, and is more willing to let people deep in the organization who are close to their markets take risks without having to undergo multiple reviews. (See the exhibit "Five Transformations.")

All these transformations dovetailed to a certain extent. They were intended to focus us on creating value for customers by making our core businesses leaner, faster, more technical, and more global, and putting them on the cutting edge of the digital age. They have positioned the company to be more valuable over time.

Even before becoming CEO, I believed that the company couldn't simultaneously be good at media, pet insurance, and making jet engines. We had come out of an era when many at GE believed that a good manager could manage anything. I didn't buy that. I thought that companies—and business leaders—were good at certain things.

When I became CEO, the world was changing. The 9/11 tragedy had a dramatic impact on several of our businesses. The power and pension bubbles—big drivers of our earnings growth in the late 1990s—came to an abrupt end. And in the background, the Enron saga made transparency a priority for every company.

Our portfolio was simply too broad and too opaque. One business had no idea what another business did. No one in leadership really understood the GE Capital balance sheet. And many of our industrial businesses had commoditized.

Another theme of our transformations was the desire to use our scale to drive growth and efficiency. I have long felt that nothing is worse than a big company that can't grow organically. I never wanted GE to be a $100-billion-plus company that had flatlined on organic growth. We conceptualized the GE Store, a global knowledge exchange. The idea is to build capabilities that can be shared across our businesses: horizontal strengths that can be harnessed to create scale-based innovation and dominant global distribution.

Connected to that were my beliefs that the days of 4% annual growth in the developed economies were over and that the forces of economic nationalism would only gain strength. When GDP is growing by 4% a year, no business is hard. When GDP is growing by 1% a year, no business is easy, so you've got to be percolating new and different ideas. That meant figuring out how to innovatively leverage technologies that would allow us and our customers to achieve leaps in productivity. And it meant getting into faster-growth parts of the world at scale.

Finally, simplification was all about reallocating resources to fund more growth and identify and solve customers' problems better. When companies are slow, it is typically a sign that their costs are in the wrong place. One of the reasons big companies fail is that they don't think they can afford something and aren't willing to free up the resources to make bold moves. We are investing heavily in making GE a digital industrial company. Last year we put about $4 billion into developing our analytics software and machine-learning capabilities

WE WERE A CLASSIC CONGLOMERATE. NOW PEOPLE ARE CALLING US A 125-YEAR-OLD START-UP.

and another $2 billion into building a leadership position in additive-manufacturing equipment and services—an emerging field that is going to revolutionize manufacturing. We had to run leaner in other places to make those investments.

Now I'll turn to what I've learned about leading transformations.

BE DISCIPLINED

The leader has to be disciplined about nesting initiatives within one another—showing how each one fits with the rest—and staying away from new ideas that don't fit. For example, we couldn't do digital industrial until we'd focused the portfolio, made the right investments in technology—which led to a huge backlog of service agreements—and simplified the culture. When we talk about becoming a digital industrial company and deepening our global presence, we mean making the portfolio deeper, not broader.

We're now in the seventh year of our big digital-industrial initiative. To run this play, we've had to have a constancy of purpose for a long period of time. It's not a flavor of the month. We have hired thousands of people and invested billions in technology.

If you look at my calendar, you'll see that I was tightly aligned with the five transformations. How did I figure out which aspects of them to devote my time to? Whichever needed the most change. I had to provide ballast against stagnation.

In 2011 we launched our Global Growth Organization—a group charged with dramatically expanding our local presence in emerging markets, which has shared P&L responsibility for all GE businesses in many of those economies. I asked John Rice, one of our best leaders, to move to Hong Kong to head it, and I personally spent almost 50% of the next year in growth regions. There was a lot of disagreement among our leaders about who had control over what and what it would mean to run a business in, say, Brazil if we were going to have a horizontal global organization. My role was to make sure it was a healthy tension and that we stayed focused on the outcome.

SOAK

Good leaders, good CEOs, are curious. They are absorbing information about potentially important trends and developments all the time, but they don't instantly react to them. They contemplate them. They read about them. They listen to internal and external experts with a variety of perspectives. They engage in what I call a "soak period" before they reach a conclusion about what the input means for their company and how to act on it. A leader needs a long soak period mainly because of the tremendous amount of personal fortitude required to drive lasting change in a big organization. You must be profoundly convinced that the company must transform itself—that it's a matter of life or death—because when you start the play, you will immediately get pushback.

My soak period that led to our globalization initiative is a good example. GE has always been a pretty global company (defined as an American company that sells around the world). But with the divergent growth coming out of the financial crisis, we needed a more aspirational approach. We wanted a company that was capable of having a higher market share globally than we had in the United States.

At the time, free-trade deals were still the coin of the realm: The prevailing view was that the United States was going to have trade deals with Europe and the Pacific Rim countries. I disagreed. I felt that people wanted jobs in their own country. Jobs are currency. Although I didn't think protectionism was the answer and believed we needed better-defined, fairer trade deals, I didn't see that happening anytime soon.

Sometimes while you are soaking, a single event can compel you to act. In 2010 I was sitting in a hotel restaurant in Ghana with two great young leaders on our Africa team. They were describing a big opportunity in the power industry, but it was complicated. I was in love with their passion, but I realized that even if I spent the next month helping them, we would not get the deal approved inside GE. And I ran the place!

After that meeting I went to the board and got its support for creating the Global Growth Organization. Fundamentally, that put the horizontal operations in regions on par with the vertical businesses. It made them responsible for sales and marketing, R&D, and manufacturing in their territories. It allowed the regional organizations to act faster and be more responsive to local customers' needs while still taking advantage of our global scale.

YOU MUST BE PROFOUNDLY CONVINCED THAT A COMPANY MUST TRANSFORM ITSELF—THAT IT'S A MATTER OF LIFE OR DEATH—BECAUSE WHEN YOU START THE PLAY, YOU WILL GET PUSHBACK.

Another example is our ongoing drive to become the leader in the digital industrial space—a transformation we launched in 2011. It originated in my meetings with customers in 2008 and 2009. I started my career in sales, and I have always spent a lot of time on the road. So I've always had a healthy disrespect for headquarters, which I still have today. When you spend time on the road, you get more opportunities for soaking, for learning.

I continued that practice even after becoming CEO. Every month I spent six or eight days out of the country and two days in the field in the United States, sitting down with our sales teams and the people in customer organizations who were making the decisions to purchase our products and services. The purpose was not only to get somebody to buy a new power turbine, jet engine, or MRI machine but also to learn what people were contending with, how their businesses were changing, and how they were using our products and trying to get more out of them—how they were trying to drive productivity.

I remember spending time with some of our locomotive customers, such as BNSF and Norfolk Southern. In the rail industry, one mile per hour of velocity is worth hundreds of millions of dollars in profit. We were experimenting with simple analytical tools, and our customers encouraged us to do more and get bigger. They reminded me that help making progress on operational technology would be worth more to them than our products. I started to worry that if GE wasn't providing it to them, someone else would, and we'd lose a big edge in the market. That sparked the realization that what had upended traditional incumbents in one industry after another could occur in the industrial sector, and that once the digital revolution was under way, playing catch-up wouldn't work.

Starting in 2009, over the course of several years I visited our controls and analytics labs and spent time in Silicon Valley. As the CEO of GE, I could get the best people in a field to talk to me about what was going on. I always capitalized on that. I met with tech leaders including Jeff Bezos, of Amazon; Paul Otellini, of Intel; Marc Benioff, of Salesforce; and Steve Ballmer (and later, Satya Nadella), of Microsoft, and had dinners with venture capitalists. I listened to them describe where they were going and how they went from strength to strength. I also read a lot. The two things that influenced me the most were Marc Andreessen's 2011 *Wall Street Journal* article, "Why Software Is Eating the World," and *The Lean Startup*—Eric Ries's book, which I literally read in a day.

In 2011 we decided to hire Bill Ruh from Cisco to lead our industrial internet effort; to establish a major software center in San Ramon, California, that would support the transformation; and to insist from day one that we would infuse the effort with outside talent—our original goal was to hire a thousand software engineers. Those decisions have led us to where we are today. They had their roots in the days when I ran our health care business, from 1996 to 2000. I had wanted it to be more digital but made the

FIVE TRANSFORMATIONS

JEFF IMMELT INTRODUCED MAJOR, INTERCONNECTED CHANGES TO GE'S PORTFOLIO, INNOVATION STRATEGY, GLOBAL PRESENCE, STRATEGIC FOCUS, AND ORGANIZATIONAL MANAGEMENT.

PORTFOLIO

FROM CLASSIC CONGLOMERATE TO FOCUSED INDUSTRIAL CONGLOMERATE

Immelt divested most nonindustrial and slower-growth industrial businesses and doubled down on high-tech, manufacturing-based products and services. His divestitures included financial services, media and entertainment, and major appliances. His acquisitions bolstered the remaining businesses and supported moves into additive manufacturing and digital industrial.

INNOVATION

FROM M&A-DRIVEN DIVERSIFICATION TO TECH-DRIVEN GROWTH

As part of a drive to rekindle organic growth, GE made big bets on clean, energy-efficient products; the industrial internet; and additive manufacturing. They required major investments in new tech capabilities, particularly software development. Research operations tripled during Immelt's tenure, to 10 centers worldwide. The R&D budget more than doubled, to $4.8 billion, and was maintained even in down years.

GLOBALIZATION

FROM A U.S. FOCUS TO A GLOBAL ONE

In response to slow growth in the developed world and faster growth in emerging markets, GE expanded its global presence. Leading the push was the Global Growth Organization, a group that gives local and regional managers far more power to drive the growth of GE businesses in targeted countries. GE now conducts business in some 180 countries, up from about 100 in 2010, the year before the group was formed. In 2016, the revenues generated outside the U.S. by the company's existing industrial businesses amounted to $67 billion, or 59% of their total—up from $46 billion, or 54% of their total, in 2010. During that time the number of GE employees outside the U.S. grew from 154,000, or 54% of the total, to 191,000, or 65% of the total. And as of March 31, 2017, $232 billion of GE's order backlog, or 72% of the total, was from outside the U.S.

STRATEGIC FOCUS

FROM INDUSTRIAL TO DIGITAL INDUSTRIAL

Immelt saw that the source of competitive advantage in manufacturing was shifting from hardware to software and sensors embedded in the machines, coupled with analytics. So he committed GE to making and servicing "smart, connected products." The company established a major software center in San Ramon, California; created GE Digital as a new business; and launched the Predix platform, a contender to become the operating system for the industrial internet. GE also acquired two additive-manufacturing companies and four software firms, for a total of more than $3 billion.

ORGANIZATION

FROM TOP-DOWN TO AGILE AND DECENTRALIZED

Global growth, a new focus on software and outcomes for customers, the hiring of young digerati, and the need to reduce costs and free up resources for major investments required GE to become less hierarchical and more agile. It initiated FastWorks, its version of the lean start-up approach. It switched from annual performance reviews to continuous development. And it replaced the GE Growth Values with the more dynamic and entrepreneurial GE Beliefs.

–STEVEN PROKESCH

mistake of letting the health IT business be run by GE people who didn't have enough external focus. As a result, we didn't get as much traction as I'd wanted. I had reflected on that for more than a decade.

I've mainly been talking about what I did personally, but I think this kind of leadership bleeds into the organization. The people running GE businesses today are more curious and much more externally focused than in the past. Frequently I'd say in a meeting, "Hey, I've got half an idea. Can anybody grab it?" More often than not, one of the people who did was Beth Comstock, one of our vice chairs. (For example, she and our CIO, Jim Fowler, are taking the lead in exploring blockchain's potential impact on GE.) Keith Sherin, who served as CFO and then as the head of GE Capital before retiring last year; Jeff Bornstein, our current CFO; and John Rice, our vice chairman who heads our Global Growth Organization, are also adept at that. Our information mechanisms, such as the marketing organization and the growth playbook process, which is our strategic-planning method for ensuring that we're disciplined in pursuing organic growth, support these explorations.

When you get to the point where you believe to your core that things have fundamentally changed—when you feel that if we don't do it, it's going to get done to us—it's time to act and to engage the organization.

MAKE IT EXISTENTIAL

Every time we drove a big change, I treated it as if it were life or death. If you can instill that psychology in your management group, you can get transformation.

I taught twice a month in the executive development programs at our Crotonville campus, in Ossining, New York, where I could reach people three or four levels down in the organization. When there, I might say, "Guys, if we don't become the best technology company in the world, we're doomed, we're dead." And when I talked about digital industrial, I'd say, "There's no Plan B. There's no other way to get there. Who's coming with me? What's in your way? What do we need to be doing differently?"

I communicated the message repeatedly—at the yearly meeting, in August, of our corporate officers (200 senior executives who lead the company's large revenue-generating businesses or are in top technology or functional roles); the gathering, in January, of our 600 to 700 officers and senior executives; the quarterly corporate executive council attended by our top 40 leaders; and town hall sessions in Beijing and Shanghai. I did webcasts and wrote about the transformations in internal blogs and our annual report.

I always laugh when people in business or politics think they're going to give one speech and everybody's going to say, "OK, I've got it. I'll go with you." I still want to be the best salesperson in the company. I'll knock on doors and say, "Let me just give you one more pitch."

I allowed people to express reservations and concerns, but I didn't make participation optional. I didn't give people an out. We've got lots of mechanisms, including our organizational structure and our pay and performance review system, to make sure everyone gets with the program. There are now dedicated digital organizations inside each business. The leaders of the business and its digital organization have shared metrics that determine part of their compensation. We have reviews every 60 days. And individual businesses' obligations to carry out the transformations are in everybody's growth playbook. For globalization, we measure each business on how many executives it has in emerging markets. If the leader of a business had 17 and was supposed to have 20, I'd demand to know the reason. We take all the arteries of process in the company and align them to drive change.

Another crucial way I enlisted people in the cause was by forging personal relationships. One weekend a month, a GE officer and his or her spouse would have dinner with my wife, Andrea, and me at our home. The next morning, I'd spend four hours talking with him or her. I'd say, "Tell me what's important in your business. What do you think we should do at GE? What are you working on? What else do you want to do?" Those weekends were a way to hear perspectives I might not get otherwise. In addition, they gave me a chance, person by person, to build deep connections, which are important in driving change.

BE ALL IN

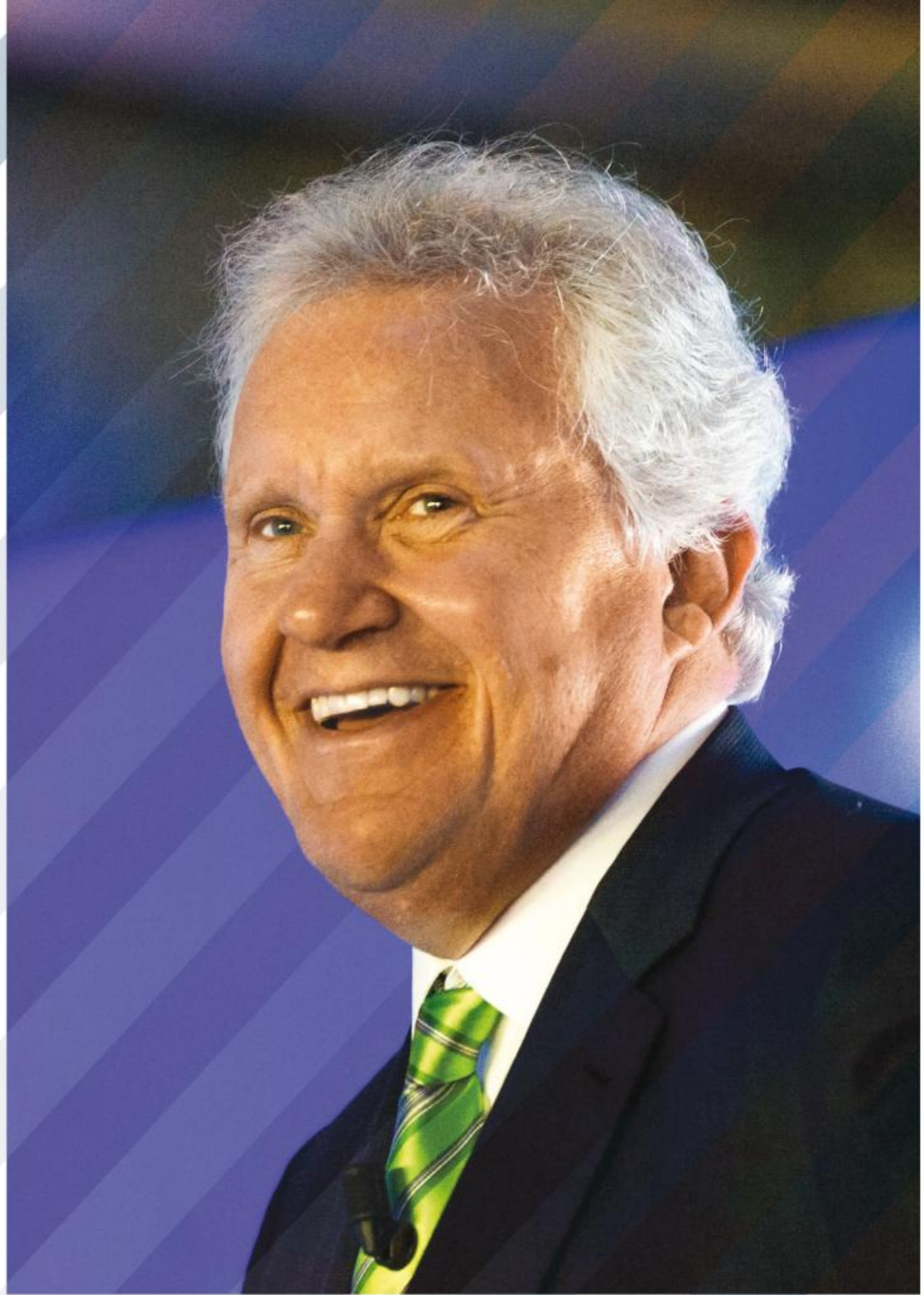
Half measures are death for big companies, because people can smell lack of commitment. When you undertake a transformation, you should be prepared to go all the way to the end. You've got to be all in. You've got to be willing to plop down money and people. You won't get there if you're a wuss. Look at the billions of dollars we've invested in our digital capabilities and additive manufacturing.

You can't regard a transformation as an experiment. We've approached digital very differently from the way other industrial and consumer products companies have. Most say, "We'll take an equity stake in a digital start-up, and that is our strategy." To my mind, that's dabbling. I wanted to get enough scale fast enough to make it meaningful. My view was that GE had as good a chance as anybody at winning in the industrial internet, because we were not starting from scratch: We had a $240 billion installed base of service contracts, a huge order backlog, and the ability to offer financing. We could build on our existing strengths to get even better.

So we launched digital across all our businesses. By that I mean we launched a major effort to embed sensors in our products and build an analytics capability to help our customers learn from the data that the sensors generated. Initially we focused on increasing the productivity of their service contracts—for example, improving the uptime, or the time on wing, of our jet engines and reducing the turnaround time for overhauls. After that we built new capabilities in our businesses and started selling them to our existing customers—helping them use analytics the way we did. Then we built the Predix platform, which we aimed to make the operating system for the industrial internet.

We also went all in with our move into additive manufacturing, or 3-D printing—which I see as part of the digital industrial transformation. We had been working on additive manufacturing for applications inside the company for five or six years—maybe 10 years in terms of developing materials for it. We're a big user of it in our aviation, transportation, energy, and health care businesses, maybe the biggest on the metallics side. In the spring of 2016 we started to talk about making additive manufacturing a stand-alone business: providing machines, materials, and expertise to a range of industries, even beyond the ones we compete in.

We could see a way to automate it. We could see it being very disruptive—making what we want, where we want, with workers



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who are more productive and more valuable. We gave a presentation to our board last summer. Because I was so close to the initiative, it was helpful to see members' high level of engagement and to hear their reflections on how disruptive it could be. Within 30 days of that meeting we acquired two companies for a billion and a half dollars: Arcam, which specializes in electron-beam melting systems, and Concept Laser, which specializes in powder-bed-based laser metal printing. Both print metal parts for aircraft and other industrial components. They gave GE a market share of about 20% in the additive-equipment market.

Even for a company our size, once you make a move like that, you're committed. You're investing serious money. You're driving it across the company. You have a sales force. You have products. You're willing to change your business model by doing business with competitors and opening up the system to your customers. That is change.

Finally, total commitment means insisting that people get with the program. The good thing about the GE culture is that nine times out of 10, people are going to say, "Hey, let's try it. Let's see where it goes." But inevitably a handful will resist. That's why it's important to be jogging—to have momentum—when you meet opposition and inertia.

When we created the Global Growth Organization, I told the executives in charge of our businesses, "Look, to get global, we've got to be more local. So we're going to run the company as a full-fledged matrix where the regions have power." A few of our best leaders couldn't deal with that process. They were used to running a very vertical slice of a P&L, and the world was becoming more horizontal. I said, "When you fight with the guy in Riyadh from now on, he's going to win sometimes." And they said, "Well, that's not really the way I want to do it." I appreciated their honesty but decided they had to go.

BE RESILIENT

Transformation requires staying power. At GE, we had a pretty good track record of investing through a crisis, particularly in technology and globalization. For example, we doubled our investment in commercial engine technology from 2009 to 2012. Our competitors did not. That explains why at this year's Paris Air Show we booked $30 billion in orders and our competitors booked about a couple billion.

Similarly, last year the annual revenue generated by our China health care business surpassed $2 billion. That's up from virtually nothing when I ran the business in the late 1990s! Now we have a strong local business with deep local talent. We are respected by Chinese customers and the government. But we didn't achieve our current position easily. We had to persevere: Whenever one door closed, we opened another.

I believe that energy storage and solar technologies are critical to GE's future. But pursuing them hasn't been easy. In the past five years we have written off more than $300 million of our investments in battery and thin-film solar technology. This is not failure; it has made us smarter.

I hate to say it, but transformation takes time. If change is easy, it is not sustainable. You need a thick skin to see it through. In the capital markets, two ideas—unlocking value and creating value—get thrown around almost as if they were interchangeable, but they are not. Unlocking value frequently means strategic capitulation for short-term gain. Creating value is the result of long-term investing—for example, when M&A activity to acquire technology or market access or position is ultimately connected to a longer-term value proposition. It's harder to appreciate such moves if you're using only a short-term lens.

I led GE during the financial crisis. Those were very lonely days. Despite our portfolio work, our financial services businesses were still too big in 2008, when Lehman Brothers went down. It was my fault. But we didn't stop or point fingers. Most of the aviation engine technology that is allowing us to gain share today is a result of investments we made during the financial crisis. We fixed the problems. And a better company emerged.

Transformation takes grit. It requires risk taking. Many large companies change their CEOs every three to five years; GE's CEOs have tenures that are a multiple of that. This is because driving change at scale is an imperfect science. It takes time and resiliency.

BE WILLING TO PIVOT

One of the hardest challenges in driving change is allowing new information to come in constantly and giving yourself the chance to adapt while still having the courage to act and push people forward. There's a tension: Even as you're making a major commitment of resources, you've got to be open to pivoting on the basis of what you learn, because you're unlikely to get the strategy perfect out of the gate. Nothing we've done has ever turned out exactly as it began.

When we started the digital industrial move, I had no thought of creating the Predix platform business. None. We had started this analytical apps organization. Three years later some of the people we had hired from Microsoft said, "Look, if you're going to build this app world, that's OK. But if you want to really get the value, you've got to do what Microsoft did with Windows and be the platform for the industrial internet." That meant we would have to create our own ecosystem; open up what we were doing to partners, developers, customers, and noncustomers; and let the industry embrace it. For the first four or five months when those guys were pushing the platform idea, I said to them, "Hey, just do your jobs. We've got enough going on right now." But I was reading and learning. Finally I was persuaded and said, "Hey, you know what, guys? You were right. Let's go." So we pivoted. Again we went all the way. We not only increased our investment in digital by an order of magnitude—a billion dollars—but also told all our businesses, "We're going to sunset all our other analytics-based software initiatives and put everybody on Predix, and we're going to have an open system so that your competitors can use it just like you can."

Another thing we learned was the need to sell outcomes as a service, rather than sell a product and a service contract. That's not something we were brought up to do. We learned it from software vendors and from listening to customers talk about what it would take for them to become Predix customers. Our partnership with Hubco illustrates this approach. That company has the largest independent steam power plant in Pakistan, about 1.3 gigawatts. We're targeting around $120 million in value creation from fuel savings alone—with minimal changes to the plant's existing hardware.

When we started simplification, we thought it would be only about delayering—getting rid of bureaucracy and streamlining processes. Two or three years in, we learned that what was probably most important was transparency—giving people data online so that they could see how they were doing.

And about five years into the effort to invest heavily in technology, we decided it was too centralized. To drive globalization, that had to change. So we opened research centers in Shanghai, Munich, and Rio.

One of the things I've said during every transformation is, "We're on a 40-step journey. Today we're on step 22. I don't know exactly what step 32 looks like yet. But we're going to explore that together. And we will do whatever it takes to be successful. We're going to win."

There's a broader leadership point. Even on my floor of GE headquarters, the people I worked with wanted to go home every night with all the answers in their briefcases. I went home every night knowing I had none of the answers yet and that it was OK to let things come to you. My wife and I watch *The Bridge,* a Scandinavian murder-mystery series on Netflix. Each season has 10 episodes. During the second episode of one season, my wife said, "Who did it? Who do you think did it?" And I said, "Honey, just let it come to you." You need people who are willing to stick around to the eighth or ninth episode and just let more of it come their way.

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EMBRACE NEW KINDS OF TALENT

A company our age simply couldn't do the things we're trying to do with our core population. We needed a cadre of people who hadn't grown up in the company. That required me to protect those people until they were truly integrated and to be open to building a new culture, new ways of doing things, and new thoughts.

If you look at GE today, there are more senior people from outside the company than at any time in our history. As noted, Bill Ruh, the leader of GE Digital, came from Cisco. Ganesh Bell, the chief digital officer of GE Power, worked at SAP. Both Jérôme Pécresse, who leads our renewable energy business, and Philippe Cochet, our chief productivity officer, joined GE through our acquisition of Alstom.

From 2009 to 2016, the number of people hired from outside GE each year (excluding acquisitions) increased by more than 60%. And the number of external hires added annually to our executive ranks more than doubled, to 160.

I have made GE a highly adaptable organization, and I expect our leaders to serve as models. David Joyce, who has spent his entire career in GE Aviation and has led that business since 2008, is now also in charge of GE Additive. Jamie Miller, who joined 10 years ago as our controller and then became our CIO, now heads GE Transportation. Terri Bresenham, who joined GE as an Edison Engineer, now leads Sustainable Healthcare Solutions out of India. The business she's building is focused on improving health care access and quality in emerging markets; it's designed to be disruptive and operates with minimal input from headquarters.

With each transformation we made new heroes. When we began the technology transformation, early on in my tenure as CEO, more corporate officers were lawyers than were engineers; that's changed. In 2001 only 20% of our officers were women, were from outside the United States, or were U.S. minorities. The figure now is 59%. We are thinking about talent and culture in new ways through our accelerated leadership program, XLP, and our initiative to build a workforce of 20,000 women in engineering and technology jobs by 2020. If you see our TV ad aimed at attracting women to STEM roles, you'll notice that we're celebrating scientists as well.

The digital industrial transformation has been the hardest one, because we had to import a couple thousand people who had grown up in different companies and cultures. We still have a lot of work to do to fully integrate them. We still have an industrial camp and a digital camp in the company.

The leader has to defend a new group for as long as it takes for the core culture to pivot so that unification takes place. For example, a guy in GE Aviation once complained to me, "Predix doesn't have all the features I want right now." Understanding that creating good software is an iterative process, I reminded him that when GE Aviation designed the GEnx engine, which powers Boeing's 747-8 jetliner and 787 Dreamliner, it designed the low-pressure turbine wrong the first time. "You've got to be more supportive of your colleagues," I admonished him.

You can't have a transformation without revamping the culture and the established ways of doing things. In our case, that has meant choosing speed over bureaucracy and killing the bureaucracy, employing new ways to recruit talent, and retaining the best people by giving them an opportunity to lead.

We have changed—and are continuing to change—our culture and operating rhythm enormously. We've radically changed our values, which are integrated into everything we do, including our language, to signal that we are in the middle of a reinvention. For example, one of our old Growth Values was "external focus." It underscored the importance of collaborating with customers and other stakeholders, but it wasn't dynamic. Contrast that with two new GE Beliefs, "Customers determine our success" and "Deliver results in an uncertain world." They are much more aspirational, forward-focused, and action-oriented. The speed and entrepreneurial spirit you see in the company today reflect the GE Beliefs.

When the cadence of the business is so much faster, having anything that's annual makes no sense. So now that we iterate on a lot of our products continuously, we also iterate on the way we talk to one another about careers, strategy, and business outcomes. For example, we got rid of our legendary Session C process for succession planning—an annual ritual that had barely changed since its introduction, in the 1970s—and made those conversations much more frequent; we now call them "people days." We turned our performance management process, whose focus had been on rating people, into a continuous performance-development approach, whose focus is on giving people the feedback they want and need to produce better outcomes for customers.

We also dramatically simplified the growth playbook strategic-planning process that we did twice a year, making it a more frequent dialogue about how we are pursuing organic growth. And with the help of Eric Ries and others, we invented FastWorks, an adaptation of his Lean Startup method for developing products that can be applied to our kinds of big-ticket offerings.

This is still very much a process-driven company. But what's changed since the 1990s is that in a protectionist, slow-growth world, you can't succeed just by excelling in a process like Six Sigma. It's banking big ideas that will get you there. Process is the means to methodically achieving great ideas at scale; it's important, but it's not an end itself. Companies get into trouble when process—not outcomes for customers—becomes the endgame.

MY LEGACY AT GE will be a complicated one. In our core businesses, earnings have tripled during my tenure. Our $324 billion backlog is up more than $150 billion in the past decade. We have record-high market share. Our financial performance has outpaced that of our peers over the past five years. We have paid more in dividends during my tenure than during the previous 110 years of GE history combined. Nonetheless, our P/E ratio has gone from 40:1 to 17:1 in the past decade, and the stock price has underperformed. Thus it is with transformation. At GE we are never in episode 10.

It will take years for GE to fully reap the benefits of the transformations. But as I contemplate my departure, I love where the company is positioned. I love what we're targeting. The company in 2001 was certain that the future would look like the past. The company in 2017 is ready for any future. I'm confident that I'm handing over a company that will flourish in the 21st century. Some people at GE feel that the stock market doesn't fully appreciate what we've accomplished. But I look at it this way: Our task now is just to perform, to execute, and let the market make its own judgment.

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JEFFREY R. IMMELT will be the chairman of General Electric until the end of 2017. He served as its CEO and chairman from September 2001 to August 2017.

GE'S GLOBAL GROWTH EXPERIMENT

THE COMPANY PUSHED CROSS-BUSINESS COLLABORATION.

BY RANJAY GULATI

LIKE MANY GLOBAL ORGANIZATIONS, GE UNDER JEFF IMMELT HAD TO FIGURE OUT HOW TO BALANCE LOCAL NEEDS WITH WORLDWIDE SCALE. SUCH COMPANIES COMMONLY ADOPT A MATRIX STRUCTURE AND THEN FIND IT FRUSTRATINGLY DIFFICULT TO MANAGE. BRINGING THE LOCAL VOICE INTO A GLOBAL BUSINESS IS A DAUNTING CHALLENGE.

The difficulty arises in part from the way CEOs think about the problem. Many see the global-local dichotomy as a continuum on which firms must choose the optimal point. They resign themselves to a journey of endless reorganizations as they struggle to find that point. The result is often widespread infighting and inertia.

But Immelt understood that it doesn't have to be a zero-sum game; a company can be both global and local. That is especially true now, thanks to technological advances. Software has made customizing global products easier and much less expensive than before. And new manufacturing technologies—including 3-D printing, robots, analytics, and sensor-laden internet-connected equipment—are reducing the minimum scale necessary to produce cost-effectively, making it possible to build factories that serve markets locally. Instead of constantly searching for the optimal point on the continuum, the goal should be turning underserved high-potential regions into important markets for the global businesses, eliminating the need to create a formal P&L structure in a country. It's not an easy shift—nothing about managing global companies is easy—but it's possible.

Since the launch of GE's Global Growth Organization (GGO), in January 2011, the revenues generated outside the United States by GE's existing industrial businesses have grown to $67 billion, or 59% of their worldwide total, from $46 billion, or 54% of their total. Even more telling is their order backlog outside the United States. During that same time frame, it has grown to $232 billion, or 72% of their total, from $112 billion, or 64% of their total—a sign that the contribution of businesses outside the United States will grow enormously in coming years. Despite these huge strides, GE's leaders would be the first to admit that the globalization effort is still a work in progress. Nonetheless, other multinationals can glean several important lessons from GE's experience.

Give the local organizations clout. One of the biggest challenges is finding ways to give local operations a voice. This is especially true at companies such as GE, whose global businesses have historically called the shots and used regional operations primarily as sales organizations. In such firms, smaller sales regions that lack influence are often unable to persuade their global operations to fund growth initiatives.

An extreme way to give local operations a voice is to award local managers P&L responsibility for all the company's businesses in their country or region and to have all the businesses' personnel answer to both the country and the business leaders. GE took this approach to jump-start growth in select regions, such as India. But recognizing that one size doesn't fit all, it didn't do so in other markets, including China.

And Immelt did something even more radical: He appointed one of GE's most respected senior leaders—John Rice, a vice chairman who had run several GE businesses—to lead the GGO. Immelt made the GGO jointly responsible with the global businesses for increasing their sales outside the United States, but its priority was high-potential markets. What's more, he gave Rice carte blanche to recruit strong leaders from anywhere in the company. Rice tapped seasoned senior managers from the global businesses and functions—people with solid experience and strong networks. Many had track records in aggressively pursuing growth, and all were people who could command the respect of GE's global business and function heads. These qualities helped them understand and defuse the businesses' concerns when dealing with contentious issues. They could get things done by influence rather than confrontation.

Understanding that roles at the local organizations are dead-end jobs in many multinationals, Immelt and Rice advertised that the opposite would be true at GE. Many managers in emerging markets went on to important positions in the company. The most noteworthy is John Flannery: After leading GE's business in India, he oversaw corporate acquisitions and divestitures, headed GE's health care business, and ultimately succeeded Immelt as CEO.

Immelt personally reviewed the plans for areas deemed growth markets. Although he encouraged constructive conflict, he intervened in battles that threatened to impede progress and removed resisters in the global businesses. "He made sure everybody understood that this mission was a one-way street," Rice says.

Embrace creative abrasion. It is no secret that matrix organizations generate conflicts that can immobilize operations and suck up managers' time. Immelt and his team recognized that the creation of the GGO would generate heat and were ready to accept it in the hope of channeling it to positive ends.

Moving an organization in this direction—toward what Harvard Business School's Dorothy Leonard calls "creative abrasion"—is no easy undertaking. It helps to find leaders who have walked in the other side's shoes and can see the other's argument in an empathetic light.

GE did this in a number of ways. In addition to transferring senior managers to the GGO from the businesses and the functions, after a time it transferred regional leaders to the businesses. Separately, Rice and his leadership team sought to clarify roles in the regional and global organizations, establishing frameworks and thresholds for decision making in areas such as pricing, financing, hiring, and performance reviews. They also took pains to ensure that the regional staff supported, rather than hindered, people from the global businesses in interfacing with customers.

Build strong functions. A chronic problem plaguing the operations of multinationals in underserved regions is a lack of strong local talent—individual global businesses often feel they can't afford to invest in it. GE was no exception, and Rice and his team recognized early on the importance of tackling that deficiency. For example, they saw that without a robust HR function in the regions, they wouldn't be able to recruit, develop, and retain local talent. Consequently, an early priority was putting together a strong functional leadership team in growth regions outside the United States to build capabilities in HR, finance, IT, sales and marketing, communications, and legal.

In some cases the GGO's leaders persuaded the global businesses to foot the bill to augment local teams; in others the GGO hired people on its own. The GGO also created "centers of excellence" that could provide functional expertise to local businesses that might not be big enough to afford it or to attract the best people.

Eliminate strategic blind spots. The metrics typically used to assess the success of mature businesses (annual sales increases, profit margins, cost reductions) often blind companies to a new market's long-term potential. In addition, individual global businesses' focus on their own results can blind them to the collective opportunity in a market: A small opportunity for any single business might become a big opportunity for the company as a whole.

To avoid these pitfalls, Immelt gave the GGO a budget not only to hire people but to take on projects on its own, and he encouraged it to act as a catalyst for cross-business collaboration. For example, the GGO funded a highly flexible "multimodal" factory in Pune, India, which could make a variety of products for different businesses, and the development of such products as a wind turbine for the German market and an affordable magnetic resonance imaging (MRI) machine for China. Over time it persuaded businesses to cofund efforts, and as successes mounted, the businesses became more willing to join in.

In addition, Rice had each regional leader size up the potential of his or her market, create a three-year growth plan, and install metrics (for example, growth in orders) to track the region's progress in exploiting its opportunities. Regional managers' incentives were tied to their success in hitting the growth targets. Initially, the global businesses' and the regions' conflicting metrics generated friction. This led to healthy debate between business and GGO teams about growth and profit trade-offs and sparked collaboration to find the optimal balance. The GGO never pursued deals that the global business leaders did not support or ones that did not meet minimum margin targets. Immelt and Rice saw the friction as a positive: It forced both sides to understand the other's point of view and, over time, brought everyone together on a "OneGE" team with a shared purpose: growing the company's overall position in the market and achieving profitability.

IT'S INCREASINGLY COMMON for individual managers in the regions to wear two hats: one for the business and one for the region. For instance, Rachel Duan runs GE China and the health care business in China. New structures—such as regional councils in which leaders of the businesses and the functions meet periodically to share goals for local markets and figure out how they can collaborate to achieve them—have taken root. More measurements are shared, and the global organizations and the GGO now all work seamlessly together on big deals. "Our global organizations have become more horizontal and over time will become even more so," Immelt says.

India, which was the pilot for the GGO, is now a major market for GE, and collaboration among GE businesses there is the norm. Heartened by this success, Immelt and Rice decided that as of January 2017, the Indian operations had matured and no longer needed to function as an independent P&L. "The added complexity of a P&L structure now outweighs its benefits," says Banmali Agrawala, the country's current GGO leader. "We feel we have the right talent and systems in place to function effectively without the P&L structure."

For his part, Rice sees the GGO remaining a lean organization but not disappearing anytime soon. "We continually ask ourselves if we have the right resources in the right places, at the right time and focused on the right things. We need to figure out the best business model for each region and ensure that we balance empowerment with sufficient guardrails. We need to figure out what we are missing, where we should go faster. We need to look for the next tipping point."

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REINVENTING TALENT MANAGEMENT

HOW GE USES ANALYTICS TO GUIDE A MORE DIGITAL, FAR-FLUNG WORKFORCE

BY STEVEN PROKESCH

DURING JEFF IMMELT'S 16 YEARS AS CEO, GE RADICALLY CHANGED ITS MIX OF BUSINESSES AND ITS STRATEGY.

Its focus—becoming a truly global, technology-driven industrial company that's blazing the path for the internet of things—has had dramatic implications for the profile of its workforce. Currently, 50% of GE's 300,000 employees have been with the company for five years or less, meaning that they may lack the personal networks needed to succeed and get ahead. The skills of GE's workforce have been rapidly changing as well, largely because of the company's ongoing transformation into a state-of-the-art digital industrial organization that excels at analytics. The good news is that GE has managed to attract thousands of digerati. The bad news is that they have little tolerance for the bureaucracy of a conventional multinational. As is the case with younger workers in general, they want to be in charge of their own careers and don't want to depend solely on their bosses or HR to identify opportunities and figure out the training and experiences needed to pursue their professional goals.

What's the solution to these challenges? GE hopes it's HR analytics. "We need a set of complementary technologies that can take a company that's in 180 countries around the world and make it small," says James Gallman, who until recently was the GE executive responsible for people analytics and planning. The technologies he's referring to are a set of self-service applications available to employees, leaders, and HR. All the apps are based on a generic matching algorithm built by data scientists at GE's Global Research Center in conjunction with HR. "It's GE's version of Match.com," quips Gallman. "It can take a person and match him or her to something else: online or conventional educational programs, another person, or a job."

Along with Accenture, American Express, Google, IBM, Microsoft, and Procter & Gamble, GE is in the vanguard of the emerging field of workforce, or people, analytics, says John Hausknecht, an associate professor of human resource studies at Cornell University's ILR School. Here's how GE is using analytics to augment its core HR processes:

CAREER AND SUCCESSION PLANNING

The tool for career and succession planning is the application that's furthest along. GE launched it in early 2016 and significantly enhanced it in June 2017. The app is embedded in the company's proprietary succession-planning platform, used for those in executive roles. (A complementary career-explorer program in the employee portal helps salaried employees envision next career steps.) Using data on the historical movement of GE employees and the relatedness of jobs (which is based on their descriptions), the app helps people uncover potential opportunities throughout the company, not just in their own business unit or geography. Lots of companies post open positions on their websites. What's different about this tool, says Gallman, is that it shows someone jobs that *aren't* open so that he or she can see what might be possible in his or her GE career.

Leaders can also use this tool to do better succession planning and career coaching—by identifying nonobvious candidates, for instance. "The algorithm helps uncover great talent for every role in the company, irrespective of whether people are male or female, diverse or not, introverts or extroverts, and so on," says Paul Davies, another HR executive at GE. "So when we're thinking about who could possibly fill a particular role, we have a technology that helps us come up with additional possibilities."

That said, the analytics system will complement, not replace, conversations about professional development between employees and their bosses and HR managers. "It is never going to be a tool that simply says, 'You do this job. You take this class,'" Gallman stresses. "We just want to give people more options and empower them to choose their own paths."

Cade Massey, a practice professor at the University of Pennsylvania's Wharton School, believes that although using analytics for career and succession planning is new, organizations will embrace it as they "figure out that one of the best ways to keep their people is to help them better understand other opportunities."

TRAINING

This tool recommends the training or education someone needs to better perform his or her existing job and to progress. Although still an early prototype, it has been tested with hundreds of employees; perfecting it and rolling it out companywide in the next year is a high priority. The plan is to connect it to a performance development app, now used by all salaried GE employees, that gives them a steady stream of constructive on-the-job feedback from their managers and team members. (See "GE's Real-Time Performance Development," on HBR.org.) The new tool will read an individual's priorities and colleagues' suggestions for improvement; match those with learning tools that others in the same country, level, and function have found useful; and offer options—for example, physical or online classes or reading material.

HIGH POTENTIALS

In the mid-2000s, GE jettisoned the forced ranking of salaried employees, a practice instituted by Jack Welch, its CEO from 1981 to 2001. (He was famous for insisting that people in the bottom 10% be fired.) Until mid-2016, the company (under Immelt) placed salaried employees into one of five categories: role model, excellent, strong contributor, development needed, or unsatisfactory performer. That practice was then replaced with the system of providing employees with a flow of constructive feedback. This, however, created a problem: how to identify superior performers and high potentials.

Using a technique called the Pareto frontier, the company's HR analytics team is trying to figure out how to draw on "outcomes" data—salary increases, bonuses, promotion rates, selections to attend roundtables with leaders or go through management development programs—to see who stands out from the crowd. "We think this multidimensional approach will lead to better talent decisions than any single attribute rating could deliver," Gallman says.

NETWORKS

The purpose of this application, which is in the advanced prototype stage, is to help employees build a network. "Knowledge work often depends on finding other people with particular skills to help you solve problems," Gallman says. "This tool will allow people to understand where to go for that help. The best partner may not be your supervisor or your colleagues. That person may be on the opposite side of the world and in a different business."

GE used the app to help integrate the 11,000 employees of Alstom's power and grid businesses and the 22,000 GE Power employees after the firm acquired the French company's divisions, in 2015. The system matched people with similar skills, education, and experiences; provided them with virtual collaboration spaces (WebEx meetings and GE's version of Google Hangouts); and suggested topics for discussion. (What's hot in the industry right now? How did you enter the field? What excites you the most about the work ahead?)

TALENT RETENTION

This application, which is in the "test and validate" stage, will predict, within a six-month window, when managers and professionals in a given function (say, software engineering, sales, or HR) are likely to jump ship so that GE can intervene. It will identify circumstances under which people often quit—for example, when someone on their team has recently left. It will then alert HR managers when such incidents occur so that they can encourage employees to stay. In this example, that might mean talking to remaining team members about the next roles they might play.

"If we can reduce GE's average voluntary attrition rate—which, including retirees, is about 6%—by even a small amount, say one percentage point, it would have enormous productivity implications," Davies says. For similar reasons, combating attrition is typically a top priority for many firms that launch people analytics programs, says Cornell's Hausknecht.

CULTURAL CHANGE

A final application, now in the early stages of development, would help GE pinpoint aspects of its organizational structure that influence its drive to become a faster, nimbler organization with a greater focus on customer outcomes. For example, do people on big teams feel differently about the company than people on small teams do, and do they perform their jobs faster, the same, or more slowly? How much does a team's distance from its business's headquarters or its leader affect members and the amount of non-value-added work they do? The HR team is using data from employee surveys, exit interviews, and organizational design to try to understand such factors.

SOME APPLICATIONS OF people analytics will be especially difficult to perfect. They include detecting high potentials and driving cultural change, because so many factors are at play. But with the promise of the overall field so high, the discipline is attracting companies of all sizes, eager to take on the challenges. "For many firms, talent is their most important asset—and historically, judgment around managing talent has been mostly intuitive and biased," Massey says. "There's no panacea, but as analytics progresses, it offers a chance to make more rigorous those intuitive methods and to de-bias some of that judgment."

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STEVEN PROKESCH is a senior editor at HBR.

4,800 DATA POINTS A DAY. DREAM OR NIGHTMARE?

In 2025, the average person will use a connected device every 18 seconds—an estimated 4,800 times a day.* The good news? That's a lot of data. The not so good? 90% of it is likely to be unstructured. Are you ready to keep up with that much information? We've been solving big data problems for 20 years. Let us help with yours.

GET MORE FROM YOUR DATA.

G.CO/CLOUDGUIDETOML

Google Cloud

*Reinsel, David, et al. "Data Age 2025: The Evolution of Data to Life-Critical." IDC, April 2017

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THE OVERCOMMITTED ORGANIZATION

WHY IT'S HARD TO SHARE PEOPLE ACROSS MULTIPLE TEAMS—AND WHAT TO DO ABOUT IT

BY MARK MORTENSEN AND HEIDI K. GARDNER

ILLUSTRATION BY HYLTON WARBURTON

A senior executive we'll call Christine is overseeing the launch of Analytix, her company's new cloud-based big-data platform, and she's expected to meet a tight go-live deadline. Until two weeks ago, her team was on track to do that, but it has since fallen seriously behind schedule. Her biggest frustration: Even though nothing has gone wrong with Analytix, her people keep getting pulled into other projects. She hasn't seen her three key engineers for days, because they've been busy fighting fires around a security breach on another team's product. Now she has to explain to the CEO that she can't deliver as promised—at a time when the company badly needs a successful launch.

Christine's story is hardly unique. Across the world, senior managers and team leaders are increasingly frustrated by conflicts arising from what we refer to as multiteaming—having their people assigned to multiple projects simultaneously. But given the significant benefits of multiteaming, it has become a way of organizational life, particularly in knowledge work. It allows groups to share individuals' time and brainpower across functional and departmental lines. It increases efficiency, too. Few organizations can afford to have their employees focus on just one project at a time and sit idle between tasks. So companies have optimized human capital somewhat as they would machines in factories, spreading expensive resources across teams that don't need 100% of those resources 100% of the time. As a result, they avoid costly downtime during projects' slow periods, and they can bring highly specialized experts in-house to dip in and out of critical projects as needed. Multiteaming also provides important pathways for knowledge transfer and the dissemination of best practices throughout organizations.

As clear and quantifiable as these advantages are, the costs are substantial and need to be managed, as Christine would attest. Organizations open themselves up to the risk of transmitting shocks across teams when shared members link the fates of otherwise independent projects. And teams discover that the constant entrance and exit of members weakens group cohesion and identity, making it harder to build trust and resolve issues. Individual employees pay a big price as well. They often experience stress, fatigue, and burnout as they struggle to manage their time and engagement across projects.

Over the past 15 years, we have studied collaboration in hundreds of teams, in settings as varied as professional services, oil and gas, high tech, and consumer goods. (See the sidebar "About the Research.") By carefully observing people during various stages of project-driven work, we have learned a tremendous amount about multiteaming. In this article we discuss why it is so prevalent in today's economy, examine the key problems that crop up for organizational and team leaders, and provide recommendations for how to solve them.

WHY THIS MATTERS NOW

Even though assigning employees to multiple projects at once is not new, the practice is especially widespread today. In a survey of more than 500 managers in global companies, we found that 81% of those working on teams worked on more than one concurrently. Other research places the number even higher—for example, 95% in knowledge-intensive industries.

Why is multiteaming practically ubiquitous? For several reasons.

First, organizations must draw on expertise in multiple disciplines to solve many large, complex problems. Businesses are tackling cybersecurity risks that span departments as diverse as finance, supply chain, and travel. Energy companies are coordinating global megaprojects, including the opening of new deep-sea resource fields. Transportation and logistics firms are tasked with getting resources from point A to point B on time, irrespective of how remote those points are or what is being delivered. Large-scale manufacturing and construction endeavors, such as aircraft and city infrastructure projects, require tight collaboration between those producing the work and the agencies regulating it. In such contexts, organizations can't rely on generalists to come up with comprehensive, end-to-end solutions. They must combine the contributions of experts with deep knowledge in various domains. (For more on this, see "Getting Your Stars to Collaborate," HBR, January–February 2017.)

Second, with crowded markets and reduced geographic and industry barriers, organizations now face greater pressure to keep costs down and stretch resources. One client manager in a professional services firm noted, "To be really good stewards of client dollars, we don't want to pay for five weeks of a specialist's time when what we really need is an intense effort from that person in week five." That's why "bench time" between projects and even slow periods during projects have become increasingly rare. The instant people are underutilized, their organizations put them to work on other things. In our research we found that even senior-level managers were flipping among seven or more projects in a single day—and as many as 25 in a given week. Compounding this, technology makes it easier to track downtime—even if it's just minutes—and assign employees work or loop them into projects during any lulls.

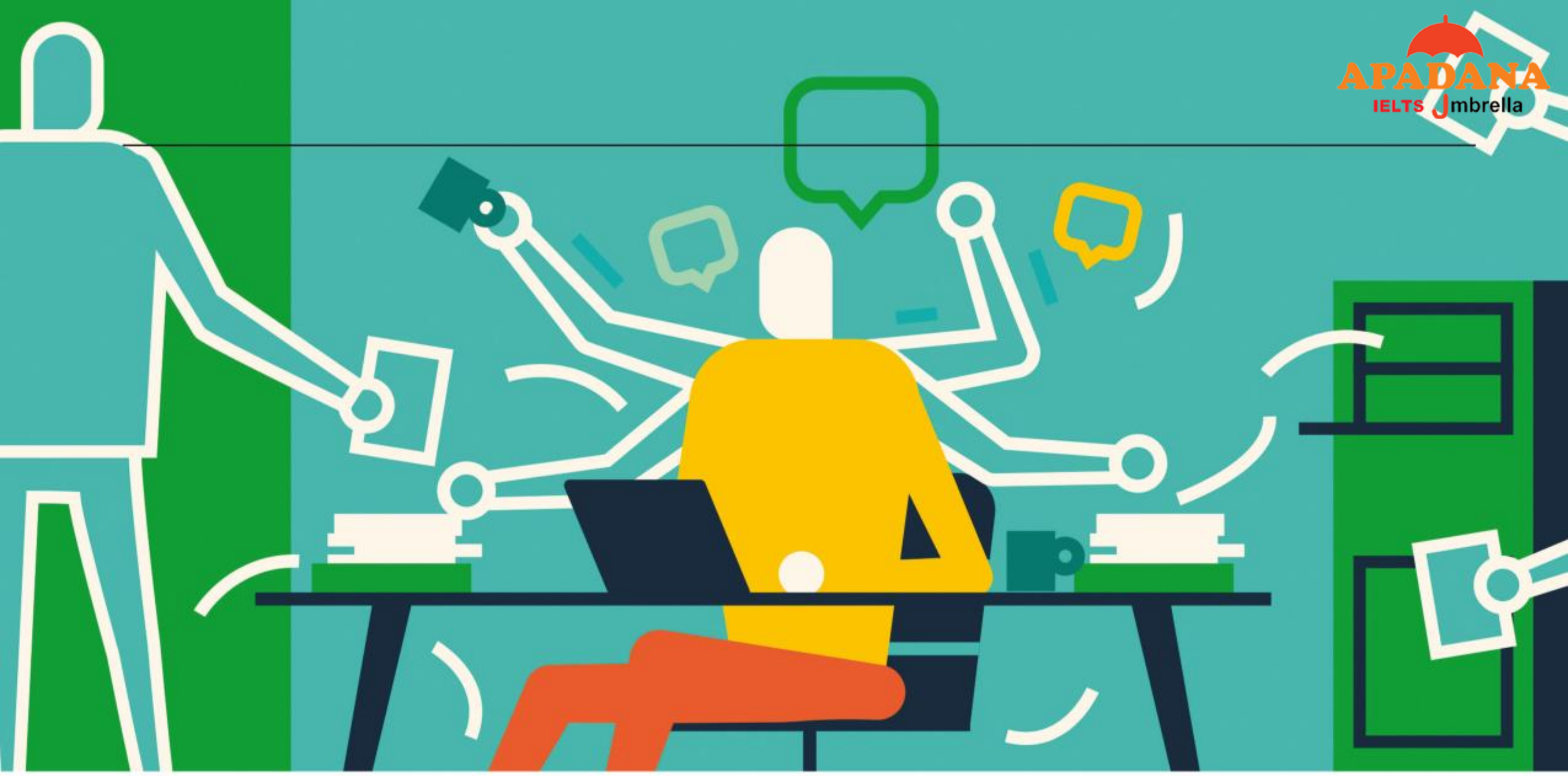
Third, organizational models are moving away from hierarchical, centralized staffing to give employees

IN BRIEF

THE PROS
By assigning people to multiple teams at once, organizations make efficient use of time and brainpower. They also do a better job of solving complex problems and sharing knowledge across groups.

THE CONS
Competing priorities and other conflicts can make it hard for teams with overlapping membership to stay on track. Group cohesion often suffers. And people who belong to many teams at once may experience burnout, which hurts engagement and performance.

THE FIXES
Leaders can mitigate these risks by building trust and familiarity through launches and skills mapping, identifying which groups are most vulnerable to shocks, improving coordination across teams, and carving out more opportunities for learning.



more choice in their projects and improve talent development, engagement, and retention. Indeed, in the gig economy, individuals have greater control than ever over the work they do (think open-source software programmers). This has made leading teams an even more critical skill. (For more on this, see "The Secrets of Great Teamwork," HBR, June 2016.) At the same time, it has brought multiteaming—and the associated risks—to a whole new level. More and more people have at-will contracts and work not only on multiple projects but for multiple organizations. In many cases, companies are sharing team members' time and smarts with market rivals.

Although most managers recognize the increasing prevalence of multiteaming, few have a complete understanding of how it affects their organizations, their teams, and individual employees. For instance, top leaders in one professional services firm were surprised to learn who in their organization was most squeezed by multiteaming. First-year associates worked on as many as six projects in a week, which at a glance seemed like a lot. But the number rose steeply with tenure—employees worked on as many as 15 projects a week once they had reached the six-year mark. More-experienced people were members of fewer concurrent teams, but the more senior they got, the more likely they were to lead many projects at the same time. (See the exhibit "Who's Feeling the Pain?") Interviews revealed that working on multiple teams was stressful—one person likened it to being "slapped about" by different project leaders—despite benefits such as bringing lessons from one project to bear on others.

It's a classic "blind men and elephant problem." Managers see some of the benefits and some of the drawbacks firsthand but rarely all at once, because those things play out through different mechanisms and at different levels. Imagine, for example, a sales manager who wants to provide better solutions for customers by incorporating insights from her team members' experiences on other projects. That's not going to happen if splitting each individual's time across five projects means her team doesn't have the bandwidth to sit down and share those great ideas in the first place. Or consider a project manager who is thinking about adding a third engineer to his team—just 10% of a full-time equivalent—to reduce the load on his two overworked lead engineers. He may not recognize that this sort of slicing and dicing is the reason his first two engineers are in danger of burnout—they are being pulled into too many competing projects. Examples like these abound.

For the most part, the benefits of multiteaming involve efficiency and knowledge flow, while the costs are largely intra- or interpersonal and psychological. That may be why the costs are tracked and managed less closely, if at all—and why they so often undermine the benefits without leaders' realizing it.

MANAGING THE CHALLENGES

Through our research and consulting, we have identified several ways that both team and organizational leaders can reduce the costs of multiteaming and better capitalize on its benefits. We'll outline them below.

Priorities for team leaders. Coordinating members' efforts (both within and across teams) and promoting engagement and adaptability are the key challenges for team leaders. Focusing on those goals early on, before your team even meets for the first time, will help you establish stronger relationships, reduce coordination costs, ease the friction of transitions, ward off political skirmishes, and identify risks so that you can better mitigate them. Here's how to do it:

Launch the team well to establish trust and familiarity. When fully dedicated to one team, people learn about their teammates' outside lives—family, hobbies, life events, and the like. This enables them to coordinate better (they know, for example, that one teammate is off-line during kids' bedtimes or that another routinely hits the gym during lunch). More important, it forges strong bonds and interpersonal trust, which team members need in order to seek and offer constructive feedback, introduce one another to valuable network connections, and rely on one another's technical expertise.

When multiteaming, in contrast, people tend to be hyperfocused on efficiency and are less inclined to share personal information. If you don't engineer personal interactions *for* them, chances are they'll be left with an anemic picture of their teammates, which can breed suspicion about why others fail to respond promptly, how committed they are to team outcomes, and so on. So make sure team members spend some time in the beginning getting to know their colleagues. This will also help far-flung contributors give one another the benefit of the doubt later on. A Boston-based designer told us about his British counterpart:

"I used to think that Sylvia was frosty and elitist, because she never jumped into our brainstorming sessions. Instead, she sent missives afterward, sometimes only to the project director. Then we spent a few days working together in person while I was in London, and I came to appreciate that she's an introvert who just needs time to process ideas before responding. Plus, because she had never met any of us, it was really hard for her to keep track of who had said what on the calls; she recognized only the leader's unique accent."

After the designer shared that "aha" with the team leader, the group switched to video calls so that everyone could see Sylvia's "thinking face" and she could feel confident that she was responding to the right people when making comments.

Formally launching the team—in person, if at all possible—helps a lot, especially if members open up about their own development goals. At McKinsey each team member, including the leader, explains how he or she expects to use that project to build or improve a critical skill. This level of openness not only encourages people to display some vulnerability (which is practically the definition of trust) but also gives members concrete ideas about how they can help one another.

The launch may feel like an unnecessary step if people know one another and everyone is ready to dive in, but research shows that team kickoffs can improve performance by up to 30%, in part because they increase peer-to-peer accountability. By clarifying roles and objectives up front and establishing group norms, you're letting people know what to expect from their colleagues. That's needed on any team, of course, but it's especially critical in organizations where people belong to several teams at once and must absorb *many* sets of roles, objectives, and norms to do good work across the board.

On teams that people frequently join or leave, you'll need to periodically "re-kick" to onboard new members and assess whether agreed-upon processes and expectations still make sense. A good rule of thumb is to do this whenever 15% of the team has changed.

Map everyone's skills. Figure out the full portfolio of capabilities that each person brings to the project—both technical skills and broader kinds of knowledge, such as familiarity with the customer's decision-making process, or a knack for negotiation, or insights about an important target market. Make sure everyone knows how each teammate contributes. This increases the chances that members will learn from one another. The pride people take in sharing their knowledge and the cohesion fostered by peer mentoring are often as valuable as the actual knowledge shared.

As with launching, it's tempting to skip mapping if many members have worked together before. But we've found that even familiar teams are likely to hold outdated assumptions about individuals' potential contributions and often disagree about their teammates' expertise. As a result, they may argue about which roles members should play or bristle at assignments, thinking they're unfair or a bad fit. People may also waste time seeking outside resources when a teammate already has the needed knowledge, which demotivates those whose skills have been overlooked.

Sherif, a tax expert, experienced these problems when he joined with four colleagues to pitch a new client. "We'd all worked together on prior projects over the years—enough, we assumed, to know one another's 'sweet spots,'" he told us. "Over time, though, I grew more and more frustrated that two of my partners kept adding bits of regulatory advice to the pitch document—that's why I was on the team! I was handling nearly the exact same issue for a current client. I felt undermined, and the more they tried to sideline me, the more cantankerous I got." A few days before the client meeting, the group talked it out and discovered that Sherif had been honing his specialist expertise on projects the others hadn't been part of. They simply didn't realize what he had to offer. "We'd all been running in so many directions at the same time that our individual knowledge was changing quickly," he says. "No wonder we had friction."

Skills mapping could have prevented this. It also streamlines communication (no need to "reply all" if you know who's actually responsible for an issue). And it equips members to hold one another accountable for high-quality, on-time delivery, which is otherwise

ABOUT THE RESEARCH

Over the past 15 years, we've been measuring both the benefits and the trade-offs of multiteaming in areas such as human capital, resource utilization, quality management, and customer satisfaction. We have conducted:

IN-DEPTH STUDIES of eight global professional services firms where multiteaming is the norm, including statistical analyses of their staffing databases and personnel records.

A SURVEY OF more than 500 midlevel managers in global companies, representing a wide range of industries and professions, to examine trends across organizations and geographies.

ONGOING RESEARCH AT a 5,000-person technology and services company that is trying to optimize multiteaming. So far, this includes more than 50 interviews with team leaders and executives. We're also designing organizational experiments to test best practices and collect data on outcomes such as efficiency, staff burnout, and customer satisfaction.

ONGOING RESEARCH ON agent-based modeling to understand the behavior of large systems of interconnected teams. We are also using simulations to model multiteaming, with a focus on understanding the relationship between team size, percentage of overlap among teams, and the number of teams each team member is on.

tricky when people are frequently coming and going. Creating the expectation of peer accountability relieves you as the team leader from some of that day-to-day oversight, freeing you up to scan the environment for potential shocks from other teams, for example, or to handle some of the inevitable negotiations about shared resources.

Manage time across teams. As you form a team, explicitly talk about everyone's competing priorities up front. By preemptively identifying crunch periods across projects, you can revamp deadlines or plan on spending more hands-on time yourself at certain points. Making the topic "discussable" so that people won't feel guilty about conflicts allows the team to openly and productively handle these issues when they come up later.

Establishing the right rhythm of meetings will make it easier to manage time across teams and address competing priorities. At the outset, you'll want to schedule several full-team meetings at critical junctures. (Research shows, for instance, that the halfway point in any project is a vital moment for a check-in, because that's when people shift into a higher gear, acutely aware that their time is limited.) Make attendance truly mandatory, and ensure it by giving each team member a piece of the meetings to run—even if it's just for 10 minutes. Check in early to see that all members have cleared meeting dates with their other teams. Ideally, the organizational culture will support formal check-in meetings as a high priority. If not, you may need to coordinate with other team leaders before putting a schedule together.

When you plan other team meetings, invite exactly who's needed and no one else, to minimize scheduling conflicts with other teams. Most of the time, you won't need everyone. Meet in subteams whenever possible. Don't forget to leverage technology: Instead of using precious live meeting time for updates, send a three-line e-mail or keep an online dashboard updated so that people can track progress as needed. Although technology doesn't replace face-to-face interaction, it can tide you over when a full meeting is too costly. And be creative: Younger team members are more likely to watch a 30-second video update than to read a two-page memo. Brief, spontaneous check-ins with team members over Skype or FaceTime can keep you updated on their competing deadlines; this visual interaction makes it more likely that you'll pick up cues about their stress and motivation levels, too.

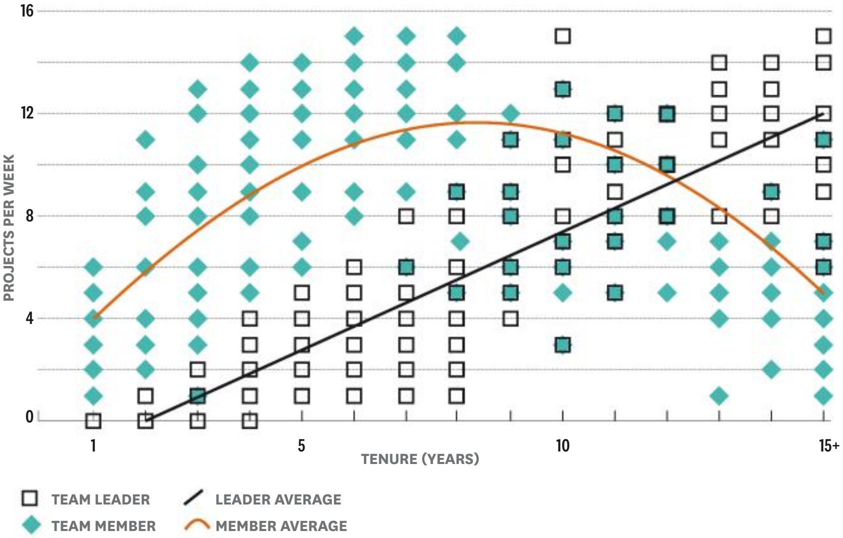
Create a learning environment. Learning makes work feel more meaningful, and it's supposed to be a major benefit of multiteaming—but it often gets crowded out by time pressures. There are other obstacles as well: Even if you've worked to build trust and personal connections, it's harder for multiteamers to give effective feedback than it is for dedicated team members, because people whose time is divided among several projects are less likely to regularly observe their teammates' actions or to be present at a time that "feels right" to offer critiques. Members who see only a small slice of a project may lack the context to fully understand what kind of feedback is appropriate. They also tend to focus on short-term tasks and to communicate with one another only when required.

Carrie, for example, was promoted to run the development office of a major metropolitan hospital, and her new 20-person staff was splitting its time among dozens of projects each week. After six months she realized, "We were all living in a feedback desert. I literally hadn't had a single comment in half a year about how I could do my job better, despite clear examples of projects that hadn't lived up to expectations." To change the tone, she modeled seeking input and responding to it constructively. "Doing so day in and day out, I started to create an environment where people shared their concerns to get help as soon as they needed it," she says. "Over time, it felt safe enough to put in more-formal processes to review projects and allow everyone to learn from errors without fear of retribution or blame."

You can also designate team members from different functions or offices to colead parts of the project so that they benefit from greater cross-contact; a formal assignment makes it more likely that they'll devote time to learning from each other. Similarly, pair a highly experienced team member with someone more junior and help them understand what both can

WHO'S FEELING THE PAIN?

At one professional services firm, the employees most squeezed by multiteaming were mid-tenure associates—they helped with more and more projects as they gained experience. But the more senior people became, the more likely they were to lead many projects at the same time.



GOALS OF MULTITEAMING

(AND THE CHALLENGES THAT CAN UNDERMINE THEM)

GOALS FOR TEAMS	CHALLENGES
COST SAVINGS, because team members whose expertise is not required at the moment can bill their downtime to other projects **PROCESS IMPROVEMENTS** as a result of importing best practices and insights through shared members	Weakened relationships and coherence within teams and projects Stress and burnout, particularly when members end up with assignments that exceed 100% time commitment Interteam coordination costs so that schedules of projects with shared members don't collide Rocky transitions as members switch between *tasks* where their contributions are defined relative to other members' skills, adjust to different *roles* (boss on one team but subordinate on another), and learn new team *contexts* with unfamiliar routines, symbols, jokes, expectations, tolerance for ambiguity, and so on Reduced learning, because members lack time together to share knowledge and ideas Reduced motivation, because members have a small percentage of their time dedicated to any given project

GOALS FOR ORGANIZATIONS	CHALLENGES
THE CAPABILITY TO SOLVE COMPLEX PROBLEMS with members who have deep, specialized knowledge **IMPROVED RESOURCE UTILIZATION** across projects (no one is dedicated to a project that needs only 5% of his or her time) **INCREASED KNOWLEDGE TRANSFER** and learning through shared membership	Politics and tensions over shared human resources Coordination costs of aligning timelines of projects even when they are not linked by content or workflow Weakened identification with the organization if people feel commoditized Increased risk as shocks affecting one team may pull shared members off other projects

gain from the exchange—it's not just one-way learning flowing down to the junior person.

Foster curiosity by posing "What if...?" questions when it's likely that different members' backgrounds will provide new insights. If you get a question that you know another member could answer more fully, given his or her experience, redirect the asker and prompt the expert to do a bit of tutoring.

Boost motivation. On traditional, fixed teams, a strong sense of cohesion and group identity motivates members. But leaders in multiteaming environments need to leverage more of an exchange relationship. The ability to get jazzed about a project naturally flags when members spend only a small amount of time on it. Their inner accountant asks, "If I'll get only 10% of the credit, how much time and effort should I devote to this?" Figure out what your ten-percenters really value and frame the work in terms of those rewards. For example, if you have a Millennial who is eager to develop transferable skills, you might occasionally take time during meetings to have team members share and learn something new, or hold a workshop at the end of the project in which members cross-train.

Remember, too, that a sense of fairness drives many behaviors. If people feel they are pulling their weight while others slack off, they quickly become demotivated. When team members are tugged in many directions, it's often difficult for each one to recognize and appreciate how hard the others are working. As the leader, keep publicly acknowledging various members' contributions so that they become visible to the whole team, spawning a greater awareness of the collective efforts.

Like Christine, the frustrated leader of the Analytix software team, you might be feeling the strain of sharing valuable talent with other teams. Before you reach the breaking point, take these steps to clarify and manage your interdependency with other teams. They will help you avoid conflicts when that's possible, defuse them when it's not, and set an example of better collaboration with other team leaders—peers who face the same challenges you do.

Priorities for organizational leaders. If you're leading an organization where multiteaming is prevalent, you'll need to keep a close eye on how—and how many—members are shared across teams. We've found that you can reduce organizational risk and boost innovation by following these steps:

Map and analyze human capital interdependence. Patterns of team overlap range from highly concentrated (a large proportion of members are shared by just a few teams) to highly dispersed (the sharing is spread out across many teams).

Each pattern has its own implications for risk management. When a surprise problem jolts one team, the cry "All hands on deck" pulls shared members off their other teams—with disproportionately large effects on teams that have a concentrated overlap in members. When the overlap is more dispersed, the shock will be felt by more teams but to a lesser extent by each one. (See the exhibit "Who Takes the Hit?")

There are implications for knowledge transfer as well. Best practices travel from one project to the next as team members share what's working—and what isn't—on their other projects. Highly concentrated overlap makes it easier to spread ideas from one team to another; highly dispersed overlap makes it easier to spread them to more teams.

Keep an accurate map of the links among teams in your organization through periodic updates from managers and team members. The frequency of these check-ins will depend on the life cycles of your teams.

You'll need them more often if teams and assignments change week to week, less often if you've got yearlong projects with stable membership. This bird's-eye view will help you see which teams fail to pick up on new trends because they're too isolated, for instance, and which are so tightly interconnected that they aren't mitigating the risks of their shared membership.

The question we get most often about mapping interdependence is "What's the right amount?" Unfortunately, there's no magic answer—either for overlap between teams or for the number of teams per individual. Both targets depend highly on context. When teams are very similar in their tasks and culture, transitioning between them is relatively easy, so you can have a large amount of overlap and members can be on more of them. Transitioning across teams with very different tasks or cultures should be kept to a minimum, however—it's a bigger, costlier shift. Interestingly, the reverse holds true when workloads differ across teams, because members aren't in high demand from all teams at the same time (they aren't as susceptible to burnout as, say, tax advisers in April are).

Once you've done all this analysis, it's time to address the shortcomings you've uncovered—which brings us to the next two steps.

Promote knowledge flows. Pay close attention to teams that share few or no members with others—whether that's by design or by accident. These "islands" will require help staying informed about what's working elsewhere in the organization, sharing their knowledge and ideas, and deciding who would be the best resource to apply to a given task.

Your goal here is to establish knowledge transfer as a cultural norm, which involves getting employees to recognize that everyone wins when they take the time to share insights across projects. As with any cultural shift, it's important to lead by example and to reward those who follow suit. That's simple to say—but not so simple to do. To make it easier, highlight the benefits of sharing, and provide processes and technology to facilitate it, such as brown-bag lunches and online forums. One tech firm we worked with made a point of celebrating project breakthroughs that were attributed to transferred best practices. R&D teams at a manufacturing company shared monthly testimonials from individuals who had gained new insights through cross-staffing. In both cases the objective was to make the benefits of knowledge transfer clear—and to counter the ever-present pressure for people to keep their heads down and focus on immediate tasks.

Buffer against shocks. How can you prevent shocks in one team from being transmitted to others? Often you can't—but knowing how teams are connected through shared membership allows you to anticipate *where* some shocks may be transferred and to design small amounts of slack into the system to absorb them. This doesn't mean having people sit around twiddling their thumbs just in case. Rather, you're enabling them to shift their attention when needed. One engineering firm we worked with had identified several skilled "firefighters" and assigned them to long-term projects that wouldn't suffer if they had to address urgent problems elsewhere. This had the added benefit of providing those individuals with exciting challenges that were a welcome change of pace from their day-to-day work.

It takes a critical eye and a clear set of strategic priorities to determine which projects can be disrupted and which can't. Sometimes it makes sense to give certain projects "protected" status, exempting members of those teams from answering others' firefighting calls. Overall, the idea is to be responsive to immediate problems without sacrificing teams' ongoing needs. Of course, even if you've built slack into team design, you may occasionally have to jump in with extra resources to save critical projects that take a hit. But your other teams will feel less pain when you do.

None of this is easy. You may need to work with HR or IT to establish processes or systems that will allow you to track multiteaming more accurately across the organization. You may even need to create a new role to define and coordinate these efforts effectively. And people may resist the increased oversight—it can feel like micromanagement to team leaders and members who are accustomed to having freer rein, particularly in entrepreneurial cultures. Still, in the end such investments are worthwhile; it's actually more costly to allow the trade-offs of multiteaming to go unchecked. If you're open about the problems you're trying to solve with all this transparency, people are less likely to feel surveilled or constrained by it and more likely to see the upside.

NEARLY EVERY KNOWLEDGE worker these days is a member of multiple concurrent teams. Together, organizational and team leaders can make the most of that trend by creating an environment where multiteamers will thrive. Some of this involves managing interdependence risks, articulating and navigating groups' competing priorities, and removing obstacles to strategic coordination across groups. And some entails building stronger connections and greater trust among people who spend only a small fraction of their time together.

All around, it's a significant investment of time and effort. But organizations pay a much higher price when they neglect the costs of multiteaming in hot pursuit of its benefits.

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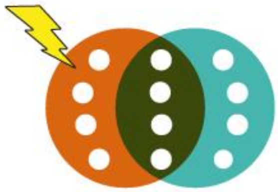
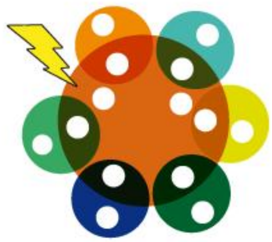
WHO TAKES THE HIT?

When a couple of teams share many members, a shock to one group severely jolts the other, because people shift their efforts from ongoing work to firefighting.



When many teams share just one or two members, a shock to one group has a minor impact on the others—but the effects ripple throughout the organization.



HAPPINESS TRAPS: HOW WE SABOTAGE

OURSELVES AT WORK

BY ANNIE MCKEE

LIFE IS TOO SHORT TO BE UNHAPPY AT WORK. YET MANY PROFESSIONALS WHO ARE FREE TO SHAPE THEIR CAREERS ARE JUST THAT: DISENGAGED, UNFULFILLED, AND MISERABLE. TAKE "SHARON," A VICE PRESIDENT AT A GLOBAL ENERGY FIRM AND ONE OF MY CONSULTING CLIENTS. SHE'S SMART AND HARDWORKING AND HAS RISEN THROUGH THE RANKS BY FOLLOWING THE RULES. SHE MAKES A LOT OF MONEY, IS MARRIED TO A MAN SHE LOVES, AND IS DEVOTED TO HER CHILDREN. SHE HAD EVERYTHING SHE THOUGHT SHE WANTED, BUT SHE WASN'T HAPPY. THINGS WERE TENSE AT HOME, AND WORK NO LONGER GRATIFIED HER. SHE WAS TIRED OF WORKPLACE POLITICS AND CYNICAL ABOUT THE NEVER-ENDING CHANGES THAT WOULD SUPPOSEDLY FIX WHATEVER WAS WRONG WITH THE COMPANY IN A GIVEN QUARTER. SHE RESENTED THE LONG HOURS SHE WAS REQUIRED TO PUT IN. THAT NEXT PROMOTION AND BONUS WEREN'T AS ENTICING AS THEY USED TO BE, BUT SHE STILL WORKED AS HARD AS EVER: STRIVING WAS A HABIT.

SHARON BLAMED OTHERS for her disenchantment. She believed that the executive team was disconnected from the day-to-day business. She complained to friends and coworkers about management's bad decisions, the company's strategy, and what she perceived as a lack of vision on the part of senior leadership. All the members of her team seemed to be slacking.

After coaching Sharon for several months, I grew to like her. But even I found her complaints tedious. I can only imagine what her coworkers thought. When we finally got past why everyone else was to blame for her dissatisfaction, she said, "I know I could probably make things better. I'm just so busy. Besides, it doesn't matter whether I'm happy or not. What matters is that I hit my targets." In her more reflective moments, Sharon admitted that her stress and unhappiness were affecting her work relationships, her family, and her health. She even noticed that she had begun to compromise her ethics in small ways. What she didn't see was the link between her growing misery and her dwindling ability to do her job effectively.

Sharon is not alone. For years we've heard about dismal levels of employee engagement. Numerous studies show that close to two-thirds of employees in the United States are bored, detached, or jaded and ready to sabotage plans, projects, and other people. This makes no sense to me. Why do so many of us accept unsatisfying work, high levels of stress, looming burnout, and chronic unhappiness? Why don't we fight back?

Multiple factors account for this contemporary malaise. The American Psychological Association found early in 2017 that Americans are reporting more stress than ever owing to politics, the speed of change, and uncertainty in the world. But it's not always outside forces that push us over the happiness line. Sometimes we do it to ourselves. Throughout my 30-year career advising leaders of major businesses, governments, and NGOs around the globe, I've discovered that far too many of us fall into common "happiness traps"—destructive mindsets and ways of working that keep us stuck, unhappy, and ultimately less successful. Three of the most common happiness traps—ambition, doing what's expected of us, and working too hard—seem productive on the surface but are harmful when taken to the extreme.

THE AMBITION TRAP

The drive to achieve goals and further our careers pushes us to be and do our best. But when ambition is coupled with hypercompetitiveness and a single-minded focus on winning, we get into trouble. We become blind to the impact of our actions on ourselves and others; relationships are damaged and collaboration suffers; we start chasing goals for the sake of hitting targets; and work begins to lose its meaning.

That's exactly what happened to Sharon. Throughout her life, her parents, teachers, and coaches encouraged her striving, and she attained a lot. She got good grades, top spots on sports teams, and academic awards. When she started working, her ambition impressed her bosses: She gave them what they wanted on time and well done.

Her peers weren't quite as enthralled, however, and some steered clear as they realized that Sharon always wanted to be number one. To her, that meant everyone else had to be number two. Team goals were not a priority unless they served her purpose, and she got a reputation for throwing people under the bus.

Nothing is inherently wrong with ambition, of course. Sometimes it leads people to hone social skills; after all, effective collaboration is a prerequisite for long-term success in complex organizations. But Sharon's unfettered ambition was focused solely on her own goals, and peers soon stopped trusting her. They also stopped helping her.

Sharon's workplace challenges came to a head while she was managing a highly visible project, serving as the interface between her division and a powerful internal client. The company's strategy shifted, project goals changed, and the client's standards were raised, although funding remained flat. Sharon repeatedly heard the client's requests as unreasonable demands and responded as she often had—by turning the situation into a win-lose competition. She began to cut corners, demanded that her division be paid excessive amounts of money for the work it was doing, and even told a falsehood or two to get what she wanted.

Sharon's boss, who had protected her for years, finally had to admit the obvious: She had become a liability. He removed her from the project and sidelined her. Her career stalled. Being forced off the fast track was a wake-up call, and Sharon came to see that she had been lonely and deeply unhappy at work for a very long time. Her ambition had turned into a trap instead of an asset. Her ruthlessness was a learned behavior rather than an inherent quality: Success early on had reinforced a winner-take-all attitude that ultimately derailed her both professionally and personally.

IN BRIEF

THE CONUNDRUM
Why are so many of us who can shape our professional lives unhappy at work? And what can we do about it?

THE TRAPS
We often fall into destructive mindsets and ways of working that make us unsatisfied and ultimately less successful. Some of the most common of these "happiness traps"—ambition (win at all costs); doing what's expected rather than what we want; and overwork—seem productive on the surface but are harmful when taken to the extreme.

THE PATH FORWARD
Finding happiness at work begins with honing your emotional intelligence to grasp which trap has ensnared you. Then you can foster three things that are known to increase professional satisfaction: meaningful work, enduring hope, and workplace friendships.

Ambition pushes us to be and do our best. But when coupled with a single-minded focus on winning, it gets us into trouble.

THE "SHOULD" TRAP

Doing what we think we should do rather than what we want to do is a trap that all of us risk falling into at some point in our work lives. True, some of the unwritten rules that shape our careers are positive, such as completing an education so that we can help our families and observing punctuality and civility at work. But too many of our workplace norms—what I call *shoulds*—force us to deny who we are and to make choices that hinder our potential and stifle our dreams.

To be successful in most companies, people have to obey shoulds about how to dress, how to talk, whom to associate with, and sometimes even how to have a life outside work. I've worked in organizations where a candidate's scuffed shoes kill his chances of getting the job and where women must wear makeup and have certain (usually short) hairstyles. I've also been in companies where it's impossible for men to rise to leadership roles unless they are married—to women. And at the *Fortune* 500 only 4% of senior leaders are female, and fewer than 1% are people of color. These shocking statistics tell a tale of who "should" lead and who "should" follow.

Such unspoken norms are not only unfounded (gender, race, and marital status have no correlation with leadership ability); they also take a personal toll when we feel we must hide who we are or pretend to be someone we're not. Kenji Yoshino and Christie Smith showed in a Deloitte-sponsored study of more than 3,000 workers that 61% of people feel they have to "cover" in some way to fit in at work: They either actively hide or downplay their gender, race, sexual orientation, religion, or other aspects of their identities, personalities, or lives.

At some companies women don't talk about their children to avoid the "motherhood penalty." African-Americans often avoid one another so as not to be seen as part of a marginalized group. Even 45% of white men report covering things that set them apart, such as depression or a child who struggles at school. I have known many who hide anything that makes them look weak or vulnerable—difficulties at home, feeling burned out—because they feel they should be strong all the time.

Shoulds don't just affect how we project ourselves at work. They often dictate what kind of job and career we aspire to. Take another of my coaching clients, "Marcus." During his junior and senior years of college, Marcus was involved with a couple of start-ups, and he relished the experience. He secretly hoped to continue on the entrepreneurship track, but as graduation loomed, he found himself wavering. When he got an offer from a prestigious consultancy, he took the job. Six months in he realized that he hated it, but with parents still bragging about his big job and salary and envious friends asking him to get them into the company, he felt he couldn't quit.

At 42 Marcus was made a partner in the firm. He'd followed all the rules and, on the surface, was a true winner. But that's the problem: His career felt like a game. He saw a disconnect between the firm's mission and what it really did, yet he went along. He recognized that how he was expected to treat people—especially junior people—was dehumanizing, yet he did it.

Marcus didn't like consulting and had spent much of his career hiding who he really is: a gay man married to a union carpenter. He had never disclosed details about his personal life at work because it was clear that those who succeeded at his company were straight, and as far as he knew, no other spouses worked with their hands. Living in hiding makes anyone unhappy. And it drags down professional performance as commitment wanes and displeasure with work and colleagues eventually becomes obvious.

Avoiding the should trap isn't about completely ignoring the rules, of course. Absolute nonconformity and cultural deviance would challenge even the most inclusive organization. Instead, we need to recognize which rules end up being harmful. Self-suppression and diligent conformity don't bring out our most original, creative contributions at work; nor do they lead to workplace happiness, a key ingredient of sustained professional success. In this case the shoulds that directed his professional choices caused Marcus to take the wrong job and hide his personal life. The rules he thought he must obey became soul destroying and ultimately dragged down his career.

THE OVERWORK TRAP

Some of us react to the very real pressures of the "always on" 21st-century workplace by spending every waking moment working or thinking about work. We don't have time for friends, exercise, healthful food, or sleep. We don't play with our children or even listen to them. We don't stay home when we're sick. We don't take the time to get to know people at work or put ourselves in their shoes before we jump to conclusions.

Overwork sucks us into a negative spiral: More work causes more stress; increased stress causes our brains to slow down and compromises our emotional intelligence; less creativity and poor people skills harm our ability to get things done. As the title of a recent *Harvard Business Review* article nicely summarized, "The Research Is Clear: Long Hours Backfire for People and for Companies."

Overwork is seductive, because it is still lauded in so many workplaces. Boston University's Erin Reid found, in fact, that some people (men in particular) lie about how many hours they work. They claim to put in 80-plus-hour weeks—presumably because

Overwork sucks us into a negative spiral, causing our brains to slow down and compromising our emotional intelligence.

they think excessive hours impress their bosses. What's more, obsession with work can stem from our inner demons: It feeds on our insecurities, assuages our guilt when we see others overwork, or helps us escape personal troubles. Many overworkers believe that working more will alleviate stress: If they just finish that project, get that report done, read all that e-mail, they'll feel less out of control. But of course the work never ends.

That happened to Marcus. He would come home in the evenings—usually later than he had promised—and spend time in the kitchen talking with his spouse and asking the kids about their day. All the while, his phone was sitting on the counter. Two minutes into the conversation he'd pick it up. He thought his family didn't care, but naturally they were hurt. Over the years, his spouse tried to talk about Marcus's preoccupation with work. At first Marcus would explode: "I have to do this! What do you want me to do, quit?" Eventually he'd be contrite and promise to change. But after a short remission, his addiction would return.

Marcus started sleeping less—in part because of late-night and early-morning calls, and in part from stress. He didn't eat well, and he found himself drinking too much. At work he was a grumpy, distracted boss. He began making mistakes—missing deadlines, forgetting to respond to critical e-mails. He couldn't live up to his own or others' expectations, which bothered him tremendously. So he just tried harder.

Like Sharon, Marcus finally got a wake-up call. His came at home. One evening, during their never-ending argument about the phone, the e-mails, and the calls at night, his spouse gave him an ultimatum: "This has to stop," he said. "I won't go on like this." That hit Marcus hard, and it came at a telling moment. The week before, his boss had pointed out some serious problems in one of his projects. She told him that everyone was worried about him—his switch was always "on," and it was obvious that he was burning out. She'd even said the same thing his spouse did: "This has to stop."

Marcus struggled to admit he had a problem. Overwork disguised as diligence was part of his identity—and, as is true for many of us, it seemed more important as his career progressed and the pace of change increased. Flatter, leaner companies and ultracompetitive markets force us to do more with less. As technology has advanced, we are performing tasks that others used to do—or do for us. For the many of us who work across time zones, early-morning and late-night conference calls are now routine. And that little device we carry everywhere is a demanding master. Work is literally in our pockets—or on our nightstands.

Whether you've fallen into the "shoulds" and the overwork traps, as Marcus did, or the ambition trap, as Sharon did, the question is, How can you get out? The good news is that some of the same leadership skills and mindsets that make you effective at work can help you escape and rediscover happiness there.

BREAKING FREE

The first step is to accept that you deserve happiness at work. That means giving up the misbelief that work is not meant to be a primary source of fulfillment. For centuries it was simply a means of staving off hunger. To be sure, many people still struggle with low wages and horrible working conditions, and for them, work may equal drudgery. But research has shown that even menial jobs can provide fulfillment. What's surprising is that successful executives—today's knowledge workers and creatives—sometimes don't find true meaning in their work. Instead they buy into the myth that it's a grind.

Work can be a source of real happiness, which I define as a deep and abiding enjoyment of daily activities fueled by passion for a meaningful purpose, a hopeful view of the future, and true friendships. To embrace these three components of happiness, we must first delve into the very personal drivers and habits that keep us from fostering them. Why do we work all the time? Do our ambition and desire to win serve us or hurt us? Why are we trapped by what we feel we *should* do and not pursuing what we *want* to do? To answer these questions, we need to tap into our emotional intelligence.

THE EMOTIONAL INTELLIGENCE COMPETENCIES

SELF-AWARENESS
Emotional self-awareness

SOCIAL AWARENESS
Empathy
Organizational awareness

SELF-MANAGEMENT
Positive outlook
Achievement orientation
Adaptability
Emotional self-control

RELATIONSHIP MANAGEMENT
Inspirational leadership
Teamwork
Coach and mentor
Influence
Conflict management

SOURCE *BECOMING A RESONANT LEADER*, BY ANNIE MCKEE, RICHARD BOYATZIS, AND FRANCES JOHNSTON (HARVARD BUSINESS PRESS, 2008)

MOVING FROM TRAPPED TO HAPPY

Over the past several decades, psychologists and researchers, myself included, have come to agree that there are 12 emotional intelligence competencies (see the sidebar above), all of which can help you avoid or break free from the happiness traps. I believe that three—emotional self-awareness, emotional self-control, and organizational awareness—are particularly useful when casting off an outdated mindset.

Emotional self-awareness is the capacity to notice and understand your feelings and moods and to recognize how they affect your thoughts and actions. You might realize, for example, that the discomfort you feel when you buck a work "should"—such as replying to e-mail at 8 PM or during the weekend—signals that you're afraid of being excluded. Going a bit deeper, you might see that this fear has little or nothing to do with your current work situation; it may simply be an old habit of mind that no longer serves you.

Awareness is a good start, but then you need to act. This is where emotional self-control comes in: It enables you to tolerate the discomfort that arises when you understand what you are doing to yourself. For instance, if you know that you check your e-mail at night out of insecurity, you're not going to feel particularly good about yourself. But if you push that feeling aside, you will remain stuck. Self-control also enables us to take actions that may fall outside our comfort zone.

Finally, organizational awareness—an understanding of your work environment—can help you distinguish between what is coming from inside you and what's coming from others or your company. Say, for example, that you're aware that your colleagues are reading and sending e-mails at all hours and that your overwork comes from pressure to conform—not necessarily from insecurity. Now you see that you have a choice to make: You can bravely decide to buck the norms and quit overworking, or you can continue to behave in a way that conflicts with your values (and harms your health and family life). You might even recognize that pulling back from overworking could change the dynamics and expectations of your team, creating a virtuous microculture within the larger organization.

PURPOSE, HOPE, AND FRIENDSHIP

Using emotional intelligence to remove barriers to happiness is a first step on the journey to greater fulfillment at work. But happiness doesn't happen magically—we must actively seek meaning and purpose in our day-to-day activities, foster hope in ourselves and others, and build friendships at work.

Meaning and purpose. Humans are wired to seek meaning in everything we do, whether we're sitting in an office, hiking in the mountains, or eating dinner with the family. Passion for a cause fuels energy, intelligence, and creativity. Brain chemistry is in part responsible: Researchers have shown that the positive emotions aroused by work we see as worthwhile enable us to be smarter, more innovative, and more adaptable. For example, the Duke psychology professor Dan Ariely and colleagues conducted a study in which participants were paid to build Lego models, some of which were dismantled in front of them upon completion. People whose creations were preserved made, on average, 50% more Lego models than those whose models were destroyed, despite identical monetary incentives. We give more of ourselves when we have an impact—even if it's a small one.

Management scholars have shown that the same holds true on the job: Purpose is a powerful driver of workplace happiness. Yet too often we fail to tap this wellspring of motivation. As was true for Sharon and Marcus, it's easy to lose sight of what we value and ignore the aspects of work that matter to us, especially if we struggle with dysfunctional organizations, bad bosses, and stress. And if that happens, disengagement is just around the corner. In the absence of meaning, we have no reason to give our all.

Each of us finds meaning and purpose in work differently, but in my experience with people from all over the globe and in all professions, I've seen some similarities: We want to fight for a cause we care about. We want to create and innovate. We want to fix problems and improve our workplaces. We want to learn and grow. And, as studies have shown, meaningful work is as possible and important for a janitor or a middle manager as it is for a CEO.

As you discover which aspects of your job are truly fulfilling—and which are soul destroying—you will face choices about how to spend your time and what to pursue in your career. Marcus decided to begin seriously exploring that business he'd always dreamed of having. He looked at finances and at how to leverage his relationships at his current firm and with clients. He and his spouse considered the lifestyle changes that launching a business would require. In the end, he created a bridge: He worked as an associate at his firm part-time for two years while seeking funding and starting his new business.

Hope. If you've ever faced adversity, a crisis, or a loss, you know that hope is what got you through. It makes us want to get up every day and keep trying, even when life is tough. Hope makes it possible to navigate complexity; handle stress, fear, and frustration; and understand hectic organizations and lives. That's in part because hope, like purpose, positively affects our brain chemistry. Research has shown that when we feel optimistic, our nervous system shifts from fight-or-flight to calm and poised to act. For example, one study demonstrated that when individuals are coached in a way that sparks positive feelings and an inspiring vision of the future, areas of the brain associated with the parasympathetic nervous system are activated: Breathing slows, blood pressure drops, and the immune system functions better. We think more rationally and are better able to manage our emotions. We feel energized and ready to plan for the future.

That's how Sharon moved from awareness of why she was so focused on winning to creating a career

BREAKING FREE FROM HAPPINESS TRAPS

Three common traps—ambition, "shoulds," and overwork—keep people from being happy and fulfilled in their careers. Courageously looking at the ones you've fallen into is the beginning of taking control. Start by asking yourself these questions:

1. Which happiness traps keep me in my comfort zone or make me feel safe?
2. Which traps keep me from pursuing my dreams for a better job, a great career, or real fulfillment in the job I have now?
3. Which traps do I keep others in?

Next choose the happiness trap that most affects you.

1. How does it help or hurt you?
2. How does it affect your relationships? Other people may benefit (or think they do) when we are trapped, or they may be hurt. Who in your life benefits from the trap you're in? Who is harmed?
3. Imagine a life without this happiness trap. What would it feel like? What would you do? How would others benefit if you were free from it? To bring this to life, write three paragraphs as if you were already in the future, starting with "It is now three years since I broke free. I feel… I am now… The people in my life are…"

that she was authentically excited about. Through conversations with her husband (who had cautioned her for years about her unregulated ambition), she was able to craft a vision of what she wanted from her work—one that relied not on getting the next promotion or winning some endless game but on the kind of life she wanted to lead.

Employers often use vision statements to instill optimism and positivity in their employees, but unfortunately even the most well-crafted ones are rarely compelling enough to keep people hopeful over the long term. To be happy at work, we must feel that our responsibilities and opportunities fit a *personal* vision—one that speaks to our values, desires, and beliefs—and we must imagine pathways that lead to it. Hope is really about planning—it encourages us to chart a course even in the face of seemingly dire prospects; it encourages us to take concrete, practical actions that are tied to how we want our lives and careers to unfold.

I've met many people in my work who shy away from big dreams, fearing that they'll only be disappointed. But I don't believe there's any such thing as false hope. Hope is not magical thinking or fantasy; it's a powerful, positive emotional experience that leads to courage, thoughtful plans, and concrete actions.

Friendship. If you work with people you like and respect, and if they like and respect you in return, you probably enjoy going to work. But if you're in a job where you feel constantly on guard, disdained, or excluded, you're probably on your way to deep unhappiness—or there already. You may tell yourself that the situation is tolerable or that you don't need friends at work. That's not true.

In fact, good relationships are the backbone of successful organizations. People who care for one another give generously of time, talent, and resources. Gallup found that close work relationships boost employee satisfaction by 50% and that people with a best friend at work are seven times as likely as others to engage fully in their work. Mutual respect motivates us to resolve conflicts so that everyone wins. And when we believe that we will be accepted for who we are, that we have important roles to play, and that we're part of a team, we are more committed to collective goals.

Warm, positive relationships are important at work for very human reasons. Since the beginning of time, people have organized into tribes that labor and play together. Today organizations are our tribes. We want to work in a group or a company that makes us proud and inspires us to give our best efforts.

We also want people to care about us and value us as human beings. And we need to do the same for others. We thrive physically and psychologically when we feel compassion for others and see that they are concerned for our well-being in return. In fact, the Harvard Grant Study, among others, has found that love—yes, love—is the single most important determinant of happiness in life. What's more, people who experience love—including the love involved in friendships—are more successful, even financially. (The study notes that during peak earning years, participants who scored highest on "warm relationships" made an average of $141,000 more a year.)

But love at work? Most people shy away from the notion, leery of romance in the workplace (although we know it occurs often). What we need at work, however, is love founded on caring, concern, and camaraderie. Such relationships are full of trust and generosity, a source of delight, and make work fun.

TOO MANY PEOPLE believe that if they're successful, they'll be happy. That's backward. The author and psychologist Shawn Achor says it straightforwardly: "Happiness comes before success." That's because the positive emotions aroused by being engaged, fulfilled, and valued at work have a host of benefits: Our brains function better; we are more creative and adaptable; we have more energy, make smarter decisions, and better manage complexity. It's simple: Happy people perform better than their unhappy peers.

It's time to claim our right to happiness at work. To start, let's replace outdated beliefs with a new understanding of what we can expect from work—and from one another. Let's break free of traps that keep us from happiness. And let's begin the journey to fulfillment by focusing on discovering and living our purpose at work, reaching for a compelling vision of the future, and turning colleagues into real friends. These things will help us create workplaces that honor our humanity and foster common decency and sustainable success, workplaces in which ideas, needs, and desires matter—as does happiness.

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FURTHER READING

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The Emotional Life of Your Brain: How Its Unique Patterns Affect the Way You Think, Feel and Live—and How You Can Change Them
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Barbara L. Fredrickson
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Primal Leadership: Unleashing the Power of Emotional Intelligence
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Harvard Business Review Press, 2013

THE SURPRISING POWER OF ONLINE EXPERIMENTS

ANNIE SPRATT/UNSPLASH.COM

GETTING THE MOST OUT OF A/B AND OTHER CONTROLLED TESTS

by Ron Kohavi and Stefan Thomke

IN BRIEF

THE NEED
When building websites and applications, too many companies make decisions—on everything from new product features, to look and feel, to marketing campaigns—using subjective opinions rather than hard data.

THE SOLUTION
Companies should conduct online controlled experiments to evaluate their ideas. Potential improvements should be rigorously tested, because large investments can fail to deliver, and some tiny changes can be surprisingly detrimental while others have big payoffs.

IMPLEMENTATION
Leaders should understand how to properly design and execute A/B tests and other controlled experiments, ensure their integrity, interpret their results, and avoid pitfalls.

IN 2012 A Microsoft employee working on Bing had an idea about changing the way the search engine displayed ad headlines. Developing it wouldn't require much effort—just a few days of an engineer's time—but it was one of hundreds of ideas proposed, and the program managers deemed it a low priority. So it languished for more than six months, until an engineer, who saw that the cost of writing the code for it would be small, launched a simple online controlled experiment—an A/B test—to assess its impact. Within hours the new headline variation was producing abnormally high revenue, triggering a "too good to be true" alert. Usually, such alerts signal a bug, but not in this case. An analysis showed that the change had increased revenue by an astonishing 12%—which on an annual basis would come to more than $100 million in the United States alone—without hurting key user-experience metrics. It was the best revenue-generating idea in Bing's history, but until the test its value was underappreciated.

Humbling! This example illustrates how difficult it can be to assess the potential of new ideas. Just as important, it demonstrates the benefit of having a capability for running many tests cheaply and concurrently—something more businesses are starting to recognize.

Today, Microsoft and several other leading companies—including Amazon, Booking.com, Facebook, and Google—each conduct more than 10,000 online controlled experiments annually, with many tests engaging millions of users. Start-ups and companies without digital roots, such as Walmart, Hertz, and Singapore Airlines, also run them regularly, though on a smaller scale. These organizations have discovered that an "experiment with everything" approach has surprisingly large payoffs. It has helped Bing, for instance, identify dozens of revenue-related changes to make each month—improvements that have collectively increased revenue per search by 10% to 25% each year. These enhancements, along with hundreds of other changes per month that increase user satisfaction, are the major reason that Bing is profitable and that its share of U.S. searches conducted on personal computers has risen to 23%, up from 8% in 2009, the year it was launched.

At a time when the web is vital to almost all businesses, rigorous online experiments should be standard operating procedure. If a company develops the software infrastructure and organizational skills to conduct them, it will be able to assess not only ideas for websites but also potential business models, strategies, products, services, and marketing campaigns—all relatively inexpensively. Controlled experiments can transform decision making into a scientific, evidence-driven process—rather than an intuitive reaction. Without them, many breakthroughs might never happen, and many bad ideas would be implemented, only to fail, wasting resources.

Yet we have found that too many organizations, including some major digital enterprises, are haphazard in their experimentation approach, don't know how to run rigorous scientific tests, or conduct way too few of them.

Together we've spent more than 35 years studying and practicing experiments and advising companies in a wide range of industries about them. In these pages we'll share the lessons we've gleaned about how to design and execute them, ensure their integrity, interpret their results, and address the challenges they're likely to pose. Though we'll focus on the simplest kind of controlled experiment, the A/B test, our findings and suggestions apply to more-complex experimental designs as well.

A

APPRECIATE THE VALUE OF A/B TESTS

In an A/B test the experimenter sets up two experiences: "A," the control, is usually the current system and considered the "champion," and "B," the treatment, is a modification that attempts to improve something—the "challenger." Users are randomly assigned to the experiences, and key metrics are computed and compared. (Univariable A/B/C tests and A/B/C/D tests and multivariable tests, in contrast, assess more than one treatment or modifications of different variables at the same time.) Online, the modification could be a new feature, a change to the user interface (such as a new layout), a back-end change (such as an improvement to an algorithm that, say, recommends books at Amazon), or a different business model (such as an offer of free shipping). Whatever aspect of operations companies care most about—be it sales, repeat usage, click-through rates, or time users spend on a site—they can use online A/B tests to learn how to optimize it.

Any company that has at least a few thousand daily active users can conduct these tests. The ability to access large customer samples, to automatically collect huge amounts of data about user interactions on websites and apps, and to run concurrent experiments gives companies an unprecedented opportunity to evaluate many ideas quickly, with great precision, and at a negligible cost per incremental experiment. That allows organizations to iterate rapidly, fail fast, and pivot.

Recognizing these virtues, some leading tech companies have dedicated entire groups to building, managing, and improving an experimentation infrastructure that can be employed by many product teams. Such a capability can be an important competitive advantage—provided you know how to use it. Here's what managers need to understand:

Tiny changes can have a big impact. People commonly assume that the greater an investment they make, the larger an impact they'll see. But things rarely work that way online, where success is more about getting many small changes right. Though the business world glorifies big, disruptive ideas, in reality most progress is achieved by implementing hundreds or thousands of minor improvements.

MOVING CREDIT CARD OFFERS FROM AMAZON'S HOME PAGE TO THE SHOPPING CART PAGE BOOSTED PROFITS BY TENS OF MILLIONS OF DOLLARS.

Consider the following example, again from Microsoft. (While most of the examples in this article come from Microsoft, where Ron heads experimentation, they illustrate lessons drawn from many companies.) In 2008 an employee in the United Kingdom made a seemingly minor suggestion: Have a new tab (or a new window in older browsers) automatically open whenever a user clicks on the Hotmail link on the MSN home page, instead of opening Hotmail in the same tab. A test was run with about 900,000 UK users, and the results were highly encouraging: The engagement of users who opened Hotmail increased by an impressive 8.9%, as measured by the number of clicks they made on the MSN home page. (Most changes to engagement have an effect smaller than 1%.) However, the idea was controversial because few sites at the time were opening links in new tabs, so the change was released only in the UK.

In June 2010 the experiment was replicated with 2.7 million users in the United States, producing similar results, so the change was rolled out worldwide. Then, to see what effect the idea might have elsewhere, Microsoft explored the possibility of having people who initiated a search on MSN open the results in a new tab. In an experiment with more than 12 million users in the United States, clicks per user increased by 5%. Opening links in new tabs is one of the best ways to increase user engagement that Microsoft has ever introduced, and all it required was changing a few lines of code. Today many websites, including Facebook.com and Twitter.com, use this technique.

Microsoft's experience is hardly unique. Amazon's experiments, for instance, revealed that moving credit card offers from its home page to the shopping cart page boosted profits by tens of millions of dollars annually. Clearly, small investments can yield big returns. Large investments, however, may have little or no payoff. Integrating Bing with social media—so that content from Facebook and Twitter opened on a third pane on the search results page—cost Microsoft more than $25 million to develop and produced negligible increases in engagement and revenue.

Experiments can guide investment decisions. Online tests can help managers figure out how much investment in a potential improvement is optimal. This was a decision Microsoft faced when it was looking at reducing the time it took Bing to display search results. Of course, faster is better, but could the value of an improvement be quantified? Should there be three, 10, or perhaps 50 people working on that performance enhancement? To answer those questions, the company conducted a series of A/B tests in which artificial delays were added to study the effects of minute differences in loading speed. The data showed that every 100-millisecond difference in performance had a 0.6% impact on revenue. With Bing's yearly revenue surpassing $3 billion, a 100-millisecond speedup is worth $18 million in annual incremental revenue—enough to fund a sizable team.

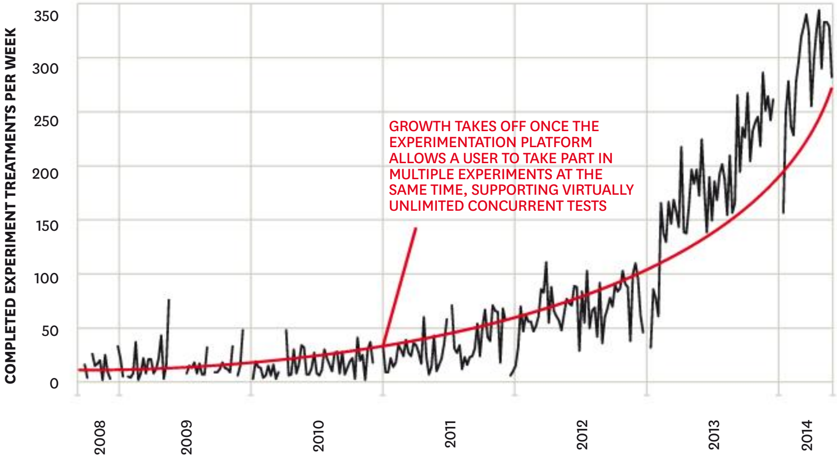
The test results also helped Bing make important trade-offs, specifically about features that might improve the relevance of search results but slow the software's response time. Bing wanted to avoid a situation in which many small features cumulatively led to a significant degradation in performance. So the release of individual features that slowed the response by more than a few milliseconds was delayed until the team improved either their performance or the performance of another component.

B

BUILD A LARGE-SCALE CAPABILITY

More than a century ago, the department store owner John Wanamaker reportedly coined the marketing adage "Half the money I spend on advertising is wasted; the trouble is that I don't know which half." We've found something similar to be true of new ideas: The vast majority of them fail in experiments, and even experts often misjudge which ones will pay off. At Google and Bing, only about 10% to 20% of experiments generate positive results. At Microsoft as a whole,

THE GROWTH OF EXPERIMENTATION AT BING



one-third prove effective, one-third have neutral results, and one-third have negative results. All this goes to show that companies need to kiss a lot of frogs (that is, perform a massive number of experiments) to find a prince.

It's key to experiment with everything to make sure that changes neither are degrading nor have unexpected effects. At Bing about 80% of proposed changes are first run as controlled experiments. (Some low-risk bug fixes and machine-level changes like operating system upgrades are excluded.)

Scientifically testing nearly every proposed idea requires an infrastructure: instrumentation (to record such things as clicks, mouse hovers, and event times), data pipelines, and data scientists. Several third-party tools and services make it easy to try experiments, but if you want to scale things up, you must tightly integrate the capability into your processes. That will drive down the cost of each experiment and increase its reliability. On the other hand, a lack of infrastructure will keep the marginal costs of testing high and could make senior managers reluctant to call for more experimentation.

Microsoft provides a good example of a substantial testing infrastructure—though a smaller enterprise or one whose business is not as dependent on the experimentation could make do with less, of course. Microsoft's Analysis & Experimentation team consists of more than 80 people who on any given day help run hundreds of online controlled experiments on various products, including Bing, Cortana, Exchange, MSN, Office, Skype, Windows, and Xbox. Each experiment exposes hundreds of thousands—and sometimes even tens of millions—of users to a new feature or change. The team runs rigorous statistical analyses on all these tests, automatically generating scorecards that check hundreds to thousands of metrics and flag significant changes.

THE BEST DATA SCIENTISTS FOLLOW TWYMAN'S LAW: ANY FIGURE THAT LOOKS INTERESTING OR DIFFERENT IS USUALLY WRONG.

A company's experimentation personnel can be organized in three ways:

Centralized model. In this approach a team of data scientists serve the entire company. The advantage is that they can focus on long-term projects, such as building better experimentation tools and developing more-advanced statistical algorithms. One major drawback is that the business units using the group may have different priorities, which could lead to conflicts over the allocation of resources and costs. Another con is that data scientists may feel like outsiders when dealing with the businesses and thus be less attuned to the units' goals and domain knowledge, which could make it harder for them to connect the dots and share relevant insights. Moreover, the data scientists may lack the clout to persuade senior management to invest in building the necessary tools or to get corporate and business unit managers to trust the experiments' results.

Decentralized model. Another approach is distributing data scientists throughout the different business units. The benefit of this model is that the data scientists can become experts in each business domain. The main disadvantage is the lack of a clear career path for these professionals, who also may not receive peer feedback and mentoring that help them develop. And experiments in individual units may not have the critical mass to justify building the required tools.

Center-of-excellence model. A third option is to have some data scientists in a centralized function and others within the different business units. (Microsoft uses this approach.) A center of excellence focuses mostly on the design, execution, and analysis of controlled experiments. It significantly lowers the time and resources those tasks require by building a companywide experimentation platform and related tools. It can also spread best testing practices throughout the organization by hosting classes, labs, and conferences. The main disadvantages are a lack of clarity about what the center of excellence owns and what the product teams own, who should pay for hiring more data scientists when various units increase their experiments, and who is responsible for investments in alerts and checks that indicate results aren't trustworthy.

There is no right or wrong model. Small companies typically start with the centralized model or use a third-party tool and then, after they've grown, switch to one of the other models. In companies with multiple businesses, managers who consider testing a priority may not want to wait until corporate leaders develop a coordinated organizational approach; in those cases, a decentralized model might make sense, at least in the beginning. And if online experimentation is a corporate priority, a company may want to build expertise and develop standards in a central unit before rolling them out in the business units.

A

ADDRESS THE DEFINITION OF SUCCESS

Every business group must define a suitable (usually composite) evaluation metric for experiments that aligns with its strategic goals. That might sound simple, but determining which short-term metrics are the best predictors of long-term outcomes is difficult. Many companies get it wrong. Getting it right—coming up with an *overall evaluation criterion* (OEC)—takes thoughtful consideration and often extensive internal debate. It requires close cooperation between senior executives who understand the strategy and data analysts who understand metrics and trade-offs. And it's not a onetime exercise: We recommend that the OEC be adjusted annually.

Arriving at an OEC isn't straightforward, as Bing's experience shows. Its key long-term goals are increasing its share of search-engine queries and its ad revenue. Interestingly, decreasing the relevance of search results will cause users to issue more queries (thus increasing query share) and click more on ads (thus increasing revenue). Obviously, such gains would only be short-lived, because people would eventually switch to other search engines. So which short-term metrics do predict long-term improvements to query share and revenue? In their discussion of the OEC, Bing's executives and data analysts decided that they wanted to *minimize* the number of user queries for each task or session and *maximize* the number of tasks or sessions that users conducted.

It's also important to break down the components of an OEC and track them, since they typically provide insights into why an idea was successful. For example, if number of clicks is integral to the OEC, it's critical to measure which parts of a page were clicked on. Looking at different metrics is crucial because it helps teams discover whether an experiment has an unanticipated impact on another area. For example, a team making a change to the related search queries shown (a search on, say, "Harry Potter," will show queries about Harry Potter books, Harry Potter movies, the casts of those movies, and so on) may not realize that it's altering the distribution of queries (by increasing searches for the related queries), which could affect revenue positively or negatively.

Over time the process of building and adjusting the OEC and understanding causes and effects becomes easier. By running experiments, debugging the results (which we will discuss in a little bit), and interpreting them, companies will not only gain valuable experience with what metrics work best for certain types of tests but also develop new metrics. Over the years, Bing has created more than 6,000 metrics experimenters can use, which are grouped into templates by the area the tests involve (web search, image search, video search, changes to ads, and so on).

B

BEWARE OF LOW-QUALITY DATA

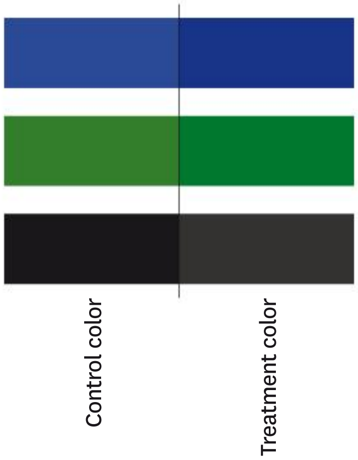
It doesn't matter how good your evaluation criteria are if people don't trust experiments' results. Getting numbers is easy; getting numbers you can trust is hard! You need to allocate time and resources to validating the experimentation system and setting up automated checks and safeguards. One method is to run rigorous A/A tests—that is, test something against itself to ensure that about 95% of the time the system correctly identifies no statistically significant difference. This simple approach has helped Microsoft identify hundreds of invalid experiments and improper applications of formulas (such as using a formula that assumes all measurements are independent when they are not).

We've learned that the best data scientists are skeptics and follow Twyman's law: Any figure that looks interesting or different is usually wrong. Surprising results should be replicated—both to make sure they're valid and to quell people's doubts. In 2013, for example, Bing ran a set of experiments with the colors of various text that appeared on its search results page, including titles, links, and captions. Though the color changes were subtle (see the figure at left), the results were unexpectedly positive: They showed that users who saw slightly darker blues and greens in titles and a slightly lighter black in captions were successful in their searches a larger percentage of the time and that those who found what they wanted did so in significantly less time.

Since the color differences are barely perceptible, the results were understandably viewed with skepticism by multiple disciplines, including the design experts. (For years, Microsoft, like many other companies, had relied on expert designers—rather than the behavior of actual users—to define corporate style guides and colors.) So the experiment was rerun with a much larger sample of 32 million users, and the results were similar. Analysis indicated that when rolled out to all users, the color changes would increase revenue by more than $10 million annually.

SMALL CHANGES WITH A HUGE IMPACT

Bing's experiments showed that slightly darker blues and greens in titles and a slightly lighter black in captions improved the users' experience. When rolled out to all users, the color changes boosted revenue by more than $10 million annually.



If you want results to be trustworthy, you must ensure that high-quality data is used. Outliers may need to be excluded, collection errors identified, and so on. In the online world this issue is especially important, for several reasons. Take internet bots. At Bing more than 50% of requests come from bots. That data can skew results or add "noise," which makes it harder to detect statistical significance. Another problem is the prevalence of outlier data points. Amazon, for instance, discovered that certain individual users made massive book orders that could skew an entire A/B test; it turned out they were library accounts.

Managers should also beware when some segments experience much larger or smaller effects than others do (a phenomenon statisticians call "heterogeneous treatment effects"). In certain cases a single good or bad segment can skew the average enough to invalidate the overall results. This happened in one Microsoft experiment in which one segment, Internet Explorer 7 users, couldn't click on the results of Bing searches because of a JavaScript bug, and the overall results, which were otherwise positive, turned negative. An experimentation platform should detect such unusual segments; if it doesn't, experimenters looking at an average effect may dismiss a good idea as a bad one.

Results may also be biased if companies reuse control and treatment populations from one experiment to another. That practice leads to "carryover effects," in which people's experience in an experiment alters their future behavior. To avoid this phenomenon, companies should "shuffle" users between experiments.

Another common check Microsoft's experimentation platform performs is validating that the percentages of users in the control and treatment groups in the actual experiment match the experimental design. When these differ, there is a "sample ratio mismatch," which often voids the results. For example, a ratio of 50.2/49.8 (821,588 versus 815,482 users) diverges enough from an expected 50/50 ratio that the probability that it happened by chance is less than one in 500,000. Such mismatches occur regularly (usually weekly), and teams need to be diligent in understanding why and resolving them.

A

AVOID ASSUMPTIONS ABOUT CAUSALITY

Because of the hype over big data, some executives mistakenly believe that causality isn't important. In their minds all they need to do is establish correlation, and causality can be inferred. Wrong!

The following two examples illustrate why—and also highlight the shortcomings of experiments that lack control groups. The first concerns two teams that conducted separate observational studies of two advanced features for Microsoft Office. Each concluded that the new feature it was assessing reduced attrition. In fact, almost any advanced feature will show such a correlation, because people who will try an advanced feature tend to be heavy users, and heavy users tend to have lower attrition. So while a new advanced feature might be correlated with lower attrition, it doesn't necessarily cause it. Office users who get error messages also have lower attrition, because they too tend to be heavy users. But does that mean that showing users more error messages will reduce attrition? Hardly.

The second example concerns a study Yahoo did to assess whether display ads for a brand, shown on Yahoo sites, could increase searches for the brand name or related keywords. The observational part

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of the study estimated that the ads increased the number of searches by 871% to 1,198%. But when Yahoo ran a controlled experiment, the increase was only 5.4%. If not for the control, the company might have concluded that the ads had a huge impact and wouldn't have realized that the increase in searches was due to other variables that changed during the observation period.

Clearly, observational studies cannot establish causality. This is well known in medicine, which is why the U.S. Food and Drug Administration mandates that companies conduct randomized clinical trials to prove that their drugs are safe and effective.

SOME EXECUTIVES NOW MISTAKENLY BELIEVE THAT ALL THEY NEED TO DO IS ESTABLISH CORRELATION, AND CAUSALITY CAN BE INFERRED. WRONG!

Including too many variables in tests also makes it hard to learn about causality. With such tests it's difficult to disentangle results and interpret them. Ideally, an experiment should be simple enough that cause-and-effect relationships can be easily understood. Another downside of complex designs is that they make experiments much more vulnerable to bugs. If a new feature has a 10% chance of triggering an egregious problem that requires aborting its test, then the probability that a change that involves seven new features will have a fatal bug is more than 50%.

What if you can determine that one thing causes another, but you don't know why? Should you try to understand the causal mechanism? The short answer is yes.

Between 1500 and 1800, about 2 million sailors died of scurvy. Today we know that scurvy is caused by a lack of vitamin C in the diet, which sailors experienced because they didn't have adequate supplies of fruit on long voyages. In 1747, Dr. James Lind, a surgeon in the Royal Navy, decided to do an experiment to test six possible cures. On one voyage he gave some sailors oranges and lemons, and others alternative remedies like vinegar. The experiment showed that citrus fruits could prevent scurvy, though no one knew why. Lind mistakenly believed that the acidity of the fruit was the cure and tried to create a less-perishable remedy by heating the citrus juice into a concentrate, which destroyed the vitamin C. It wasn't until 50 years later, when unheated lemon juice was added to sailors' daily rations, that the Royal Navy finally eliminated scurvy among its crews. Presumably, the cure could have come much earlier and saved many lives if Lind had run a controlled experiment with heated and unheated lemon juice.

That said, we should point out that you don't always have to know the "why" or the "how" to benefit from knowledge of the "what." This is particularly true when it comes to the behavior of users, whose motivations can be difficult to determine. At Bing some of the biggest breakthroughs were made without an underlying theory. For example, even though Bing was able to improve the user experience with those subtle changes in the colors of the type, there are no well-established theories about color that could help it understand why. Here the evidence took the place of theory.

THE ONLINE WORLD is often viewed as turbulent and full of peril, but controlled experiments can help us navigate it. They can point us in the right direction when answers aren't obvious or people have conflicting opinions or are uncertain about the value of an idea.

Several years ago, Bing was debating whether to make ads larger so that advertisers could include links to specific landing pages in them. (For example, a loan company might provide links like "compare rates" and "about the company" instead of just one to a home page.) A downside was that larger ads obviously would take up more screen real estate, which is known to increase user dissatisfaction and churn. The people considering the idea were split. So the Bing team experimented with increasing the ads' size while keeping the overall screen space allotted for ads constant, which meant showing fewer of them. The upshot was that showing fewer but larger ads led to a big improvement: Revenue increased by more than $50 million annually without hurting the key aspects of the user experience.

If you really want to understand the value of an experiment, look at the difference between its expected outcome and its actual result. If you thought something was going to happen and it happened, then you haven't learned much. If you thought something was going to happen and it didn't, then you've learned something important. And if you thought something minor was going to happen, and the results are a major surprise and lead to a breakthrough, you've learned something highly valuable.

By combining the power of software with the scientific rigor of controlled experiments, your company can create a learning lab. The returns you reap—in cost savings, new revenue, and improved user experience—can be huge. If you want to gain a competitive advantage, your firm should build an experimentation capability and master the science of conducting online tests.

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THOMAS M. SCHEER/EYEEM/GETTY IMAGES

MANAGING OUR HUB ECONOMY

STRATEGY, ETHICS, AND NETWORK COMPETITION IN THE AGE OF DIGITAL SUPERPOWERS

BY MARCO IANSITI AND KARIM R. LAKHANI

IN BRIEF

THE SITUATION
A few digital superpowers, or hub firms, are capturing a disproportionate and growing share of the value being created in the global economy.

THE CHALLENGE
This trend threatens to exacerbate already dangerous levels of income inequality, undermine the economy, and destabilize society.

THE ANSWER
While there are ways for companies that depend on hubs to defend their positions, the hubs themselves will have to do more to share economic value and sustain stakeholders.

The global economy is coalescing around a few digital superpowers. We see unmistakable evidence that a winner-take-all world is emerging in which a small number of "hub firms"—including Alibaba, Alphabet/Google, Amazon, Apple, Baidu, Facebook, Microsoft, and Tencent—occupy central positions. While creating real value for users, these companies are also capturing a disproportionate and expanding share of the value, and that's shaping our collective economic future. The very same technologies that promised to democratize business are now threatening to make it more monopolistic.

Beyond dominating individual markets, hub firms create and control essential connections in the networks that pervade our economy. Google's Android and related technologies form "competitive bottlenecks"; that is, they own access to billions of mobile consumers that other product and service providers want to reach. Google can not only exact a toll on transactions but also influence the flow of information and the data collected. Amazon's and Alibaba's marketplaces also connect vast numbers of users with large numbers of retailers and manufacturers. Tencent's WeChat messaging platform aggregates a billion global users and provides a critical source of consumer access for businesses offering online banking, entertainment, transportation, and other services. The more users who join these networks, the more attractive (and even necessary) it becomes for enterprises to offer their products and services through them. By driving increasing returns to scale and controlling crucial competitive bottlenecks, these digital superpowers can become even mightier, extract disproportionate value, and tip the global competitive balance.

Hub firms don't compete in a traditional fashion—vying with existing products or services, perhaps with improved features or lower cost. Rather, they take the network-based assets that have already reached scale in one setting and then use them to enter another industry and "re-architect" its competitive structure—transforming it from product-driven to network-driven. They plug adjacent industries into the same competitive bottlenecks they already control.

For example, the Alibaba spin-off Ant Financial does not simply offer better payment services, a better credit card, or an improved investment management service; it builds on data from Alibaba's already vast user base to commoditize traditional financial services and reorganize a good chunk of the Chinese financial sector around the Ant Financial platform. The three-year-old service already has over half a billion users and plans to expand well beyond China. Similarly, Google's automotive strategy does not simply entail creating an improved car; it leverages technologies and data advantages (many already at scale from billions of mobile consumers and millions of advertisers) to change the structure of the auto industry itself. (Disclosure: Both of us work or have worked with some of the firms mentioned in this article.)

If current trends continue, the hub economy will spread across more industries, further concentrating data, value, and power in the hands of a small number of firms employing a tiny fraction of the workforce. Disparity in firm valuation and individual wealth already causes widespread resentment. Over time, we can expect consumers, regulators, and even social movements to take an increasingly hostile stand against this concentration of value and economic connectivity. In a painfully ironic turn, after creating unprecedented opportunity across the global economy, digitization—and the trends it has given rise to—could exacerbate already dangerous levels of income inequality, undermine the economy, and even lead to social instability.

Can these trends be reversed? We believe not. The "hub economy," as we will argue, is here to stay. But most companies will not become hubs, and they will need to respond astutely to the growing concentration of hub power. Digitizing operating capabilities will not be enough. Digital messaging platforms, for example, have already dealt a blow to telecom service providers; investment advisors still face threats from online financial-services companies. To remain competitive, companies will need to use their assets and capabilities differently, transform their core businesses, develop new revenue opportunities, and identify areas that can be defended from encroaching hub firms and others rushing in from previously disconnected economic sectors. Some companies have started on this path—Comcast, with its new Xfinity platform, is a notable example—but the majority, especially those in traditional sectors, still need to master the implications of network competition.

Most importantly, the very same hub firms that are transforming our economy must be part of the solution—and their leaders must step up. As Mark Zuckerberg articulated in his Harvard commencement address in May 2017, "we have a level of wealth inequality that hurts everyone." Business as usual is not a good option. Witness the public concern about the roles that Facebook and Twitter played in the recent U.S. presidential election, Google's challenges with global regulatory bodies, criticism of Uber's culture and operating policies, and complaints that Airbnb's rental practices are racially discriminatory and harmful to municipal housing stocks, rents, and pricing.

Thoughtful hub strategies will create effective ways to share economic value, manage collective risks, and sustain the networks and communities we all ultimately depend on. If carmakers, major retailers, or media companies continue to go out of business, massive economic and social dislocation will ensue. And with governments and public opinion increasingly attuned to this problem, hub strategies that foster a more stable economy and united society will drive differentiation among the hub firms themselves.

We are encouraged by Facebook's response to the public outcry over "fake news"—hiring thousands of dedicated employees, shutting down tens of thousands of phony accounts, working with news sources to identify untrue claims, and offering guides for spotting false information. Similarly, Google's YouTube division invests in engineering, artificial intelligence, and human resources and collaborates with NGOs to ensure that videos promoting political extremists and terrorists are taken down promptly.

A real opportunity exists for hub firms to truly lead our economy. This will require hubs to fully consider the long-term societal impact of their decisions and to prioritize their ethical responsibilities to the large economic ecosystems that increasingly revolve around them. At the same time, the rest of us—whether in established enterprises or start-ups, in institutions or communities—will need to serve as checks and balances, helping to shape the hub economy by providing critical, informed input and, as needed, pushback.

THE DIGITAL DOMINO EFFECT

The emergence of economic hubs is rooted in three principles of digitization and network theory. The first is Moore's law, which states that computer processing power will double approximately every two years. The implication is that performance improvements will continue driving the augmentation and replacement of human activity with digital tools. This affects any industry that has integrated computers into its operations—which pretty much covers the entire economy. And advances in machine learning and cloud computing have only reinforced this trend.

The second principle involves connectivity. Most computing devices today have built-in network connectivity that allows them to communicate with one another. Modern digital technology enables the sharing of information at near-zero marginal cost, and digital networks are spreading rapidly. Metcalfe's law states that a network's value increases with the number of nodes (connection points) or users—the dynamic we think of as network effects. This means that digital technology is enabling significant growth in value across our economy, particularly as open-network connections allow for the recombination of business offerings, such as the migration from payment tools to the broader financial services and insurance that we've seen at Ant Financial.

But while value is being created for everyone, value capture is getting more skewed and concentrated. This is because in networks, traffic begets more traffic, and as certain nodes become more heavily used, they attract additional attachments, which further increases their importance. This brings us to the third principle, a lesser-known dynamic originally posited by the physicist Albert-László Barabási: the notion that digital-network formation naturally leads to the emergence of positive feedback loops that create increasingly important, highly connected hubs. As digital networks carry more and more economic transactions, the economic power of network hubs, which connect consumers, firms, and even industries to one another, expands. Once a hub is highly connected (and enjoying increasing returns to scale) in one sector of the economy (such as mobile telecommunications), it will enjoy a crucial advantage as it begins to connect in a new sector (automobiles, for example). This can, in turn, drive more and more markets to tip, and

DIGITAL TECHNOLOGY IS ENABLING GROWTH IN VALUE ACROSS OUR ECONOMY, BUT VALUE CAPTURE IS GETTING MORE SKEWED AND CONCENTRATED.

the many players competing in traditionally separate industries get winnowed down to just a few hub firms that capture a growing share of the overall economic value created—a kind of digital domino effect.

This phenomenon isn't new. But in recent years, the high degree of digital connectivity has dramatically sped up the transformation. Just a few years ago, cell phone manufacturers competed head-to-head for industry leadership in a traditional product market without appreciable network effects. Competition led to innovation and differentiation, with a business model delivering healthy profitability at scale for a dozen or so major competitors. But with the introduction of iOS and Android, the industry began to tip away from its hardware centricity to network structures centered on these multisided platforms. The platforms connected smartphones to a large number of apps and services. Each new app makes the platform it sits on more valuable, creating a powerful network effect that in turn creates a more daunting barrier to entry for new players. Today Motorola, Nokia, BlackBerry, and Palm are out of the mobile phone business, and Google and Apple are extracting the lion's share of the sector's value. The value captured by the large majority of complementors—the app developers and third-party manufacturers—is generally modest at best.

The domino effect is now spreading to other sectors and picking up speed. Music has already tipped to Apple, Google, and Spotify. E-commerce is following a similar path: Alibaba and Amazon are gaining more share and moving into traditional brick-and-mortar strongholds like groceries (witness Amazon's acquisition of Whole Foods). We've already noted the growing power of WeChat in messaging and communications; along with Facebook and others, it's challenging traditional telecom service providers. On-premise computer and software offerings are losing ground to the cloud services provided by Amazon, Microsoft, Google, and Alibaba. In financial services, the big players are Ant, Paytm, Ingenico, and the independent start-up Wealthfront; in home entertainment, Amazon, Apple, Google, and Netflix dominate.

IF CONSUMERS EMBRACE SELF-DRIVING VEHICLES, AN HOUR OF ACCESS TO CAR COMMUTERS COULD BE WORTH HUNDREDS OF BILLIONS OF DOLLARS.

Where are powerful hub firms likely to emerge next? Health care, industrial products, and agriculture are three contenders. But let's examine how the digital domino effect could play out in another prime candidate, the automotive sector, which in the United States alone provides more than seven million jobs and generates close to a trillion dollars in yearly sales.

RE-ARCHITECTING THE AUTOMOTIVE SECTOR

As with many other products and services, cars are now connected to digital networks, essentially becoming rolling information and transaction nodes. This connectivity is reshaping the structure of the automotive industry. When cars were merely products, car sales were the main prize. But a new source of value is emerging: the connection to consumers in transit. Americans spend almost an hour, on average, getting to and from work every day, and commutes keep getting longer. Auto manufacturers, responding to consumer demand, have already given hub firms access to dashboard screens in many cars; drivers can use Apple or Google apps on the car's built-in display instead of on their smartphones. If consumers embrace self-driving vehicles, that one hour of consumer access could be worth hundreds of billions of dollars in the U.S. alone.

Which companies will capitalize on the vast commercial potential of a new hour of free time for the world's car commuters? Hub firms like Alphabet and Apple are first in line. They already have bottleneck assets like maps and advertising networks at scale, and both are ready to create super-relevant ads pinpointed to the car's passengers and location. One logical add-on feature for autonomous vehicles would be a "Drive there" button that appears when an ad pops up (as already happens on Google's Waze app); pressing it would order the car to head to the touted destination.

In a future when people are no longer behind the wheel, cars will become less about the driving experience and more about the apps and services offered by automobiles as they ferry passengers around. Apart from a minority of cars actually driven for fun, differentiation will lessen, and the vehicle itself might well become commoditized. That will threaten manufacturers' core business: The car features that buyers will care most about—software and networks—will be largely outside the automakers' control, and their price premiums will go down.

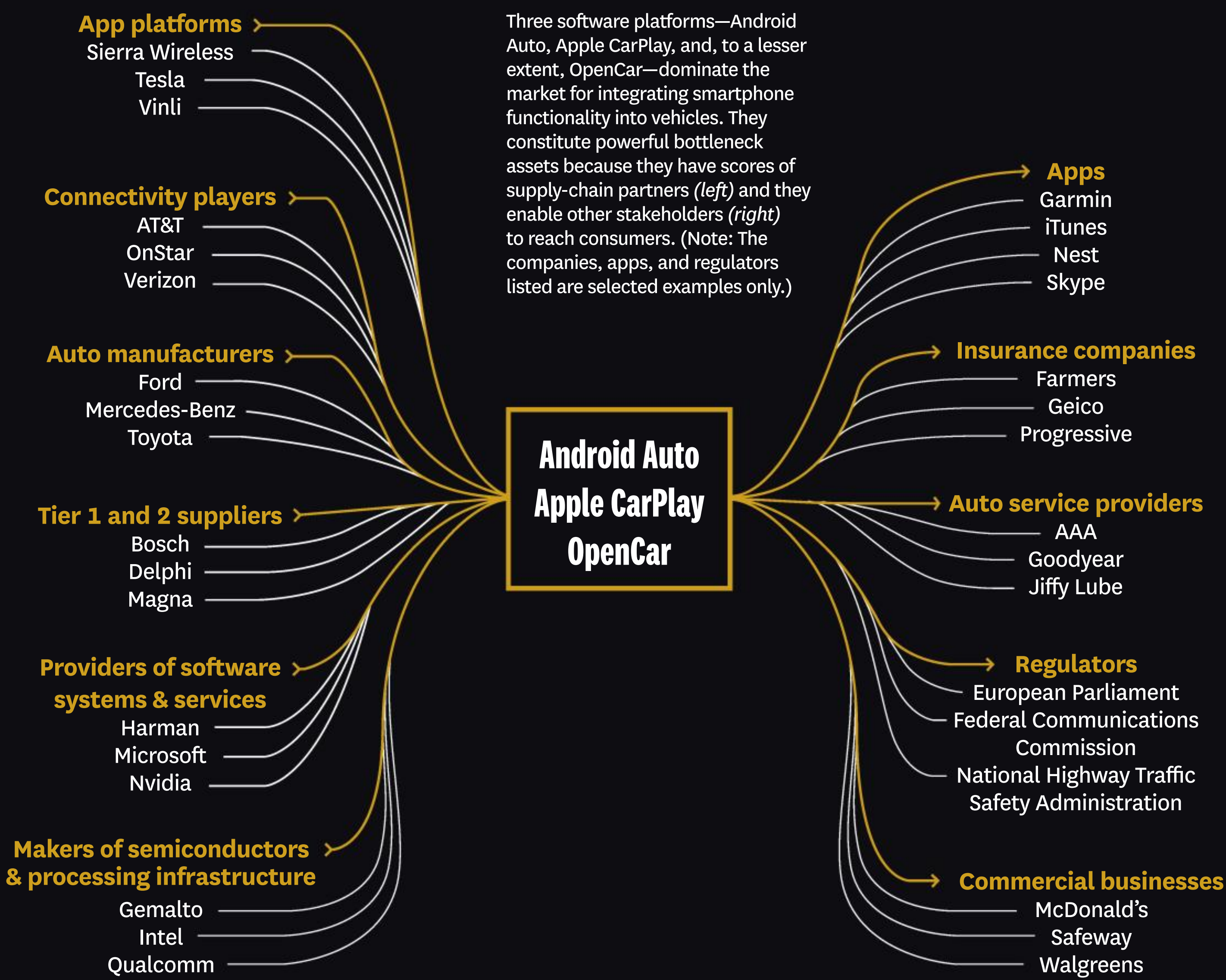
The transformation will also upend a range of connected sectors—including insurance, automotive repairs and maintenance, road construction, law enforcement, and infrastructure—as the digital dominos continue to fall. (See the exhibit "The Connected-Car Ecosystem.")

For existing auto manufacturers, the picture is grim but not hopeless. Some companies are exploring a pay-per-use model for their cars and are acquiring, launching, or partnering with car-as-a-service providers. GM, for one, invested $500 million in the ride-sharing service Lyft, and its luxury-car division is now offering a monthly car subscription service. Daimler launched a car-sharing business called car2go. Several manufacturers have also invested in their own research into driverless vehicles or partnered with external providers.

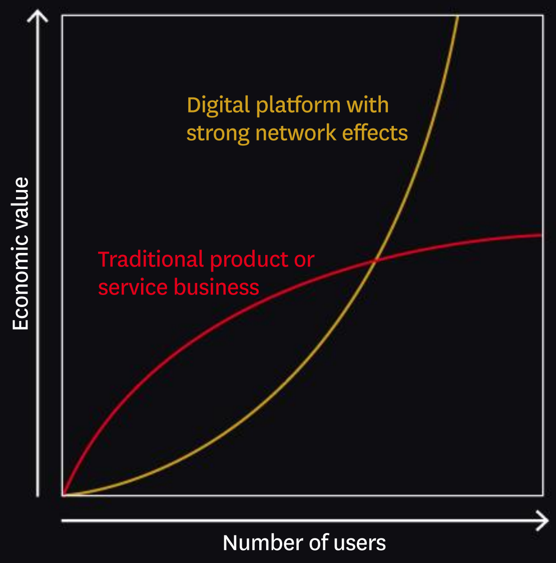
Beyond these business-model experiments, automakers will need to play as the hubs do, by participating in the platform competition that will determine value capture in the sector. At least for the moment, alternatives to Google and Apple are scarce. One example is OpenCar, recently acquired by Inrix, a traditional auto supplier. Unlike Apple CarPlay and Google's Android Auto, which limit automaker-specific customization and require access to proprietary car data, the OpenCar framework is fully controlled by the car manufacturer. To take on the established giants, we believe that OpenCar and Inrix will have to develop an effective advertising or commerce platform or adopt some other indirect monetization strategy—and to do

THE CONNECTED-CAR ECOSYSTEM

Three software platforms—Android Auto, Apple CarPlay, and, to a lesser extent, OpenCar—dominate the market for integrating smartphone functionality into vehicles. They constitute powerful bottleneck assets because they have scores of supply-chain partners *(left)* and they enable other stakeholders *(right)* to reach consumers. (Note: The companies, apps, and regulators listed are selected examples only.)



PROFITING FROM A GROWING CUSTOMER BASE



For traditional product and service businesses, gaining additional customers does not continue adding commensurate value after a certain point. However, many platform businesses (Amazon, Facebook, and the like) become more and more valuable as more people and companies use them, connect with one another, and create network effects.

that, they'll probably need to partner with companies that have those capabilities.

To reach the scale required to be competitive, automotive companies that were once fierce rivals may need to join together. Here Technologies, which provides precision mapping data and location services, is an interesting example. Here has its roots in Navteq, one of the early online mapping companies, which was first bought by Nokia and later acquired by a consortium of Volkswagen, BMW, and Daimler (the multibillion-dollar price tag may have been too high for any single carmaker to stomach). Here provides third-party developers with sophisticated tools and APIs for creating location-based ads and other services. The company represents an attempt by auto manufacturers to assemble a "federated" platform and, in doing so, neutralize the threat of a potential competitive bottleneck controlled by Google and Apple. The consortium could play a significant role in preventing automotive value capture from tipping completely toward existing hub firms.

Of course, successful collaboration depends on a common, strongly felt commitment. So as traditional enterprises position themselves for a fight, they must understand how the competitive dynamics in their industries have shifted.

INCREASING RETURNS TO SCALE ARE HARD TO BEAT

Competitive advantage in many industries is moderated by *decreasing* returns to scale. In traditional product and service businesses, the value creation curve typically flattens out as the number of consumers increases, as we see in the exhibit "Profiting from a Growing Customer Base." A firm gains no particular advantage as its user base continues to increase beyond already efficient levels, which enables multiple competitors to coexist.

Some digital technologies, however, exhibit *increasing* returns to scale. A local advertising platform gets better and better as more and more users attract more and more ads. And as the number of ads increases, so does the ability to target the ads to the users, making individual ads more valuable. An advertising platform is thus similar to software platforms such as Windows, Linux, Android, and iOS, which exhibit increasing returns to scale—their growing value to consumers increases the number of available apps, while the value to app developers rises as the number of consumers rises. The more consumers, the greater the incentive for developers to build apps, and the more apps there are, the more motivated consumers are to use their digital devices.

These considerations are important to the nature of hub competition. The economics of traditional decreasing returns make it possible for several competitors to coexist and provide differentiated value to attract users. That's the dynamic in the auto industry today, with many car manufacturers competing with one another to offer a variety of differentiated products. But the increasing returns in digital assets like ad platforms (or possibly driverless-car technology) will heighten the advantage of the competitor with the largest scale, the largest network of users, or the most data. And this is where the hub firms will most likely leverage their large and growing lead—and cause value to concentrate around them.

In contrast with traditional product and service businesses, network-based markets exhibiting increasing returns to scale will, over time, tip toward a narrow set of players. This implies that if a conventional decreasing-returns business (say, telecom or media) is threatened by a new type of competitor whose business model experiences increasing returns, the conventional player is in for a rough ride. With increasing returns to scale, a digital technology can provide a bottleneck to an entire industrial sector. And left alone, competitive bottlenecks dramatically skew value capture away from traditional firms.

PUSHING BACK

Hub firms often compete against one another. Microsoft has made substantial investments in augmented reality in an effort to create a new hub and counterbalance the power that Google and Apple wield in the mobile space. Facebook acquired Oculus to force a similar structural shift in the emerging field of virtual reality. And a battle is looming in the smart-home arena, as Google, Apple, Microsoft, and Samsung attempt to reduce Amazon's early lead in voice-activated home technology.

But how does the rest of the economy deal with the increasing returns to scale of hub firms? With enough foresight and investment, traditional firms can resist by becoming hubs themselves, as we are seeing especially in the internet of things (IoT) space. GE is the classic example of this approach, with its investment in the Predix platform and the creation of GE Digital. [See the article "How I Remade GE," page 42.] Other companies are following suit in different settings—for example, Verizon and Vodafone with their IoT platforms.

Firms can also shape competition by investing to ensure that there are multiple hubs in each sector—and even influencing which ones win. They can organize to support less-established platforms, thus making a particular hub more viable and an industry sector more competitive in the long term. Deutsche Telekom, for instance, is partnering with Microsoft Azure (rather than Amazon Web Services) for cloud computing in Central Europe.

Most importantly, the value generated by networks will change as firms compete, innovate, and respond to community and regulatory pressure. Multihoming—a practice enabling participants on one hub's ecosystem to easily join another—can significantly mitigate the rise of hub power. For example, drivers and passengers routinely multihome across different ride-sharing platforms, often checking prices on Uber, Lyft, and Fasten to see which is offering the best deal. Retailers are starting to multihome across payment systems, supporting multiple solutions (such as Apple Pay, Google Wallet, and Samsung Pay). If multihoming is common, the market is less likely to tip to a single player, preserving competition and diffusing

COMPANIES SHOULD MAKE THEIR PRODUCTS AND SERVICES AVAILABLE ON MULTIPLE HUBS TO AVOID BEING HELD HOSTAGE BY ONE DOMINANT PLAYER.

value capture. Indeed, companies will need to make their products and services available on multiple hubs and encourage the formation of new hubs to avoid being held hostage by one dominant player. Take the wireless-speaker manufacturer Sonos: It has ensured that its music system seamlessly integrates with as many music services as possible, including Apple Music, Amazon Music Unlimited, Google Play Music, Pandora, Spotify, and Tidal.

Collective action can also restructure economic networks, shape value creation and capture, and ease competitive bottlenecks. In the 1990s the open-source community organized to compete against Microsoft Windows with the Linux operating system. That effort was actively supported by traditional players such as IBM and Hewlett-Packard and reinforced later by Google and Facebook. Today Linux (and Linux-related products) are firmly established in enterprises, consumer devices, and cloud computing. Similarly, the Mozilla open-source community and its Firefox browser broke Microsoft's grip on navigating the internet. Even Apple, notorious for its proprietary approach, relies on open-source software for its core operating systems and web services, and the infamous iPhone jailbreaking craze demonstrated both the extraordinary demand for third-party apps and the burgeoning supply of them.

Open source has grown beyond all expectations to create an increasingly essential legacy of common intellectual property, capabilities, and methodologies. Now collective action is going well beyond code sharing to include coordination on data aggregation, the use of common infrastructure, and the standardization of practices to further equilibrate the power of hubs. Efforts like OpenStreetMap are leading the way in maps, and Mozilla's Common Voice project is crowdsourcing global voice data to open up the speech-recognition bottleneck.

Collective action will be increasingly crucial to sustaining balance in the digital economy. As economic sectors coalesce into networks and as powerful hubs continue to form, other stakeholders will need to work together to ensure that hubs look after the interests of all network members. Cooperation will become more important for the rivals that orbit hubs; indeed, strategic joint action by companies that are not hubs may be the best competitive antidote to the rising power of hub firms.

The public is also raising concerns about privacy, online tracking, cybersecurity, and data aggregation. Solutions being suggested include requirements for social network and data portability similar to the requirements for phone number portability that telecommunications regulators instituted to increase competition among phone service providers.

THE ETHICS OF NETWORK LEADERSHIP

The responsibility for sustaining our (digital) economy rests partly with the same leaders who are poised to control it. By developing such central positions of power and influence, hub firms have become de facto stewards of the long-term health of our economy. Leaders of hub companies need to realize that their organizations are analogous to "keystone" species in biological ecosystems—playing a critical role in maintaining their surroundings. Apple, Alibaba, Alphabet/Google, Amazon, and others that benefit disproportionately from the ecosystems they dominate have rational and ethical reasons to support the economic vitality of not just their direct participants but also the broader industries they serve. In particular, we argue that hub companies need to incorporate value *sharing* into their business models, along with value creation and value capture.

Building and maintaining a healthy ecosystem is in the best interests of hub companies. Amazon and Alibaba claim millions of marketplace sellers, and they profit from every transaction those merchants make. Similarly, Google and Apple earn billions in revenue from the third-party apps that run on their platforms. Both companies already invest heavily in the developer community, providing programming frameworks, software tools, and opportunities and business models that enable developers to grow their businesses. But such efforts will need to be scaled up and refined as hub firms find themselves at the center of—and relying on—much larger and more-complex ecosystems. Preserving the strength and productivity of complementary communities should be a fundamental part of any hub firm's strategy.

Uber provides an interesting example of the repercussions of getting this wrong. Uber's viability depends on its relations with its drivers and riders, who have often criticized the company's practices. Under pressure from those communities—and from competitors that offer drivers the potential to earn more—Uber is making improvements. Still, its challenges suggest that no hub will maintain an advantage over the long term if it neglects the well-being of its ecosystem partners. Microsoft learned a hard lesson when it failed to maintain the health of its PC software ecosystem, losing out to the Linux community in cloud services.

But network ethics are not just about financial considerations; social concerns are equally important. Centralized platforms, such as Kiva for charitable impact investing and Airbnb for accommodation bookings, have been found to be susceptible to racial discrimination. In Airbnb's case, external researchers convincingly demonstrated that African-American guests were especially likely to have their reservation requests rejected. The pressure is now on Airbnb to fight bias both by educating its proprietors and by modifying certain platform features. Additionally, as Airbnb continues to grow, it must work to ensure that its hosts heed municipal regulations, lest they face a potentially devastating regulatory backlash.

Indeed, if hubs do not promote the health and sustainability of the many firms and individuals in their networks, other forces will undoubtedly step in. Governments and regulators will increasingly act to encourage competition, protect consumer welfare, and foster economic stability. Consider the challenges Google faces in Europe, where regulators are concerned about the dominance of both its search advertising business and its Android platform.

THE CENTRALIZING FORCES of digitization are not going to slow down anytime soon. The emergence of powerful hub firms is well under way, and the threats to global economic well-being are unmistakable. All actors in the economy—but particularly the hub firms themselves—should work to sustain the entire ecosystem and observe new principles, for both strategic and ethical reasons. Otherwise, we are all in serious trouble.

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PHOTOGRAPHY BY ANDREW NGUYEN

COMPETING ON SOCIAL PURPOSE

BRANDS THAT WIN BY TYING MISSION TO GROWTH

BY OMAR RODRÍGUEZ VILÁ AND SUNDAR BHARADWAJ

Consumers increasingly expect brands to have not just functional benefits but a social purpose. As a result, companies are taking social stands in very visible ways. Airbnb used a Super Bowl ad to publicly cement its commitment to diversity. Tecate, based in Mexico, is investing heavily in programs to reduce violence against women, and Vicks, a P&G brand in India, supports child-adoption rights for transgender people. Brands increasingly use social purpose to guide marketing communications, inform product innovation, and steer investments toward social cause programs. And that's all well and good when it works. But missteps are common, and they can have real consequences.

Recall Starbucks's Race Together campaign—the chain's earnest effort to get customers talking about race relations in the United States. The program was widely criticized for its perceived lack of authenticity, among other reasons, and was quickly canceled. Or consider SunChips's 2010 launch of a biodegradable bag. The composite material was indeed good for the environment—but the bags were so noisy they drew mockery on social media, forcing the company to pull them from the market.

Countless well-intentioned social-purpose programs have consumed resources and management time only to end up in obscurity. Sometimes they backfire because the brand messages designed to promote them anger or offend customers—or they simply go unnoticed because they fail to resonate. Other times, managers use these initiatives solely to pursue intangible benefits such as brand affection or as a means to communicate the company's corporate social responsibility, without consideration of how they might create business value for the firm.

With the support of Sustainable Brands and the Ray C. Anderson Center for Sustainable Business, we've studied many social-purpose brand programs and have worked with close to a dozen leading brands to design growth-focused social-purpose strategies. On the basis of our research and experience, we've developed an approach we call "competing on social purpose" that ties a company's most ambitious social aspirations to its most pressing growth needs. In this article, we provide a novel framework to help companies find the right social purpose for their brands.

IN BRIEF

THE EXPECTATION

Consumers increasingly expect brands to have a social purpose, so many companies are taking social stands in very visible ways. Think TOMS's one-for-one program, which donates shoes and other goods for every product sold.

THE CHALLENGE

These programs can benefit society and the brand but may fizzle or actually harm the company if they're not carefully managed.

THE STRATEGY

An effective strategy creates value by strengthening a brand's key attributes or building new adjacencies. At the same time, it mitigates the risk of negative associations and threats to stakeholder acceptance.

BUILDING A STRATEGY

Some brands have integrated social purpose into their business models from the start: Think of Patagonia, TOMS, Warby Parker, and Seventh Generation. The societal benefit these "social purpose natives" offer is so deeply entwined with the product or service that it's hard to see the brands' surviving intact without it. Imagine how customers would react if TOMS abruptly ended its one-for-one program, which donates shoes, water, or eye care to the needy for every product it sells. And what would happen to Patagonia's brand if the company abandoned its commitment to eco-friendly manufacturing? Social purpose natives like these must be diligent stewards of their brands.

The challenges are very different for the much larger number of brands for which this article is written—a group we call "social-purpose immigrants." These established brands have grown without a well-defined social-purpose strategy and are now seeking to develop one. Typically, they belong to firms that are good corporate citizens and are committed to progress on environmental and social goals. However, their growth has thus far been based on superior functional performance that is unrelated to a broader social purpose.

To develop a social purpose strategy, managers should begin by identifying a set of social or environmental needs to which the brand can make a meaningful contribution. (For simplicity, we'll use the term "social needs" to refer to both social and environmental concerns.) Few brands are likely to start with a blank slate—most have corporate social responsibility programs under way, some of which could become relevant aspects of the brand's value proposition. Yet focusing on only those initiatives could limit the potential of a purpose-driven brand strategy or divert marketing resources meant to stimulate the brand's growth toward corporate initiatives. To create a more comprehensive set of choices, managers should explore social purpose ideas in three domains: brand heritage, customer tensions, and product externalities.

Brand heritage. Of the many benefits a brand may confer, only a few are likely to have defined the brand from the start and be the core reason for its success. A look into the brand's heritage—the most salient benefits the brand offers customers—can help managers identify the social needs their brands are well positioned to address. For instance, since its launch, in 1957, Dove has been promoted as a beauty bar, not a soap. Enhancing beauty has always been central to its value proposition. Therefore, it makes sense that Dove focuses on social needs tied to perceptions of beauty.

Customer tensions. An unbounded exploration of social issues relevant to your customer base will most likely yield a list that's too broad to be very helpful. To narrow your options, look at the "cultural tensions" that affect your customers and are related to your brand heritage. Such tensions, first characterized by marketing strategist Douglas Holt, refer to the conflict people often feel when their own experience conflicts with society's prevailing ideology. Holt argues that brands can become more relevant by addressing consumers' desire to resolve these tensions. Classic examples include Coca-Cola's "I'd Like to Teach the World to Sing" commercial, which promoted peace and unity at the height of the Vietnam War, and Budweiser's recent

Super Bowl ad celebrating the immigrant story of one of its founders, which aired in the midst of a heated public debate about immigration.

Product externalities. Finally, examine your product's or industry's externalities—the indirect costs borne or benefits gained by a third party as a result of your products' manufacture or use. For instance, the food and beverage industry has been criticized for the contribution of some of its products to the increasing rates of childhood obesity. It has also faced concerns about negative health effects resulting from companies' use of artificial ingredients and other chemicals in their products. Panera Bread's decision to position its offerings as "clean food"—made without "artificial preservatives, sweeteners, flavors, or colors from artificial sources"—is a direct response to a social need created by industry externalities.

Although a company may build a sound social-purpose strategy that focuses on just one domain, ideally this exercise yields opportunities at the intersection of all three. Consider Airbnb's WeAccept social purpose strategy. The company's brand heritage is built on providing an open and inclusive platform, but in recent years concerns about race discrimination have once again risen to the forefront of cultural tension in the United States. Recently, Airbnb has faced allegations of racial discrimination by some of its members—a serious externality produced by its service.

PARE THE LIST

After considering social purpose ideas in the three domains, managers should pare the list to three or four social needs, and propose strategies for each, to be evaluated as final candidates for the brand's social purpose.

To guide the prioritization and selection process, managers should gauge how the social purpose idea both generates business value and minimizes the company's exposure to risk. An effective social-purpose strategy creates value by strengthening a brand's key attributes or building new adjacencies. At the same time, it mitigates the risk of negative associations among consumers and threats to stakeholder acceptance.

Brand attributes. Managers often consider the fit between the social need and the brand as a criterion for evaluating social purpose strategies. However, good fit isn't enough. They should also consider how social purpose can create value by strengthening (or creating) brand attributes relevant to consumer choice in a given industry.

We define brand attributes as characteristics managers instill in a product or service, including features and benefits as well as personality or reputation supported through marketing communications. A restaurant, for example, might use sustainably sourced ingredients (a feature), which can reinforce a perception of great taste (a benefit), and through marketing communications,

OBSTACLES TO COMPETING ON PURPOSE

Three characteristics of purpose-driven growth make it particularly challenging for managers.

It's hard to change course. Once a social purpose is chosen, changing course is difficult and ill-advised, because success depends on the legitimacy of the brand's claim. Shifting or inconsistent claims may raise doubts about the firm's integrity or commitment. Specific programs can and should evolve, of course, and successful brands continually innovate. But the underlying purpose should remain constant. Dove has pursued its Real Beauty cause for more than a decade. Patagonia has advocated for environmental protection since its founding, in 1973. Starbucks has consistently worked to promote social justice. Although an unswerving purpose is critical to success, this constraint can be frustrating to managers in an era characterized by agility and constant experimentation.

It's tough to gauge market potential. Proponents of social purpose initiatives often argue that the programs can help the business grow. And they can—but not without a carefully crafted strategy. Too often, strategies are based on projections of business impacts that are oversimplified or flawed. Even among customer segments that support a brand's social purpose, for example, individual consumers may take purpose into account to varying degrees when making product choices. In addition, the size of the customer segments inspired by a brand's social mission may vary significantly by product category, purchase occasion, and geography. Finally, data on the importance of societal benefits is often drawn from consumer surveys—as opposed to actual customer behavior—which may overstate true purchase intentions. Taken together, these factors can lead to unreliable estimates of market demand and growth.

It's easy to get distracted. Many purpose-driven brand initiatives have been launched with enthusiasm only to vanish without a ripple. One reason is that the appeal of "doing well by doing good" can distract managers from a brand's primary business needs. These nonstrategic programs can take on a life of their own, tempting managers to expand and dilute the focus of their brand purpose and split their attention in ways that don't help growth. Or, concerned about potential controversy, managers may distance the program from the brand's other business activities, giving rise to shell initiatives that have no real presence in the brand's value chain.

promote a reputation for environmental consciousness (the brand personality).

When choosing among possible social-purpose strategies, managers need to understand how each option affects key brand attributes. Consider the case of Vaseline. By 2014, when Kathleen Dunlop became global brand director, the product was at risk of becoming a commodity in the United States. To grow, it needed to find new ways to remind existing customers of its core attributes while educating a younger generation.

Dunlop and her team determined that the answer to this business problem lay in the brand's tagline "the healing power of Vaseline," which captures its core attribute. Asking "Where is our healing power most urgently needed?" the team began the process of developing a social purpose strategy for the brand. Through interviews with medical professionals at the Centers for Disease Control, Doctors Without Borders, and the UN Refugee Agency, the team learned that Vaseline jelly was an indispensable part of emergency first-aid kits. In refugee camps, for instance, minor but common skin conditions such as cracking and blistering could become dangerous and debilitating. Petroleum jelly, and Vaseline in particular, was often a first line of care.

With this insight, the team crystallized a social purpose strategy around skin care for the most vulnerable—people living in poverty or emergency conditions—and in 2015 the Vaseline Healing Project was born. In partnership with the nonprofit Direct Relief, the project aims to reach 5 million people by 2020.

The Healing Project was not a CSR or public relations initiative; it was designed to connect business goals with societal needs. The resulting campaign was tested alongside other traditional marketing programs designed to differentiate the brand. The initiative outperformed all the alternatives and achieved its objectives in its first full year, helping Dunlop build a stronger business case for it and persuade the managers responsible for the brand's P&L to invest marketing resources behind it.

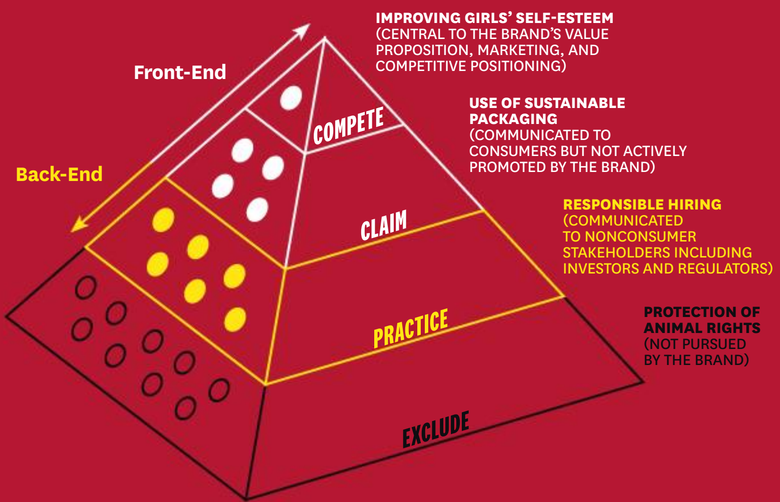
THE SOCIAL BENEFIT PYRAMID

Managers often struggle to reconcile corporate-level sustainability efforts, CSR programs, and social purpose strategies for their brands, causing them to misdirect brand marketing resources toward increasing consumer awareness of corporate-wide programs.

To ensure the proper allocation of resources, brand managers should clarify the roles of existing or potential social initiatives for the brand. First, sort the initiatives into "front-end" investments (those the brand will actively promote to customers), "back-end" investments (those that the company practices but that do not create value for consumers), and activities the brand won't pursue at all. Then, select one social purpose initiative to compete on and several to "claim" in brand marketing. All others should not be an active part of the brand's marketing efforts.

The chart below shows how this categorization would work for the Dove brand.

A CLOSER LOOK: DOVE BRAND



Now in its third year and with more than 2.3 million jars of Vaseline donated, the initiative is continuing to expand.

To assess the relationship between different social-purpose strategies and brand attributes, managers should ask:

- Does the strategy reinforce existing brand attributes?
- What new and valuable brand attributes might it create?
- Would the strategy be difficult for competitors to imitate?

Business adjacencies. One reason a brand purpose strategy can fall short of expectations is that it doesn't adequately address the financial interests of investors and other stakeholders. One way a social purpose strategy can boost business performance is by enabling the brand to compete in adjacent markets.

Consider Brita, which until 2005 primarily sold tap-water filters. Concerned by slowing growth, managers realized that the company could enter the adjacent bottled-water market by positioning filtered water as an environmentally friendly alternative. Thus Brita seized on a social need—waste reduction—to push into a new market. It combined reusable water-bottle and pitcher innovations with its filter technology to expand the brand's market presence. In its marketing, Brita emphasized the water's "great taste and purity" and its economic value over time relative to bottled water. But its central message was the environmental benefit of substituting filtered water for bottled water: 300 plastic bottles kept out of landfills and oceans for each Brita filter used.

Most recently, the brand has evolved its strategy by positioning itself as not just a filter brand but also a water brand, promoting additional social benefits related to health and wellness. This strategy helped Brita secure a strong competitive position: It was relatively straightforward for the brand to enter the bottled water category, but it would be much harder for bottled water rivals to enter the filter business. Three years after Brita entered this adjacent market, its revenues had grown by 47%.

To gauge whether a proposed brand purpose and strategy can support a move into adjacent markets, managers should ask:

- Can the strategy help create a new product or service for current customers?
- Can it help open a new market or channel or attract a new customer segment?
- Can it help reduce costs or increase the profitability of the business?

Consumer associations. It's important to think through how consumers will perceive the social purpose a brand is considering. Will they see the benefits as an asset? A liability? Or irrelevant to their purchase decision? In predicting customer response, brand managers need to understand the range of cognitive associations that different consumer segments may bring to a brand's social claim. Take, for instance, the brand attribute "organic ingredients," which is typically used to support claims of health or environmental benefits. If it appears on the label of a tea product, consumers may associate it with augmented qualities—perhaps improved taste or healthfulness. But how might they react to an organic dry-cleaning service? A growing body of research demonstrates that consumers don't have an equal or easily predictable response to social benefit claims: Labels like "fair trade," "environmentally friendly," and "ethically sourced" can sometimes induce negative associations—such as poorer performance, in the case of the dry cleaner.

Consider the Green Works line of environmentally friendly cleaning products. Launched with high expectations by Clorox in 2008, the brand has failed to generate the anticipated sales and the company's plans to become the dominant player in this premium market have yet to become reality. Before launching Green Works, Clorox's market research revealed that although consumers expressed interest in "green" cleaning products, only a small minority (15%) perceived environmentally friendly ingredients as an important consideration in their purchase decisions. The research also showed that mainstream consumers often associated environmental friendliness with diminished performance. Clorox product managers delayed the product launch twice until they were confident their formulation was as effective as traditional cleaners. In addition, they decided to include the Clorox logo on the label to reinforce the message of cleaning efficacy.

COMPETING ON SOCIAL PURPOSE IS SURE TO ATTRACT CRITICISM—WHICH CAN STALL OR EVEN DERAIL A PROGRAM.

Despite these efforts, Green Works ran into problems. Eco-conscious consumers who might have been attracted to Green Works' environmental credentials were put off by its association with Clorox—an industrial-strength cleaner that they did not perceive as environmentally friendly—while mainstream consumers remained unconvinced that the products were effective enough. In response, the company revamped the packaging to satisfy both groups: The Clorox logo has disappeared, and messages about powerful cleaning are now prominent on the label. Green Works' experience demonstrates the importance of carefully evaluating the associations—both positive and negative—that consumers may bring to each social-benefit claim a brand makes.

To assess the associations consumers may have with different brand-purpose strategies, managers should consider the following questions:

- Is the social need likely to be perceived as personally relevant to target consumers?
- Will consumers be able to easily associate the brand with the social purpose?
- Will the social purpose strategy induce positive (and not negative) associations about the brand or product?

Stakeholder acceptance. Competing on social purpose is sure to attract criticism—virtually all social issues have both advocates and detractors—which can stall or even derail a program. Thus, managers must evaluate whether key stakeholders will accept and support the proposed social-purpose strategy. As with customer associations, some stakeholders may embrace a brand purpose while others reject it. Our research has found three drivers of negative reactions: inconsistency between the brand claim and the company's actions, politicization of the claim, and suspicion about the firm's motives.

Consider again Dove brand's Campaign for Real Beauty. The marketing program challenged traditional standards of beauty and promoted the idea that true beauty has limitless forms. Its success made the brand a leading example of how to effectively integrate a social purpose into an existing brand strategy. But as its popularity grew, the campaign also attracted criticism. Some detractors noted an inconsistency between Dove's position and those of its parent company Unilever, particularly in the marketing of the Axe line of men's grooming products, whose advertising featured the seduction of scantily clad women. That Unilever was simultaneously fighting and reinforcing stereotypical notions of beauty struck its critics as hypocritical. Unilever eventually repositioned Axe and removed sexist stereotypes from its marketing. When competing on social purpose, inconsistencies between your operations and your brand claims will become more salient and should be quickly resolved—or, better, avoided in the first place.

Another obstacle to stakeholder acceptance occurs when companies, unwittingly or not, adopt a controversial social purpose. This was the case with Coca-Cola's Arctic Home program, a partnership launched in 2011 with the World Wildlife Fund to protect polar bears. The social mission fit well with the brand, which had long used the animal in its advertising. However, despite the fact that its leaders never intended to equate a conservation initiative with the politics of climate change, the program catapulted Coke into the middle of a political debate. A significant segment of the population regarded global warming as a serious problem. But climate skeptics saw the Coke campaign as a mass media effort to promote a political agenda. Coke's program was interpreted by some as a position on climate change and became a talking point in a Senate debate. As a result, some retail customers refused to use the campaign in their stores. While the company succeeded in containing a more general outcry, its experience highlights the risk of politicization around a brand's social purpose. It is unlikely that any social-benefit claim can escape criticism, but management's goal must be to maximize the fan-to-foe ratio.

Finally, stakeholders may question a brand's motives if the initiative appears to be driven primarily by commercial interests. Stakeholders understand that companies are profit-driven, but if the company's initiative offers no apparent social benefit, they may feel manipulated—as often happens if a brand is found to be "greenwashing." To mitigate this risk, it's critical to select a social purpose for which the brand can make a material contribution.

To assess whether the social purpose strategy is likely to be accepted by stakeholders, managers should ask:

- Can the brand have a demonstrable impact on the social need?
- Are key stakeholders on the front lines of the social issue likely to support the brand actions?
- Can the brand avoid inconsistent messaging, perception of opportunism, and politicization?

NIKE: A CASE STUDY

Let's look at how our framework can be applied in practice. Although numerous brands are using this method to evaluate brand purpose strategies, their initiatives are still under way. For illustrative purposes, we've analyzed the choices made by Nike over the past several decades. (For more, see the exhibit "Gauging Social Purpose Strategies.")

Over the past decade, Nike has invested heavily in R&D to reduce environmental waste in its manufacturing processes. In 2010, the company launched the Environmental Apparel Design software tool—an open-source version of its Considered Design Index—enabling garment designers anywhere to assess the environmental impact of various materials and explore combinations that reduce material waste before making a selection. In 2012, Nike debuted its flyknit technology, which allows the company to reduce waste by manufacturing shoes with a one-piece upper body.

Nike could tout these efforts in its customer-facing marketing, but it doesn't. In their purchase decisions, customers look for performance shoes that are comfortable, lightweight, and durable. Reducing manufacturing waste is not an attribute most sports-shoe buyers prioritize. Claims of environmental friendliness are also unlikely to help the brand move into adjacent markets. In fact, people buying performance shoes are more likely

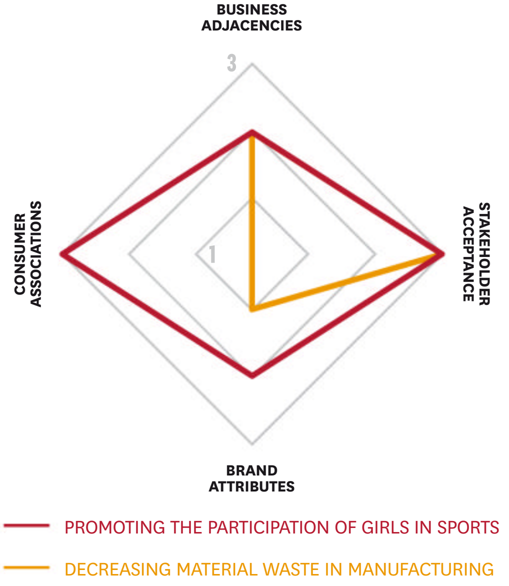
GAUGING SOCIAL PURPOSE STRATEGIES

To compare brand purpose strategies, score each option on its potential to create value or reduce risk by answering the questions below. Strategies that score highest across domains are the most likely to create value for the company and effectively address the targeted social need. Below, we assess how two options for Nike would stack up.

NIKE: SCORING TWO OPTIONS

ANSWER THE QUESTIONS BELOW, GIVING ONE POINT FOR EACH "YES" ANSWER	DECREASING MATERIAL WASTE IN MANUFACTURING	PROMOTING THE PARTICIPATION OF GIRLS IN SPORTS
BRAND ATTRIBUTES		
DOES THE STRATEGY REINFORCE EXISTING BRAND ATTRIBUTES?	0	1
WILL IT CREATE NEW BRAND ATTRIBUTES?	1	1
WILL IT BE DIFFICULT FOR COMPETITORS TO IMITATE?	0	0
TOTAL SCORE	1	2
BUSINESS ADJACENCIES		
WILL THE STRATEGY HELP CREATE A NEW PRODUCT OR SERVICE FOR CURRENT CUSTOMERS?	0	1
WILL IT HELP OPEN A NEW MARKET OR DISTRIBUTION CHANNEL?	1	1
WILL IT HELP REDUCE COSTS OR INCREASE THE PROFITABILITY OF THE BUSINESS?	1	0
TOTAL SCORE	2	2
CONSUMER ASSOCIATIONS		
IS THE SOCIAL NEED LIKELY TO BE PERCEIVED AS PERSONALLY RELEVANT TO TARGET CONSUMERS?	0	1
WILL CONSUMERS EASILY SEE THE CONNECTION BETWEEN THE BRAND AND THE SOCIAL NEED?	0	1
WILL THE STRATEGY INDUCE POSITIVE ASSOCIATIONS ABOUT THE BRAND?	0	1
TOTAL SCORE	0	3
STAKEHOLDER ACCEPTANCE		
CAN THE BRAND HAVE A DEMONSTRABLE IMPACT ON THE SOCIAL NEED?	1	1
WILL KEY STAKEHOLDERS ON THE FRONT LINES OF THE ISSUE SUPPORT THE STRATEGY?	1	1
CAN THE BRAND AVOID INCONSISTENT MESSAGING, PERCEPTIONS OF OPPORTUNISM, AND POLITICIZATION?	1	1
TOTAL SCORE	3	3

Plotting the scores for Nike's two options on a spider chart clearly demonstrates that "promoting the participation of girls in sports" creates more value for the brand and mitigates risk better than "decreasing material waste in manufacturing" would.



to associate green-manufacturing claims with reduced durability. Nike does communicate its environmental benefits to partners and investors—for whom these are important operating practices—demonstrating a wise allocation of its social benefit claims.

In 1995 Nike embraced a customer-facing social benefit: encouraging young girls to participate in sports. Nike spokeswoman Vizhier Corpus said at the time, "If you are a parent interested in raising a girl who is physically and emotionally strong, then look to sports as a means to that end." It was a smart choice. The message reinforced the brand associations of courage and competition promoted by Nike in the 1990s, was unlikely to suffer from problems with stakeholder acceptance, and had a robust business logic: At the time, the women's apparel business represented less than 10% of Nike's revenues. Today that figure has climbed to 23%, and women's apparel is the company's highest growth segment.

DEFINE THE BRAND'S ROLE

Once a company decides which social need a brand will focus on, using the four dimensions of our framework to guide their selection, managers must determine how the brand strategy will create value for it. Our analysis of dozens of purpose-driven brand strategies revealed four ways a brand can create value for a social need. This taxonomy provides a useful tool for thinking about how a brand can best execute on its purpose. It can also guide managers in the selection of metrics for measuring the impact of their social-purpose investments.

1. Generate resources. Brands can make an impact by helping generate the resources required to address a social need. Most commonly, this involves the donation of financial resources: When consumers buy a product, the brand gives a percentage of the profits to a selected cause. Newman's Own famously donates 100% of profits across thousands of organizations that address four broad social needs. Resources could also include time, talent, relationships, and capabilities.

2. Provide choices. Brands can offer consumers products that address a social need and can be substituted for those that don't. Brita filters, for example, give customers an alternative to bottled water that doesn't add plastic to landfills.

3. Influence mindsets. Brands can help shift perspectives on social issues. Examples include Nike's communications efforts to promote the participation of girls in sports and its recent campaign to promote racial and gender equality. Other examples include Tecate's initiative to stop gender violence in Mexico or the Always brand's "Like a Girl" program that focused on building girls' self-esteem.

4. Improve conditions. Brand actions can help establish the conditions necessary to address a social need. Consider Coca-Cola's Ekocenter initiative in Africa. Through a multi-stakeholder partnership, the brand is creating community centers with clean water, solar power, and internet access, among other services. The centers house modular markets run by local female entrepreneurs.

In defining how their social purpose programs will create value, managers should partner with organizations and individuals that are actively working on the front lines of the social issue. This ensures that the brand's capabilities are focused on the most pressing needs of the social issue.

MANAGERS OFTEN HAVE the best intentions when trying to link their brands with a social need, but choosing the right one can be difficult and risky and has long-term implications. Competing on social purpose requires managers to create value for all stakeholders—customers, the company, shareholders, and society at large—merging strategic acts of generosity with the diligent pursuit of brand goals.

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COMP TARGETS THAT WORK

HOW TO KEEP EXECUTIVES FROM GAMING THE SYSTEM

BY RADHAKRISHNAN GOPALAN, JOHN HORN, AND TODD MILBOURN

IN BRIEF

THE PROBLEM
Companies struggle to create executive comp packages that deliver desired performance.

WHY IT HAPPENS
Performance targets are often easy to game. Managers can cut or postpone long-term investments to produce higher earnings today and can manipulate which expenses and revenues get recognized when.

THE SOLUTION
Comp committees should follow these four principles:

- Use multiple metrics.
- Increase payouts at a constant rate and adjust for risk.
- Reward performance relative to competitors.
- Include nonfinancial targets.

SETTING EXECUTIVE PERFORMANCE targets is one of the main responsibilities of any board of directors. Unfortunately, it's a task boards struggle with. From 2006 to 2014 nearly all of the 1,000 largest U.S. firms by market cap completely changed the metrics in their CEOs' pay-for-performance contracts at least once, and almost 60% changed them more than once. In some cases, of course, the revisions reflected shifts in strategic imperatives, but in many others they were attempts to fix problems that the metrics themselves had created.

The troubles associated with executive performance targets are well known. Most often they encourage short-termism. Cutting research and development to increase quarterly profitability or earnings per share, for instance, may compromise an organization's ability to introduce innovative products and services. Managers can also game the metrics—by, say, lowballing budgets and forecasts to set themselves easily achievable goals. And some executives manipulate performance numbers by accelerating revenue recognition or postponing discretionary expenditures.

What companies need, then, is an incentive structure that makes it easier to meet targets by creating actual value than by gaming the system. New research, in which two of us participated, points the way. (See the sidebar "About the Research.") The study, which analyzed data from the proxy statements of more than 900 large U.S. firms over 15 years, examined the link between the behavior of executives and company performance. We have drawn on its findings to identify four principles for designing incentive packages that encourage managers to deliver real, sustainable value.

PRINCIPLE 1
USE MULTIPLE METRICS

Many firms like to set simple targets for their executives and so assess performance against a single metric that they believe will capture a multitude of behaviors. The logic goes like this: If a CEO has only one metric to focus on, every decision will enhance it, so all you need to do is pick the one that will deliver the results you want. We find that many companies are deeply wedded to this thinking. When companies change a CEO's performance criteria, 40% of the time they simply choose another single metric.

But even metrics that encompass a broad range of activities can produce dysfunction when used alone. Consider EPS targets, which are very popular. If a strategic choice hurts revenue growth or delays new product launches but nevertheless improves EPS, then a CEO who has an EPS target will always be tempted to make that choice to increase his or her chances of earning a payout.

This problem goes away if you set multiple targets, such as EPS *and* revenue growth *and* new product introductions *and* R&D investment level (say, as a percentage of sales). It's very hard to game multiple interconnected targets simultaneously, and it becomes more difficult as the number of targets rises. Senior executives just don't have the time to do it. This was, in fact, what our data showed: Executives who had to achieve multiple goals to receive their bonuses were just as likely to miss a given target as they were to exceed it. Statistically, this is what you'd expect to see if no manipulation has taken place. In contrast, it is highly unlikely statistically that executives will just overperform most of the time. Such results are an indication that they are actively managing to their targets.

It's important to include a purely revenue-based target in the basket because that's harder to fudge than a profit target. It's easier to bridge a 10% profit shortfall than to bridge a 10% revenue shortfall by manipulating your sales. Let's say your revenue is $100 million and your total costs (assume they're fixed, for simplicity) are $90 million. A 10% profit shortfall would be $1 million, so you would have to find only an additional 1% of sales to close the gap. On the other hand, to meet a 10% sales shortfall, you'd have to come up with an extra $10 million.

It's also easier for senior executives to control costs than to control revenue. Consumer reaction to price cuts (or increases) is inherently uncertain and may take time to become apparent. But cost reductions often can be calibrated with enough precision to ensure that earnings (and EPS) meet the desired targets. This is especially true for the costs that senior executives most often focus on when adjusting to make EPS numbers: R&D and sales, general, and administrative expenses.

When you set multiple targets, make sure they aren't too closely correlated. Don't choose both earnings and EPS as key metrics, for example, because it will be as easy for the CEO to hit both targets as it

would if she had to clear only an EPS hurdle. A better combination would be cash-flow growth and EPS, or revenue growth and earnings.

There is no magic number of targets to choose. Ultimately, it comes down to which metrics reflect the corporation's strategic objectives. A good rule of thumb, however, is to aim for three to five, because using just two could still create opportunities to manage to the targets while more than five can create confusion about where the organization should focus.

PRINCIPLE 2
INCREASE PAYOUTS AT A CONSTANT RATE, ADJUSTING FOR RISK

In most companies payouts for performance don't increase at a steady rate. Typically, executives don't receive one until some minimum threshold has been crossed; then their rewards rise steeply until a target is reached, after which the rewards tend to increase at a lower rate. Consider the incentive plan that one large U.S. technology company spelled out for its CEO in its 2017 proxy statement. The minimum threshold for the CEO was operating income of $295 million; at that point he'd receive 50% of his payout. His incentives rose sharply until operating income hit $328 million, at which point he'd receive 100% of the payout. Beyond that target, the payout for improved performance grew much more slowly. (See the exhibit "The Hidden Disincentives in Performance Plans.")

This type of compensation structure encourages performance gaming. There is less incentive for a CEO to push beyond the target, since additional performance improvement doesn't have the same incremental impact on his or her bonus. The data seems to bear this out: At companies where payout rates tapered off beyond a given target, CEOs tended to deliver results at or just above the target and seldom much beyond it.

For this reason we recommend that boards increase payouts at a constant rate relative to performance. When companies do this, actual results are less likely to bunch around the target. Of course, you don't want to encourage senior executives to take excessive risks to achieve higher and higher payouts, which means payouts should be capped at some maximum performance level. But you should be very explicit about why you are setting that cutoff point.

The board must also ensure that payout rates reflect the riskiness of a given target. Targets for EPS and return on equity, for example, can be achieved by increasing leverage at the company—perhaps to repurchase shares. To counter this, a board should adjust payouts on these metrics downward if the firm's capital structure becomes weaker or other risk factors increase during the performance period. The overall compensation plan, as well as the underlying strategy that it mirrors, must reflect the risk the company is willing to accept.

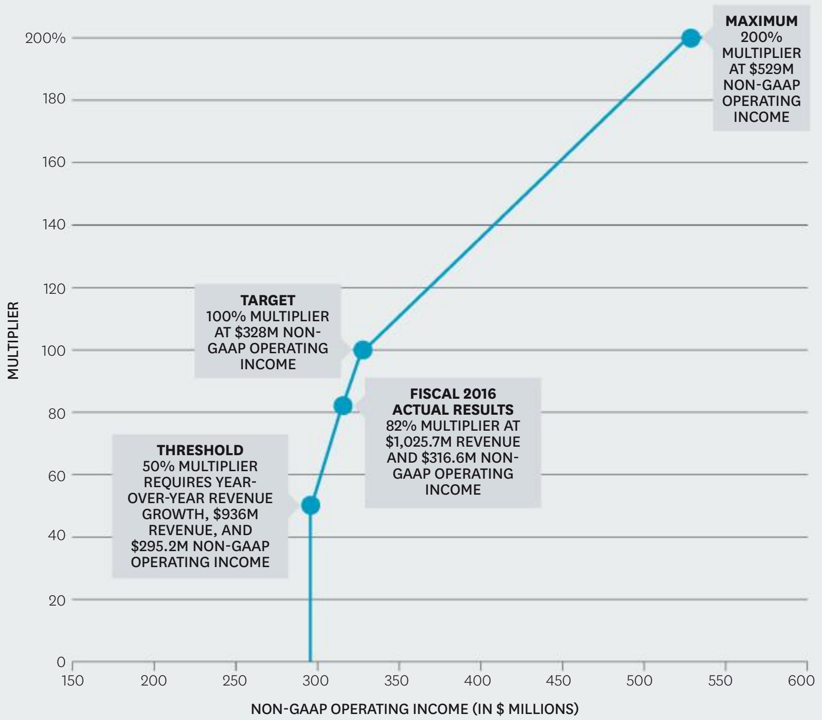
For example, a bank CEO's return-on-equity targets should be calibrated to the level of capital the bank maintains. Achieving a 10% ROE with a 12% capital ratio may be easier than achieving it with a 15% capital ratio, so the targets should progressively increase as the capital ratio falls.

IF A STRATEGIC CHOICE HURTS REVENUE GROWTH BUT IMPROVES EPS, THEN A CEO WITH AN EPS TARGET WILL ALWAYS BE TEMPTED TO MAKE THAT CHOICE.

PEPIFOTO/ISTOCK

THE HIDDEN DISINCENTIVES IN PERFORMANCE PLANS

The bonus payout rates for the CEO of one high-tech company, depicted below, are typical of many companies. There's a minimum threshold the CEO has to hit to receive any payout and an overall target. From the threshold to the overall target, payouts rise at a steep rate; after that they taper off. Research shows that such setups may dampen performance at the high end: Managers tend not to exceed their targets by any significant amount.



PRINCIPLE 3
REWARD PERFORMANCE RELATIVE TO COMPETITORS

Most compensation packages set absolute goals, meaning that the CEO must hit a specific number to receive a bonus. In fact, the use of absolute goals has become increasingly pervasive over the past decade. In 2006 the payouts of 82% of CEOs and 89% of all top executives were pegged to them; by 2014 those numbers had risen to 93% and 98%, respectively.

It's certainly an easy approach. The board can just use analysts' forecasts to determine a goal, and the CEO gets a clear number to measure progress against. If you're feeling bold, the next time you're in a senior executive's office, ask whether his or her computer has a ticker active on it that tracks the company's stock price.

But absolute goals don't necessarily lead firms to reward performance. Say the board decides the appropriate target is 2% revenue growth. With an absolute metric, it would reward a CEO who grew revenue 2% while the sector overall grew 7%, but not a CEO who grew revenue 1.5% while the sector shrank 3%—even though the latter CEO did a better job.

By switching to relative targets, boards can avoid that kind of problem completely. Relative targets also make gaming far harder because the performance of competitors isn't known until they release results, which often happens weeks or months after the end of the performance period. Senior executives can't go back and manipulate numbers at that point. The best way to beat the competition, then, is to continually strive to improve the corporation's performance. The research confirms this: When CEOs had relative targets, company performance was either slightly greater than or slightly less than the relative target with equal likelihood, which is what you would expect in the absence of gaming.

Absolute targets let managers stay in their comfort zones, focusing on things they can more easily control, like R&D spending, SG&A spending, or landing a large contract. They have no incentive to look beyond that. Relative metrics, by contrast, encourage an outward focus: To outdo competitors, executives must also study them closely and find ways to create differentiated positions. Although there's a risk that the focus on rivals will cause some companies to rely too much on benchmarking, this will be balanced by the fact that at least one of them will always be innovating. And if the CEO wants to hit the relative targets in her contract, she can't merely copy those innovations—she'll have to create a distinctive advantage.

In setting relative targets, you need to think carefully about which competitors to follow. This comparison group should also be based on the firm's strategy. If the company is a major player in a mature industry, it will want to use its large competitors as the primary benchmarks. If the corporation is expanding into a new area as the core of its strategy, it should benchmark against smaller, newer rivals in that sector. The sweet spot will be more than one or two (which makes it too easy for the CEO to benchmark against others) and fewer than 10 (since the competitors' performance will have to be aggregated into one number for comparison).

Of course, the exact number of benchmarked competitors will depend on how many publicly owned companies are in the industry, and it's OK to pick bigger or smaller companies, provided you adjust the relevant benchmarks to account for differences with your corporation. For example, if you're a small player going up against a large conglomerate, you can use the results in the specific areas in which you compete with it as your benchmarks (if its results are broken out that granularly) or estimate what portion of its overall performance is accounted for by the division you compete with.

PRINCIPLE 4 INCLUDE NONFINANCIAL TARGETS

Our final recommendation is to incorporate targets that are not directly related to sales and profits in any CEO performance contract. Although the research we base this article on didn't explicitly measure the effects of nonfinancial targets, it's clear that many of them are hard to game. To begin with, it often takes a significant amount of time for the results of decisions related to them to become apparent. Investments in employee training, for example, may not translate into employee productivity for a while. Additionally, many nonfinancial metrics, such as brand, reputation, and sustainability rankings, are set by outside agencies and so are hard for managers to manipulate.

What measures should you consider? Metrics like customer and employee satisfaction levels (as determined by broad-based surveys) are valuable because they provide leading indications about the long-term viability of an organization's strategy. If customers and employees aren't responding to the core value propositions the company is offering them, it will be hard to sustain revenue growth and profits or create an engaged workforce. Alaska Air Group, for example, has rated its CEOs on customer satisfaction, while Campbell Soup includes employee engagement in its CEO metrics. Visa ties executives' individual performance to "deep partnerships" and being "the employer of choice."

In our view it's important for every board to consider including a metric on how much a CEO respects and embodies the corporation's values. If top executives are not living up to these, it's quite possible the rest of the organization will follow, which could have disastrous effects on performance.

Probably the best way to assess adherence to values is through 360-degree feedback from peers, direct reports, board members, key customers, external partners, and other company stakeholders. ScottsMiracle-Gro applies to its executives' performance payouts a personal multiplier based on "a subjective assessment of effective leadership qualities such as team development, embodiment of the company's culture, and personal development and growth," according to its 2017 proxy statement.

Finally, nonfinancial metrics on environmental, social, and governance performance are top of mind for many boards. In many corporations there is a strong link between short-term ESG goals and long-term financial performance. A reputation as an environmental steward, for example, may improve customer loyalty and enable premium pricing. In such situations tying part of compensation to ESG metrics is a great way to get the CEO to focus on the long term. But compensation committees should be alert to the risk that CEOs may massage ESG metrics to surpass their targets so that they can justify receiving a bonus if faced with a shortfall in current financial performance.

CREATING A COMPENSATION package that adheres to the four guiding principles is not easy for a board. Directors need to debate multiple metrics (financial and nonfinancial alike), align them with the company's strategy and values, calibrate them with the risk appetite of the firm, and select an appropriate peer group to use as benchmarks. But this is ultimately what a board is there to do. If it uses executive compensation packages as a way to reinforce the company's competitive strategy and manage its risks, so much the better. Not only will it be more effective at communicating the strategy and rationale for top management pay with shareholders but it will also ensure that senior managers execute against the right objectives. Remember: Executives will do their best to hit whatever goals are set. So set targets that work for the corporation.

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ABOUT THE RESEARCH

This article draws heavily on research by Benjamin Bennett, J. Carr Bettis, Radhakrishnan Gopalan, and Todd Milbourn that appeared in the May 2017 issue of the *Journal of Financial Economics*.

The study analyzed data from the proxy statements of the 750 largest U.S. firms (by market cap) from 1998 to 2012. Specifically, it looked at the performance targets CEOs had to reach to earn cash bonuses and grants of stock and options. The sample ultimately included 5,810 grants made by 974 firms. The authors calculated the difference between actual financial performance (in areas such as EPS, profitability, and sales) and the target level set for each metric in the individual CEO's performance incentive contract.

If targets are set reasonably and CEOs don't manipulate performance, they are statistically as likely to just beat a target as to just miss it (say, by a penny in either direction). But the study found that it was more likely for CEOs to just meet or slightly exceed a target than to slightly miss it, which suggests that executives are actively managing to their goals.

The authors also investigated differences across the design of pay-for-performance packages to explore the situations in which there was less managing to targets. Their findings in this area informed the recommendations of this article.


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Realizing the Promise of Artificial Intelligence

AI isn't something you buy; it's something you build.

By Brad Fisher

Partner and US Leader, Data & Analytics, KPMG LLP

Remarkable new developments—from self-driving cars to virtual dialog agents that anticipate what we want to eat, watch or buy—have convinced most business leaders that artificial intelligence is a transformational advancement they need to embrace if they don't want their companies left behind.

They're right, of course. While disruption has always been with us, AI is accelerating the "constructive destruction" process and blindsiding businesses with competition from all quarters.

So yes, understanding and embracing AI is a must. Unfortunately, some early entrants in the marketplace have positioned AI as a plug-and-play technology that will magically help companies reduce headcount, minimize risk, know their customers better, automate decision-making, and, if they're lucky, lead to breakthrough innovations that allow them to leapfrog competitors and upend their industry—with little input on their part.

AI has the potential do these things. But at KPMG, our work embedding AI deep into our own business processes has reinforced our conviction that AI is not something you buy; it's something you build. It's not something you outsource; it's something you cultivate internally, until it becomes a trusted core capability. And it is not, counter-intuitively, just about technology; it is, truly, about machines learning from humans. Developing a successful AI algorithm today requires the presence of humans in the learning loop, especially during the process of training the algorithm—a resource-consuming undertaking that many companies woefully underestimate.

> *"Artificial intelligence is not something you outsource; it's something you cultivate internally, until it becomes a trusted core capability."*

The good news for business leaders is that they can build AI-enabled organizations using many of the same strategies they use to build and grow their organizations overall—empowering the workforce, focusing on problem-solving and innovation, and staying the course with efficiency and discipline.

Your company can be part of the AI revolution. Indeed it must, if it wishes to be a disrupter rather than disrupted, and to lead rather than follow. The way forward begins with embracing a new strategic mindset that revolves as much around people, processes and structure as it does around technology. If you're not already doing it today, here's what you must begin to do tomorrow:

1. Strategically increase your complement of employees who understand AI transformation, not only at the technical-staff level but also at senior leadership levels. At the same time, nurture your current process experts—those *humans in the loop*—to start training AI systems, and devote resources to increasing the AI literacy of your entire workforce.
2. Promote and enable a culture of innovation in which employees are expected to participate in AI transformation, and prioritize use cases for accelerated adoption.
3. Consider creating an AI center of excellence within your organization to promote and streamline the process of adopting AI.
4. Allocate meaningful funding to your AI initiative and treat it as a long-term commitment measured not in months but in solutions successfully rolled out.
5. Partner with organizations that have a deep understanding of AI, not so they can "do" AI for you, but so they can accelerate your efforts.

At KPMG, our commitment to AI runs deep. We're already embedding it and other advanced technologies into the audit, tax and advisory services we offer our clients. Meanwhile, thanks to our 120-year heritage of advising companies around the globe, we have a profound understanding of how businesses in industry after industry work and make money, allowing us to help our clients prioritize and embed AI into their day-to-day business processes, too.

To discuss how to get started with artificial intelligence, visit kpmg.com/us/bradfisher

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CIOUS THROPY

LESSONS FROM 15 WORLD-CHANGING INITIATIVES

BY SUSAN WOLF DITKOFF AND ABE GRINDLE

Private philanthropists have helped propel some of the most important social-impact success stories of the past century: Virtually eradicating polio globally. Providing free and reduced-price lunches for all needy schoolchildren in the United States. Establishing a universal 911 service. Securing the right for same-sex couples to marry in the U.S. These efforts have transformed or saved hundreds of millions of lives. That we now take them for granted makes them no less astonishing: They were the inconceivable moon shots of their day before they were inevitable success stories in retrospect.

Many of today's emerging large-scale philanthropists aspire to similarly audacious successes. They don't want to fund homeless shelters and food pantries; they want to end homelessness and hunger. Steady, linear progress isn't enough; they demand disruptive, catalytic, systemic change—and in short order. Even as society grapples with important questions about today's concentrations of wealth, many of the largest philanthropists feel the weight of responsibility that comes with their privilege. And the scale of their ambition, along with the wealth they are willing to give back to society, is breathtaking.

But a growing number of these donors privately express great frustration. Despite having written big checks for years, they aren't seeing transformative successes for society: Think of philanthropic interventions to arrest climate change or improve U.S. public education, to cite just two examples. When faced with setbacks and public criticism, the best philanthropists reexamine their goals and approaches, including how they engage the communities they aspire to help in the decision-making process. But some retreat to seemingly safer donations to universities or art museums, while others withdraw from public giving altogether.

Audacious social change is incredibly challenging. Yet history shows that it can succeed. Unfortunately, success never results from a single grant or silver bullet; it takes collaboration, government engagement, and persistence over decades, among other things. To better understand why some efforts defy the odds and what lessons today's philanthropists can learn from successful efforts of the past, we dived deep into 15 breakthrough initiatives, ranging from broad access to end-of-life hospice care to fair wages for migrant farmworkers in the U.S. to a lifesaving rehydration solution in Bangladesh (see the exhibit "Audacious Social-Change Initiatives of the Past Century"). Our research revealed five elements that together constitute a framework for philanthropists pursuing large-scale, swing-for-the-fences change. Successful efforts:

- Build a shared understanding of the problem and its ecosystem
- Set "winnable milestones" and hone a compelling message
- Design approaches that will work at massive scale
- Drive (rather than assume) demand
- Embrace course corrections

The role of philanthropists in these historical success stories varied. By and large they underwrote the efforts of others. The hands-on work fell, as it does today, to NGO leaders, service providers, activists, and many others on the front lines of social change. The common thread in these success stories was that philanthropists understood the importance of the five elements and were willing to fund any or all of them as needed. They acted as sources of flexible capital, identifying gaps left by others and directing their resources accordingly. Sometimes only minor support focused on one of the five elements was enough to tip the scales.

This framework does not constitute a simple or linear recipe. Real change is highly complex and driven by many forces, luck and timing play important roles, and causality is impossible to prove. Still, we believe that if ambitious philanthropists apply the framework over the arc of a campaign, they may substantially increase the odds of achieving transformative change.

THE CHALLENGE

Before we look closely at our historical success stories, it's instructive to consider some high-level reasons why so many efforts wither on the vine. Most

IN BRIEF

THE CHALLENGE
Many of today's philanthropists aspire to audacious results. But despite having written big checks for years, they aren't seeing large-scale results.

THE INSPIRATION
Historical initiatives ranging from the virtual eradication of polio globally to the legalization of same-sex marriage in the United States demonstrate that ambitious social-change efforts can succeed.

THE LESSONS
A deep dive into 15 successful initiatives reveals five common elements. Those efforts built a shared understanding of the problem; set winnable milestones; designed approaches that work at massive scale; drove demand; and embraced course corrections.

DONORS DON'T WANT TO FUND HOMELESS SHELTERS AND FOOD PANTRIES; THEY WANT TO END HOMELESSNESS AND HUNGER.

of the initiatives we studied shared four important patterns: Success took a long time—nearly 90% of the efforts spanned more than 20 years (with a median of about 45 years). It frequently entailed government cooperation—80% required changes to government funding, policies, or actions. It often necessitated collaboration—nearly 75% involved active coordination among key actors across sectors. And at least 66% featured donors who made one or more philanthropic big bets—gifts of $10 million or more.

Unfortunately, these patterns go against the grain of much philanthropic practice today. Donors know conceptually that achieving widespread change can take a long time, even for the most important and straightforward ideas. (As the physician Atul Gawande points out, the basic lifesaving practice of hand washing and sterilizing surgical instruments and facilities took 30 years to gain acceptance even after a leading medical journal published ironclad evidence in support of it.) Yet philanthropists often fund grantees with the expectation that much more complex change can be achieved in just a handful of years. Wary of red tape and of being perceived as "too political," many donors have been unwilling to fund work that meaningfully engages with the U.S. government, despite the central role it plays and the trillions of dollars it spends addressing society's toughest problems. Furthermore, collaboration of any type can be difficult and costly, so few philanthropists meaningfully support or engage in it, even though most are frustrated with the inefficient proliferation of siloed change efforts. And finally, only a small fraction of donor gifts for social change are large enough to make a dent—although philanthropists routinely commit $20 million or more to infinitely simpler challenges, such as building a university library or a museum wing.

To be sure, in none of our success stories could a philanthropist declare total victory. Despite near-universal use of infant car seats, children still die in car accidents. Despite nationwide access to free and reduced-price lunch, schoolchildren still go hungry. Despite substantial increases, farmworkers still have not achieved truly livable wages. But by focusing on the elements in the framework above, the movements' donors and change leaders enabled huge strides.

Let's look at the five elements in detail and explore how a thorough understanding of each can help funders pave the way for meaningful change.

BUILD A SHARED UNDERSTANDING OF THE PROBLEM AND ITS ECOSYSTEM

Everyone knows that you can't solve a problem you don't understand. The leaders of the successful social movements we studied appreciated and carefully framed the issues they sought to address. They knew who was affected and what forces perpetuated the problems. They often studied deeply entrenched racial, cultural, and economic dynamics, enabling them to attack root causes; figured out who benefited from (and would fight to preserve) the status quo; and built evidence bases that propelled action. And they revisited these questions as the problems and surrounding ecosystems evolved or as the change effort moved into new population segments, geographies, or other frontiers.

Consider the movement to reduce tobacco use in the United States. Decades of research funding, including substantial investments from the American Cancer Society and the Robert Wood Johnson Foundation, among others, were needed to construct an airtight scientific case that tobacco was harmful to people's health. The consensus that was built among scientists, doctors, government leaders, and eventually smokers was crucial to overcoming vigorous resistance and obstruction funded by Big Tobacco.

Still, getting people to break a socially reinforced habit involving a cheap, widely available, and chemically addictive product was extremely difficult. Recognizing the limitations of early smoking-cessation efforts, advocates continued to invest in research and problem reframing. This led them to modify their definition of the problem and pivot from smoking cessation per se to the broader aim of tobacco control.

To make it easier for individuals to quit, the movement refined the scientific and behavioral understanding of smoking as an addiction, facilitating the creation of products such as nicotine gum and patches. At the same time, it began to invest in changing the "system" of incentives and cultural norms that helped perpetuate smoking, resulting in laws to restrict smoking and protect the health of nonsmokers; significantly higher cigarette taxes; heavy restrictions or bans on sales channels such as vending machines; the outlawing of smoking in public places, advertising aimed at children, and ultimately mass-market advertising; and a decline in Hollywood and TV portrayals of smoking. Cigarettes eventually became expensive, inconvenient, and socially stigmatized, and smoking rates among adults plummeted from 42% a half century ago to 15% in 2015.

The best philanthropists understand that agreeing on the problem to be addressed is a seemingly obvious but highly tricky step, and they commission actionable research and policy analysis that foster consensus around why a problem persists and how to attack it. They also understand that such investments must be ongoing, because the problem and its ecosystem shift over time. Had antitobacco advocates relied only on the research reports commissioned in the 1950s and 1960s, their efforts might have been scientifically correct but largely failed. And note that cutting the smoking rate to below 15% is likely to require further research and reframing of the problem, because the challenge is substantively different, in much the way solving the "last mile" challenge in business (how to reach customers in the most remote or challenging contexts) differs from growing a nascent customer base.

BILLIONS OF DOLLARS ARE POURED INTO SOCIAL INITIATIVES THAT ARE NOT VIABLE AT SCALE.

SET WINNABLE MILESTONES AND HONE A COMPELLING MESSAGE

Making progress is hard when the goal is big and vague; behavioral science teaches us that it's human nature to get paralyzed. The leaders in our case studies often kept people motivated and engaged by identifying concrete, measurable goals—what we call "winnable milestones"—and pairing them with emotionally compelling messages or calls to action. Honing an emotionally resonant message requires a range of activities, such as polling, message testing, and conducting focus groups, that lie outside the traditional scope for donors and are typically considered unacceptable "overhead" when they appear in nonprofit budgets.

Tim Gill and other philanthropists who support LGBTQ rights demonstrated the importance of setting milestones. In the early 2000s, at the urging of movement leaders including attorney Evan Wolfson, they began devoting considerable resources to the very specific objective of legalizing same-sex marriage nationwide. For decades the movement had focused on the broad goal of "advancing LGBTQ rights," and although that work continued, leaders hoped that a significant push on a concrete winnable milestone would more powerfully advance the larger cause. They further concentrated efforts on a targeted set of states in order to build momentum and lay the public and legal foundations for a national victory.

Leaders of other successful movements have similarly focused on concrete goals, such as "eradicating polio" (as opposed to lowering childhood mortality rates) and increasing migrant farmworkers' wages by "one penny per pound." But even so, those movements made little progress until they landed on core messages with emotional resonance—ones that spoke to the heart as well as the head, such as searing images of crippled children and harrowing accounts of farmworker abuse. Indeed, the marriage equality movement struggled to connect with the general public as recently as 2008, even losing a well-funded ballot initiative in left-leaning California. In the aftermath of that and other setbacks, supportive philanthropists financed polling and focus groups to help movement leaders understand how to reframe the core message. The research revealed that many voters perceived the movement as driven primarily by same-sex couples' desire for the government benefits and rights conferred by marriage—and they did not find that a gripping rationale. This insight was pivotal: The movement refocused its communications strategy on equality of love and commitment, arguing that "love is love"—a message that struck a chord. Victories piled up, culminating in the 2015 Supreme Court ruling that legalized same-sex marriage throughout the United States. And although limited in scope, the push for marriage equality advanced the broader LGBTQ rights agenda in ways that might not otherwise have been possible or that would have taken much longer.

DESIGN APPROACHES THAT WILL WORK AT MASSIVE SCALE

A solution that doesn't work at the scale of the problem isn't a real solution. Unfortunately, billions of philanthropic dollars are poured into perfecting social services and products that are truly viable only for small numbers of an affected group—5,000 people, five cities, even five states. Such efforts are often local, entrepreneurial, or academic responses to unmet needs or low-quality, underfunded government services (a different way to waste money). But the "innovations" themselves are often too expensive, too complex, or too dependent on specialized talent to be viable at the extent of the need. And even when small-scale solutions are tested with larger groups, the leap is usually from, say, 500 people to 1,000—which reveals almost nothing. The real question should be whether an innovation that can serve 500 people can effectively serve 50,000 or 500,000 people.

Of course, designing a solution or a change strategy that works at scale is enormously challenging. Like any innovation process, it may involve many false starts. The key test is to determine what it would take for the proposed approach to be implemented at full scale—and then critically evaluate whether that is realistic. Often, simple math demonstrates that it is not. For example, if 10 million impoverished American youths need help getting into and graduating from college, and a high-quality program costs $5,000 per person, we need to ask whether any funding model, even one led by the government, could feasibly cover the $50 billion a year needed to serve them all. Could any police force realistically control illegal logging in the dense and gigantic Amazon rainforest? Can we expect that 25 million nurses across India will learn and reliably implement a 20-step procedure for sterilizing medical equipment? Do we believe that billions of concerned coffee drinkers will do their own research to make sure that their particular blend is grown under fair conditions? Those tactics might work at limited

AUDACIOUS SOCIAL-CHANGE INITIATIVES OF THE PAST CENTURY

We studied 15 social movements that defied the odds and achieved life-changing results to uncover lessons for today's ambitious donors. Although we now take their success for granted, most of these initiatives took many decades to achieve breakthroughs.

THE ANTI-APARTHEID MOVEMENT	The institutionalized oppression of South Africa's nonwhites came to an end in the 1990s—more than four decades after apartheid first became law—thanks to a tireless campaign of social, political, and economic activism.
ARAVIND EYE HOSPITAL	Using a highly efficient surgical model and variable pricing, this hospital chain has reduced cataract blindness in Tamil Nadu, India, by more than 50% and serves all patients regardless of ability to pay.
CAR SEATS	By 2006, some 98% of U.S. children traveling by car were restrained in safety seats, reducing their risk of death in an auto accident by 71%.
CPR TRAINING	More than 18 million Americans a year learn this emergency procedure, administered to nearly half the people who experience cardiac arrest outside a hospital.
THE FAIR FOOD PROGRAM	Fast-food boycotts and other efforts led by migrant farmworkers significantly improved working conditions and increased wages for tomato pickers in Florida and other U.S. states.
HOSPICE CARE	This system of specialized palliative care, started in the late 1940s, now supports 60% of dying patients in the U.S.
MARRIAGE EQUALITY	A focused initiative of the LGBTQ agenda, this social movement culminated in the legalization of same-sex marriage in the United States in 2015.
MOTORCYCLE HELMETS IN VIETNAM	Helmets specially designed for tropical climates, along with a national helmet law and advertising campaign, raised rates of use in Vietnam from 30% to 95%.
THE NATIONAL SCHOOL LUNCH PROGRAM	By 2012, some 31 million U.S. children—more than half of all public school students—received free or reduced-price meals.
911 EMERGENCY SERVICES	Nationwide access to a trauma response system and other emergency services via a three-digit phone number was made available in the U.S. in 1968.
ORAL REHYDRATION SOLUTION	Widespread adoption of a sugar/salt rehydration mixture by Bangladeshi households resulted in a 90% reduction in children's deaths from diarrheal diseases.
POLIO ERADICATION	Following the development of a vaccine in 1955 and decades-long inoculation efforts, polio has been virtually eradicated globally.
PUBLIC LIBRARIES	Early investment by Andrew Carnegie, coupled with long-running advocacy by interest groups, has provided 96% of Americans with easy access to free libraries.
SESAME STREET	The first TV show to achieve early-childhood learning gains, launched in the U.S. in the late 1960s, is now viewed by more than 156 million children around the world.
TOBACCO CONTROL	The long-term antismoking effort, started in the 1950s, eventually reduced smoking rates by more than 60% among U.S. teens and adults.

scope, but they're all likely to break down at the full scale of the need.

Still, cracking this nut is possible. All 15 initiatives in our study achieved impact at scale, although no two followed the same path. Some did it by investing deeply in R&D and developing an innovative form of an existing product, program, or process; some found a breakthrough business model; some took advantage of an existing distribution system instead of trying to build a new one; and some hit upon one or more novel leverage points to influence the relevant field or system. Often, philanthropy is needed to support this kind of innovation and experimentation, especially for solutions that truly work at scale.

Consider Aravind Eye Hospitals. The organization was founded in 1976 by Govindappa Venkataswamy (Dr. V), an Indian physician who set out to eliminate preventable cataract-caused blindness among the 48 million residents of the state of Tamil Nadu. Initially financed by the "philanthropy" of Dr. V and his family (he mortgaged his home for start-up funds), Aravind developed an ultra-efficient surgical process and paired it with a business model based on a variable fee structure. Together these allowed Aravind to treat hundreds of thousands of poor patients at little or no charge by attracting enough paying patients to cover the costs for the poor. Now serving some 250,000 people a year—with quality equal to or better than the British National Health System's, and at one one-thousandth of the cost—Aravind has propelled a dramatic drop in the rate of blindness throughout Tamil Nadu and has expanded to serve and share its model in other regions as well.

Consider also the lifesaving technique known as CPR, which achieved widespread adoption in the United States thanks to its "product" innovation. The leaders of the movement relied on significant simplification of the technique—work funded largely by research and local philanthropic grants—so that almost any layperson could remember and perform it. This enabled it to be picked up and broadly disseminated through massive existing distribution channels. Beginning in 1975, the American Red Cross incorporated CPR into its network of first aid, workplace safety, and lifeguarding courses; the American Heart Association soon followed. Today more than 18 million Americans, including many high school students taking health classes, are trained in CPR every year, and the procedure is administered to almost 50% of people who experience cardiac arrest outside a hospital, doubling or tripling their chances of survival when performed within the first few minutes.

Finally, in a David-versus-Goliath triumph, a group of migrant farmworkers in Florida—who pick almost all the winter tomatoes in the United States—hit upon a scalable model and leverage point to gain humane working conditions and a 70% increase in wages. This wasn't simple or quick; it required years of trial and error. For decades the workers had endured wage theft, verbal and physical abuse, racial discrimination, and sexual harassment in the course of punishing 70- to 80-hour workweeks—and for earnings amounting to just $10,000 or so a year. In 1996, when a worker was badly beaten by his crew leader for asking to take a water break, the community had had enough. A group called the Coalition of Immokalee Workers (CIW) responded for years with protests, hunger strikes, and a 234-mile march along a major highway to try to pressure farmers into improving conditions.

These actions had little effect. But CIW, aided by modest local philanthropy, a few faith-based funders, and the Public Welfare Foundation, continued to experiment until it found a strategy with the potential to affect the problem at scale: applying grassroots pressure to consumer-facing bulk purchasers of tomatoes, such as fast-food restaurants. These companies were much more vulnerable than growers to pressure tactics, because their clientele was the public. With the support of other grassroots networks, including the Student/Farmworker Alliance and Interfaith Action, CIW launched a series of fast-food boycotts, starting with Taco Bell.

From 2002 to 2005, CIW and allies at 22 universities and high schools nationwide ended sponsorships and removed or blocked the opening of Taco Bell restaurants on their campuses. They launched campaigns in dozens of other communities as well. The pressure tactics worked: Taco Bell's parent company, Yum! Brands, agreed to pay growers an additional penny per pound of tomatoes to go directly to workers' wages; it also agreed to require that its growers adhere to humane working standards and allow monitoring by an independent nonprofit entity. With increasing philanthropic support from national funders such as the Kresge, Kellogg, and Ford foundations, CIW extended the boycott to other companies, and over the next few years it won the support of McDonald's, Subway, Burger King, and Whole Foods, along with food service providers Bon Appétit, Compass, Aramark, and Sodexo. In 2010 the growers agreed to raise wages and improve working conditions. The reforms have since been adopted by growers as far away as New Jersey and agreed to by chains including Walmart, Stop & Shop, Giant, and Trader Joe's. The movement's success has been celebrated by the White House and the United Nations.

The best funders understand that effectiveness and scalability must be equals. Rather than incrementally

FURTHER READING

Getting Beyond Better: How Social Entrepreneurship Works
Roger L. Martin and Sally Osberg
Harvard Business Review Press, 2015

"Slow Ideas"
Atul Gawande
New Yorker, July 29, 2013

"Selling Social Change"
Taz Hussein and Matt Plummer
Stanford Social Innovation Review, Winter 2017

"Designing for Transformative Scale: Global Lessons in What Works"
Jeri Eckhart-Queenan, Abe Grindle, Jacquelyn Hadley, and Roger Thompson
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"Systems Change in a Polarized Country"
Mark R. Kramer
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"Solving the World's Biggest Problems: Better Philanthropy Through Systems Change"
Jeffrey C. Walker
Stanford Social Innovation Review, April 5, 2017

"Strategy as a Wicked Problem"
John C. Camillus
HBR, May 2008

growing a small-scale strategy or solution, a donor may get more bang for the buck by patiently supporting grantees in rigorous R&D and testing until they discover an approach that works at scale.

THE BEST DONORS UNDERSTAND THAT EFFECTIVENESS AND SCALABILITY MUST BE EQUALS.

DRIVE (RATHER THAN ASSUME) DEMAND

Even if you build it, they may not come. The philanthropists behind our successful case studies realized this. So they invested in solutions that users and partners actually wanted. They funded robust sales and marketing efforts to support their ambitious goals. They supported the creation of new government requirements or regulations. And they ensured strong distribution networks that helped drive uptake by providing easy access.

Consider the effort to reduce traffic fatalities in Vietnam by encouraging the use of motorcycle helmets—a campaign funded in large part by Chuck Feeney's Atlantic Philanthropies. One of Atlantic's first grants of the campaign went to the Asian Injury Prevention Foundation, in 2000. Although motorcycle helmets had been around for a long time, AIPF's founder, Greig Craft, believed that the inappropriate design of existing helmets for tropical climates contributed to the very low rates of use in Vietnam. Atlantic provided $1.5 million to help launch a factory to manufacture lightweight, well-ventilated helmets specifically for the tropics. With this new solution in hand and a shared understanding of the problem thanks to philanthropically funded research and cross-sector working groups, Vietnam's National Assembly drafted a new law mandating helmet use. Before the law took effect, AIPF helped mobilize funders to back a huge advertising push that used TV, billboards, sides of buses, and other channels to help educate and change behavior among the public. The campaign, which was based on best practices from other parts of the world, achieved a breakthrough relatively quickly: According to the World Health Organization, rates of use jumped almost immediately after the helmet law took effect, in 2007, from less than 30% to roughly 95%, and have stayed relatively constant since.

Significant investments in demand generation also contributed to the scaling of a simple, affordable intervention that has saved millions of lives in Bangladesh. As recently as the 1980s, dehydration from diarrheal diseases caused 20% of the deaths of children under the age of five, killing hundreds of thousands of children each year. That was despite the availability of a cheap and highly effective oral-rehydration solution consisting of nothing more than a precise mixture of sugar, salt, and water, developed more than a decade earlier by researchers in Dhaka. The government had distributed packets of the solution to its clinics across the country, but most sat on the shelf, unused. The problem was twofold: The solution was not in keeping with long-held cultural beliefs about treatment, and government clinics were rarely used in rural areas—more than 80% of Bangladeshi mothers relied instead on traditional healers, village health volunteers, and other informal providers for their health needs.

Two major donor-funded efforts helped turn things around. Starting in 1980, several aid agencies and international NGOs invested more than $22 million (in 2016 dollars) in a 10-year education campaign run by the Bangladesh-based NGO BRAC. The campaign trained thousands of local women to mix the solution and sent them door-to-door to teach more than 12 million households about the lifesaving treatment. And in 1983, USAID began a multimillion-dollar funding of the Social Marketing Company, a local social enterprise incubated by Population Services International, to mass-produce, market, and sell the packets. To meet the distribution challenge and further drive demand, SMC built connections with the thousands of unlicensed health-care providers who served most Bangladeshi families. It also secured partnerships with private distributors, who by 2007 had brought the packets to 91% of the country's pharmacies and 32% of its grocery stores. Today the solution is used by 80% of Bangladeshi households, and children's deaths from diarrheal diseases have plummeted by 90%.

Finally, let's look at *Sesame Street*. In the late 1960s, the Carnegie Corporation's vice president, Lloyd Morrisett, commissioned television producer Joan Ganz Cooney to explore the then-revolutionary concept of early learning for children via television. The two collaborated on an ambitious budget for the initial season: roughly $55 million (in 2016 dollars). Cooney advocated investing in strong design, including hiring a leading children's entertainment producer—thus

FUNDERS MUST CREATE THE SPACE TO LEARN, ADJUST, AND EVEN FAIL.

boosting the odds that the show would resonate with its target beneficiaries. She pushed for ongoing research to test how well the program captured children's attention and improved their learning. And a significant share of the budget—8%—was earmarked for publicity and outreach.

Morrisett secured a $7 million contribution from Carnegie and raised the rest from other philanthropies and the government. *Sesame Street* succeeded spectacularly. In its first week, more than 1.5 million children tuned in—twice the number of children attending preschool. Within a year the program was reaching 36% of all preschool-aged children; by 1993 the figure was 77%. Today *Sesame Street* is viewed by more than 156 million children around the world, and numerous studies have demonstrated that it significantly advances early learning, contributing to a rise in similar programming by other broadcasters.

EMBRACE COURSE CORRECTIONS

Every long-haul effort hits roadblocks. To achieve winnable milestones over decades, funders need to support their grantees' capacity to continuously improve. Experienced funders recognize that challenges may differ by context (urban versus rural versus last mile) and population segment (early adopters versus laggards) and that social-impact organizations need to experiment, measure, and adapt as those factors change. But only a handful of philanthropists today invest deeply in creating the space and infrastructure for grantees to learn, adjust, and at times fail. Patience is limited, and what little money is earmarked for measurement and evaluation too often prioritizes accountability and attribution of credit rather than learning for continuous improvement.

Course corrections were important in all the stories above. Recall the numerous setbacks suffered by the marriage equality movement; because donors were patient, it could learn from those setbacks and ultimately discover a winning strategy. Philanthropy played a smaller but still critical role in the course correction of another initiative: the National School Lunch Program. The concept of school lunches for poor children had been around since the early 1900s, and the federal government had subsidized them since the Depression. Many saw the effort as a great success. But the Field Foundation of New York continued to invest in research into the issue, and in 1968 two reports illuminated the depths of hunger that still existed and the terrible gaps in the program's coverage, galvanizing the public, Congress, and the president to renew their focus. Over the next two years the government amended the program. Among other things, it established federal guidelines for eligibility (rather than leaving that to local school districts), shifted the emphasis toward helping the needy rather than subsidizing lunch for all students, and increased funding. By 2012, some 31 million children a day—more than half of all public school students—were receiving free or reduced-price meals. Although issues of access have not been fully resolved—advocates are continuing to work on destigmatizing delivery and increasing adoption by children themselves—the improvements have been dramatic.

For the types of social challenges targeted by audacious philanthropists and other change makers, adaptation informed by robust measurement is key. To fuel progress, funders need to make sure that both their attitudes and their funding reflect that reality.

THE PAST AS PROLOGUE

What can today's most ambitious philanthropists learn from those who helped solve big, important problems in the past? At the highest level, the successful strategies we uncovered ran counter to prevailing funding practices. They included decades-long persistence, even when the pace of change felt slow; financial support for collaboration among key actors, even when it meant giving up some control; engagement with governments to influence funding and action, even in uncertain times; and big philanthropic bets that shifted power from the donor to the doers and beneficiaries.

The issues most deserving of investment today are different from those of past decades; what remains constant is the need for shared and dynamic problem definition, clear and winnable milestones, solutions built for scale, robust investments to drive and serve demand, and adaptive capacity among philanthropists and grantees alike. Understanding and acting on these elements can help funders achieve the audacious successes they seek.

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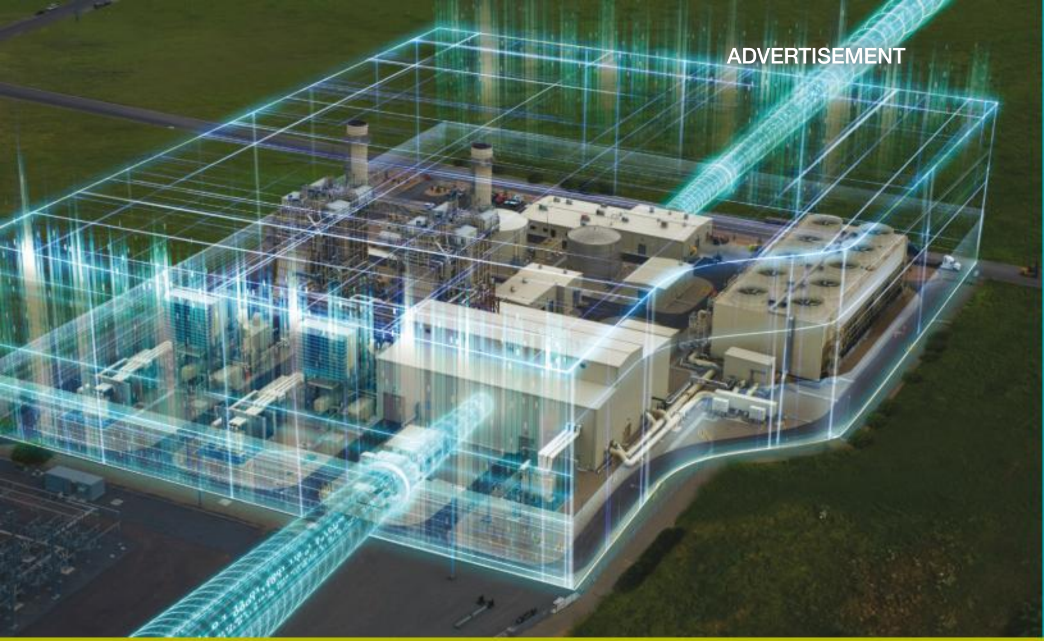

Digitalization and Security in the Energy Sector

The Benefits Are Great—Security Must Keep Pace

As companies recover from yet another round of global cyber attacks, business leaders are rightfully asking if this is the new normal.

A growing concern is that hackers are increasingly targeting operational technology (OT), essential for availability, production and safety of critical infrastructure. Attacks against OT have ballooned from 5% to 30% in just a few years. Energy companies make up the lion's share of these attacks—a spike driven by aging assets, poor security practices and increased connectivity.

Securing the New Risk Frontier

While the benefits of digitalization are growing, security has not kept pace, especially in industrial environments. To protect the energy industry from the rising industrial cyber threat, companies must think and act strategically. Energy executives must ask not 'if' their assets will be attacked, but when and how to quickly respond and recover.

The energy industry remains largely unprepared to implement first line of defense measures, and remains far from ready to deploy advanced connectivity and monitoring capabilities. Achieving a cyber secure posture requires both. Barely a third of oil and gas organizations surveyed in a recent Ponemon Institute study, sponsored by Siemens, rated their OT cyber readiness as high.

The good news is that corporate boards are increasingly recognizing the need for action. Budgets for cyber continue to increase. Our utility and oil and gas customers see the cyber threat and understand the need to protect their assets. The approach they take must be risk-driven and focused on implementing defensive, dedicated operational cyber technologies.

Connectivity Equals Transparency and Insight

The relationship between connectivity and security is not always well understood. Companies often believe that isolating their systems reduces their vulnerability. But this ignores the origin of many cyber threats. The Ponemon study found that 69% of industrial cyber attacks come from the inside.

In these circumstances, isolating systems doesn't necessarily equal greater security. Indeed, connectivity can provide the transparency required to detect attacks and quickly take action.

Security Analytics Are Now Essential

Network segmentation, identity and access management, two-factor authentication and life cycle management—these are foundational capabilities for every industrial company.

To go beyond these basics, companies must build up their cyber threat monitoring, even if they lack the capabilities in-house. Machine learning and artificial intelligence are powerful options in distributed operating environments. AI-enhanced monitoring enables detection at much greater speeds, reducing the potential for significant damage.

For Siemens, cyber security is a foundational component of our vision for digitalization and intelligent infrastructure. Over the past ten years, we have invested more than $8.5 billion to make digitalization a core part of our business. We utilize our cyber expertise and its complementary digital capabilities—such as MindSphere, our industrial operating platform—to help customers achieve the outcomes they desire.

Perpetual vigilance is essential to dealing effectively with the growing cyber threat. We help our customers navigate the often complex and ever-changing cyber security journey and bring maturity to their cyber enterprise. Those companies that move proactively to build their capability to detect and respond will be best positioned to meet the growing OT threat.

Learn more at USA.siemens.com

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UNDERSTANDING MANAGEMENT'S VALUE

WHY DO WE UNDERVALUE COMPETENT MANAGEMENT?

NEITHER GREAT LEADERSHIP NOR BRILLIANT STRATEGY MATTERS WITHOUT OPERATIONAL EXCELLENCE.

BY RAFFAELLA SADUN, NICHOLAS BLOOM, AND JOHN VAN REENEN

EVERETT COLLECTION/SHUTTERSTOCK

IN MBA programs, students are taught that companies can't expect to compete on the basis of internal managerial competencies because they're just too easy to copy. Operational effectiveness—doing the same thing as other companies but doing it exceptionally well—is not a path to sustainable advantage in the competitive universe. To stay ahead, the thinking goes, a company must stake out a distinctive strategic position—doing something different than its rivals. This is what the C-suite should focus on, leaving middle and lower-level managers to handle the nuts and bolts of managing the organization and executing plans.

Michael Porter articulated the difference between strategy and operational effectiveness in his seminal 1996 HBR article, "What Is Strategy?" The article's analysis of strategy and the strategist's role is rightly influential, but our research shows that simple managerial competence is more important—and less imitable—than Porter argued.

If you look at the data, it becomes clear that core management practices can't be taken for granted. There are vast differences in how well companies execute basic tasks like setting targets and grooming talent, and those differences matter: Firms with strong managerial processes perform significantly better on high-level metrics such as productivity, profitability, growth, and longevity. In addition, the differences in the quality of those processes—and in performance—persist over time, suggesting that competent management is not easy to replicate.

Nobody has ever argued that operational excellence doesn't matter. But we contend that it should be treated as a crucial complement to strategy—and that this is true now more than ever. After all, if a firm can't get the operational basics right, it doesn't matter how brilliant its strategy is. On the other hand, if firms have sound fundamental management practices, they can build on them, developing more-sophisticated capabilities—such as data analytics, evidence-based decision making, and cross-functional communication—that are essential to success in uncertain, volatile industries.

Achieving managerial competence takes effort, though: It requires sizable investments in people and processes throughout good times and bad. These investments, we argue, represent a major barrier to imitation.

In this article we'll review our research findings and then discuss the obstacles that often prevent executives from devoting sufficient resources to improving management skills and practices. Throughout, we'll show that such investments are a powerful way to become more competitive. If the world has really entered a "new normal" of low productivity growth, as Robert Gordon and others have argued, pushing managerial capital up a level could be the best route out of the performance doldrums.

IN BRIEF

THE CONVENTIONAL WISDOM

It's a truism among strategists that you can't compete on the basis of better management processes because they're easily copied. Operational excellence is table stakes in the competitive marketplace.

WHAT THE DATA SHOWS

There are three problems with this thinking. First, effective management processes are highly correlated with measures of strategic success. Second, differences in process quality persist over time. Third, there's little evidence that best-in-class processes can be imitated. GM tried for years to adopt Toyota's superior production system and failed miserably.

IMPLICATIONS

Organizations need competent management just as much as they need analytical brilliance. We should stop teaching business school students that operational issues are beneath the CEO—and should encourage firms to invest in strengthening management throughout the organization.

THE RESEARCH

Over the past century, scholars have learned a great deal about how core management processes affect a company's performance. For example, researchers such as Kim Clark, Bob Hayes, and David Garvin documented differences within factories, industries, and companies. But a lack of big data encompassing many firms, industries, and countries inhibited the statistical study of management practices. In the past decade, however, we have developed ways to robustly measure core management practices, and we can now show that their adoption accounts for a large fraction of performance differences across firms and countries.

As we've described in earlier articles in HBR, in 2002 we began an in-depth study of how organizations in 34 countries use (or don't use) core management practices. Building on a survey instrument that was initially developed by John Dowdy and Stephen Dorgan at McKinsey, we set out to rate companies on their use of 18 practices in four areas: operations management, performance monitoring, target setting, and talent management. (See the sidebar "Core Managerial Practices" for a detailed list. Though these don't represent the full set of important managerial practices, we have found that they're good proxies for general operational excellence.) The ratings ranged from poor to nonexistent at the low end (say, for performance

CORE MANAGERIAL PRACTICES

In our research, we assess the sophistication with which organizations manage the four broad dimensions—and the 18 specific aspects—of management shown below. The list varies slightly depending on sector (this one is for manufacturers). It's not exhaustive, but companies that manage these fundamentals well tend to have high levels of overall operational excellence.

OPERATIONS MANAGEMENT

USE OF LEAN TECHNIQUES

REASONS FOR ADOPTING LEAN PROCESSES

PERFORMANCE MONITORING

PROCESS DOCUMENTATION

USE OF KEY PERFORMANCE INDICATORS

KPI REVIEWS

DISCUSSION OF RESULTS

CONSEQUENCES FOR MISSING TARGETS

TARGET SETTING

CHOICE OF TARGETS

CONNECTION TO STRATEGY, EXTENT TO WHICH TARGETS CASCADE DOWN TO INDIVIDUAL WORKERS

TIME HORIZON

LEVEL OF CHALLENGE

CLARITY OF GOALS AND MEASUREMENT

TALENT MANAGEMENT

TALENT MINDSET AT THE HIGHEST LEVELS

STRETCH GOALS

MANAGEMENT OF LOW PERFORMANCE

TALENT DEVELOPMENT

EMPLOYEE VALUE PROPOSITION

TALENT RETENTION

monitoring using metrics that did not indicate directly whether overall business objectives were being met) to very sophisticated at the high end (for performance monitoring that continuously tracked and communicated metrics, both formally and informally, to all staff with an array of visual tools).

Our aim was to gather reliable data that was fully comparable across firms and covered a large, representative sample of enterprises around the world. We realized that to do that, we needed to manage the data collection ourselves, which we did with the help of a large team of people from the Centre for Economic Performance at the London School of Economics. To date the team has interviewed managers from more than 12,000 companies about their practices. On the basis of the information gathered, we rate every organization on each management practice, using a 1 to 5 scale in which higher scores indicate greater adoption. Those ratings are then averaged to produce an overall management score for each company. (For more details, see the sidebar "About the Research.")

That data has led us to two main findings: First, achieving operational excellence is still a massive challenge for many organizations. Even well-informed and well-structured companies often struggle with it. This is true across countries and industries—and in spite of the fact that many of the managerial processes we studied are well known.

The dispersion of management scores across firms was wide. Big differences across countries were evident, but a major fraction of the variation (approximately 60%) was actually within countries. (See the exhibit "Management Quality Varies Across—and Within—Countries.") The discrepancies were substantial even within rich countries like the United States.

In our entire sample we found that 11% of firms had an average score of 2 or less, which corresponds to very weak monitoring, little effort to identify and fix problems within the organization, almost no targets for employees, and promotions and rewards based on tenure or family connections. At the other end of the spectrum we identified clear management superstars across all the countries surveyed: Six percent of the firms in our sample had an average score of 4 or greater. In other words they had rigorous performance monitoring, systems geared to optimize the flow of information across and within functions, continuous improvement programs that supported short- and long-term targets, and performance systems that rewarded and advanced great employees and helped underperformers turn around or move on.

By interviewing several companies multiple times throughout the past decade, we were able to observe that these large differences in the adoption of core management practices were long-lasting. This isn't really surprising: According to our estimates, the costs involved in improving management practices are as high as those associated with capital investments such as buildings and equipment.

One of our findings may surprise readers: These differences show up within companies, too. A project conducted with the U.S. Census revealed that variations in management practices inside firms across their plants accounted for about one-third of total variations across all plant locations. This was particularly true in large firms, where practices can differ a great deal across plants, divisions, and regions. Even the biggest and most successful firms typically fail to implement best practices throughout the whole organization. Some parts of it are effectively managed, but other parts struggle.

Our second major finding was that the large, persistent gaps in basic managerial practices we documented were associated with large, persistent differences in firm performance. As we've noted, our data shows that better-managed firms are more profitable, grow faster, and are less likely to die. Indeed, moving a firm from the worst 10% to the best 10% of management practices is associated with a $15 million increase in profits, 25% faster annual growth, and 75% higher

ABOUT THE RESEARCH

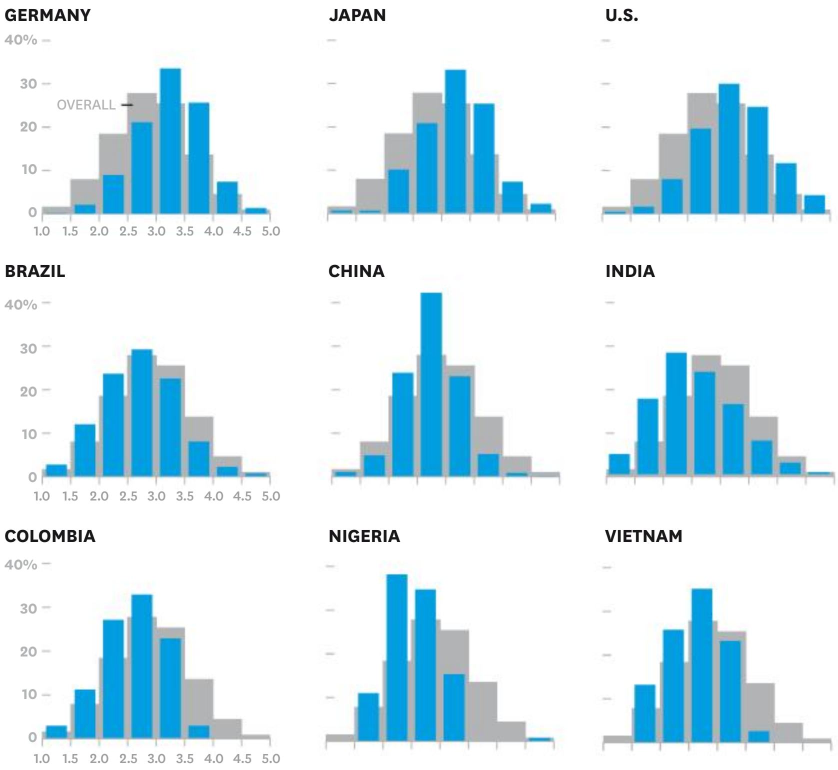
Our research project, World Management Survey, has examined the adoption and use of management practices across more than 12,000 firms and 34 countries. We measure each organization's performance on 18 specific practices in four areas: operations management, performance monitoring, target setting, and talent management. To do that, we have experienced interviewers speak by phone with a firm's plant managers, asking everyone the same 18 open-ended questions and following up with more questions until they have a good sense of the firm's habits. A listener, who doesn't have information about the organization's financial performance, independently scores the organization on each question and each practice.

So far we've conducted more than 20,000 interviews and surveyed companies in four sectors: manufacturing, health care, retail, and higher education. More information about our methodology is available on our website, worldmanagementsurvey.com, where readers can also download the survey, fill in their own responses, and compare their organizations against the benchmarks in our data set. Obviously, the results won't be as complete, or as trustworthy, as they'd be if the organization were being independently assessed, but the process can provide a useful broad-strokes view.

ACHIEVING OPERATIONAL EXCELLENCE IS STILL A MASSIVE CHALLENGE FOR MANY FIRMS.

MANAGEMENT QUALITY VARIES ACROSS—AND WITHIN—COUNTRIES

Some countries get higher average ratings than others on the use of management processes. But as data from this sample of countries shows, in-country variation is even more striking. The blue bars indicate what percentage of firms in each country fell into each scoring range (1 equaled the worst and 5 the best performance). The gray bars show total global percentages.



productivity. Better-managed firms also spend 10 times as much on R&D and increase their patenting by a factor of 10 as well—which suggests that they're not sacrificing innovation to efficiency. They also attract more talented employees and foster better worker well-being. These patterns were evident in all countries and industries. (For a sample of metrics, see the exhibit "Good Management Correlates with Strong Performance.")

But these empirical findings raise a major question: If the benefits of core managerial practices are really so large and extensive, why doesn't every company focus on strengthening them? Also, a more existential issue (which we'll address toward the end of the article) is, What should executives, business schools, and policy makers take away from this body of research?

WHAT CAUSES THE DIFFERENCES?

Some of the variation in management practice is driven by external factors. The intensity of competition is one; competition creates a strong incentive to reduce inefficiencies and kills off badly managed firms. Labor regulations play a role as well; they can make it difficult to give opportunities to employees on the basis of merit or to adopt performance-related compensation. On the flip side, regulators may be in a position to create incentives for employee training or support firms that prioritize managerial competence.

We've also observed that inconsistencies often result from stubborn blind spots and deficiencies within companies. Here are the things that typically hinder the adoption of essential management practices:

False perceptions. Our research indicates that a surprisingly large number of managers are unable to objectively judge how badly (or well) their firms are run. (Similar biases show up in other settings. For example, 70% of students, 80% of drivers, and 90% of university teachers rate themselves as "above average.")

Consider the average response we got to the question "On a scale from 1 to 10, how well managed is your firm?," which we posed to each manager at the end of the survey interview. (See the exhibit "Overconfidence Is a Problem for Managers.") Most managers have a very optimistic assessment of the quality of their companies' practices. Indeed, the median answer was a 7. Furthermore, we found zero correlation between perceived management quality and actual quality (as indicated by both their firms' management scores and their firms' performance), suggesting that self-assessments are a long way from reality.

This large gap is problematic, because it implies that even managers who really need to improve their practices often don't take the initiative, in the false belief that they're doing just fine.

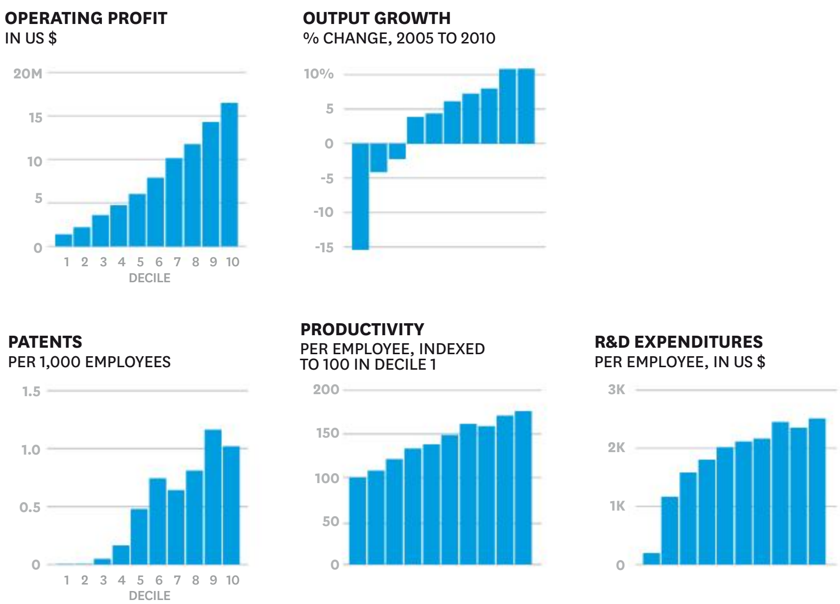
In a variant of this problem, managers may overestimate the costs of introducing new practices or underestimate how much difference they could make. This was a situation we encountered in a field experiment that one of us conducted with 28 Indian textile manufacturers. Accenture had been hired by a Stanford–World Bank project to improve their management practices, but many proposed enhancements—such as quality control systems, employee rewards, and production planning—were not implemented because of skepticism about their benefits. Consultants trying to introduce methods that are standard in most U.S. or Japanese factories were met with claims that "it will never work here" or "we do things our way." Yet the firms that adopted the methods boosted their performance.

Perception problems are hard but not impossible to eradicate. The key is to improve the quality of information available to managers so that they have an objective way to evaluate their relative performance.

As our survey shows, self-reported metrics are likely to be at best very noisy—they're imperfect indicators of what really happens on the ground. There are various reasons why. A common issue is that employees don't raise problems for fear of being blamed for those they

GOOD MANAGEMENT CORRELATES WITH STRONG PERFORMANCE

The companies scoring in the top decile on management outperformed on a variety of strategic measures. Performance by decile:



A LARGE NUMBER OF MANAGERS CAN'T OBJECTIVELY JUDGE HOW WELL THEIR FIRMS ARE RUN.

identify. That dynamic deprives managers of critical knowledge needed to understand a firm's gaps.

In our experience, managers can address this issue by proactively creating opportunities for candid—and blame-free—discussions with their employees. That's the approach followed by Danaher, a large U.S. conglomerate known for its relentless (and effective) adoption of the Danaher Business System (DBS)—a tool kit of managerial processes modeled on the Toyota Production System—across its many subsidiaries. Danaher typically initiates the relationship with a newly acquired subsidiary through a series of hands-on, structured interactions between senior Danaher managers and the acquisition's top executives, which challenge the latter to identify managerial gaps that may be preventing the business from fulfilling its potential. People taking part in these open conversations—especially those with longer tenure—describe them as eye-opening experiences that significantly change attitudes toward core management processes.

Governance structure. In other cases, managers may be fully aware of the need to improve their practices but pass on this opportunity for fear that change may jeopardize private objectives. This problem is particularly common in firms that are owned and run by families, as you can see in the exhibit "Family-Run Firms Tend to Have Weaker Management." Even when we cut the data by firm size, sector of activity, and country, family-run enterprises still had the lowest average management scores.

Why are family firms so reluctant to embrace strong management processes? One explanation—which finds support in our research—is that their adoption may have significant personal costs to family members. New practices may require hiring or delegating authority to talent outside the family circle. (Indeed, we've seen that higher management scores tend to go hand-in-hand with more-decentralized decision making.)

An example of this is Gokaldas Exports, a family-owned business founded in 1979 that had grown into India's largest apparel exporter by 2004. Gokaldas was a highly successful firm with 30,000 workers, was valued at approximately $215 million, and exported nearly 90% of its production. Its founder, Jhamandas Hinduja, had bequeathed control of the company to three sons, each of whom brought his own son into the business. Nike, a major customer, wanted Gokaldas to introduce lean management practices; it put the company in touch with consultants who could help make that happen. Yet the CEO was resistant. It took rising competition from Bangladesh, multiple visits to see lean manufacturing in action at firms across Asia and the United States, and finally the intervention of other family members (one of whom we taught in business school) to overcome his reluctance.

Self-reflection exercises can help family CEOs clarify whether they value their firms' long-term success more than "being the boss"—even if success means sharing the glory with other managers. In our experience a candid evaluation of one's priorities is crucial—managers are often oblivious to the fact that their own desire for control may be inhibiting the growth and success of their organizations.

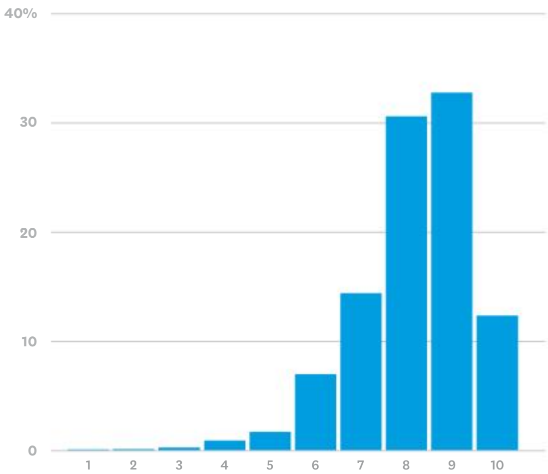
In addition, family executives—and especially owners—should understand that introducing new managerial capabilities within the firm does not necessarily entail a loss of control. It is more likely to create a different role for them—but not necessarily fewer responsibilities.

That is what happened at Moleskine, based in Milan, Italy. Launched in 1997 by three friends, Moleskine went from being a niche notebook producer to a market leader in the space of a few years.

OVERCONFIDENCE IS A PROBLEM FOR MANAGERS

At the end of every interview, we ask managers to say how well they think their organizations are run and to score them on a scale from 1 (worst) to 10 (best). Overall, their responses are far more positive than warranted.

PERCENTAGE OF MANAGERS GIVING EACH SCORE



IT'S UNWISE TO TEACH LEADERS THAT STRATEGY AND BASIC MANAGEMENT ARE UNRELATED.

Its success created a dilemma for its founders: While it was clear that the company had tremendous potential to grow further, they also recognized the pressing need to professionalize its operations. The founders searched for a private equity firm that could provide the necessary capital and expertise and help them find a new CEO. Eventually, they chose Syntegra Capital and Arrigo Berni, an experienced chief executive who had held leadership roles at family-owned producers of luxury products. Berni brought new rigor to strategy development and operations and at the same time crafted a role for the founders that made the most of their commercial and design expertise. Thanks to this successful partnership—and an IPO in 2013—Moleskine was able to deepen its competitive advantage and develop new growth opportunities globally.

Skill deficits. Good management practices require capabilities (such as numeracy and analytical skills) that may be lacking in a firm's workforce, especially in emerging economies. Indeed, our data shows that the average management score is significantly higher at firms with better-educated employees. Being located near a leading university or business school is also strongly associated with better management scores. Superior performance is likelier when executive education can be had nearby, it seems. While to some extent the availability of skills is shaped by a firm's specific context, managers can play a critical role by recognizing the importance of employees' basic skills and providing internal training programs.

Organizational politics and culture. Even when top managers correctly perceive what needs to be done, are motivated to make changes, and have the right skills, the adoption of core management processes can be a challenge. Videojet, a subsidiary acquired by Danaher, provides a case in point. In 2005, Videojet launched a new internal initiative that required the engineering and sales teams to collaborate on developing an innovative printer. The Videojet executives decided to use core DBS managerial processes—which up to that point had been used almost exclusively within manufacturing—to structure regular debriefing and problem-solving sessions between the two teams.

Unfortunately, preexisting divides between engineers and salespeople meant that the structured interactions, which had been effective in driving continuous improvement in manufacturing, became perfunctory meetings. For example, just before the product launch, a member of the sales team raised concerns about some technical aspects of the new printer, which in his eyes could seriously compromise its success. The core DBS processes had been introduced to help teams identify and address precisely this type of concern. Whereas in manufacturing, employees were encouraged to stop the production line to flag quality problems in real time so that they could be isolated and fixed, in this instance the feedback was ignored and interpreted by the rest of the team as a boycotting attempt rather than a constructive suggestion. Shortly after this episode, the printer was launched to a poor market reception, which confirmed the gravity of the issues the salesperson had raised. Thanks to this experience, Videojet executives understood that they would need to work more consciously to foster interactions between diverse pockets of expertise within the firm. They continued to use the DBS tools but also committed to frequent, longer structured interactions and collective sign-offs between engineers and salespeople during the various product development stages. Videojet launched a very successful printer just a couple of years after the initial failed product launch and has since become an exemplar in the use of DBS tools for product development.

Sometimes the organization at large resists change. Susan Helper and Rebecca Henderson provide a fascinating account of the difficulties GM encountered in implementing the Toyota Production System during the 1980s and 1990s. Even in the face of mounting competition, GM found it hard to adopt Toyota's superior management methods, mainly because of adversarial relationships with suppliers and blue-collar workers. Employees, for example, thought that any productivity enhancement from the new practices would just lead to head-count reductions and would more generally put employees under greater pressure. This distrust inhibited GM's ability to negotiate for the working arrangements needed to introduce the new practices (such as teams and joint problem solving).

Videojet's and GM's experiences illustrate a fundamental issue: Management practices often rely on a complicated shared understanding among people within the firm. The inability to foster it can easily kill the efforts of the most able and well-intentioned managers. On the other hand, once such an understanding is in place, it's very difficult for competitors to replicate.

A question that managers face is how to create this common understanding. Changing individual incentives is unlikely to work, since the adoption of new processes usually requires the cooperation of teams of people; it's difficult to disentangle the rewards to be assigned to a single employee. And adoption is hard to measure, so it would be challenging to tie an individual bonus to the implementation of a certain practice. As organizational economists know, simple contractual solutions are hardly effective in these situations.

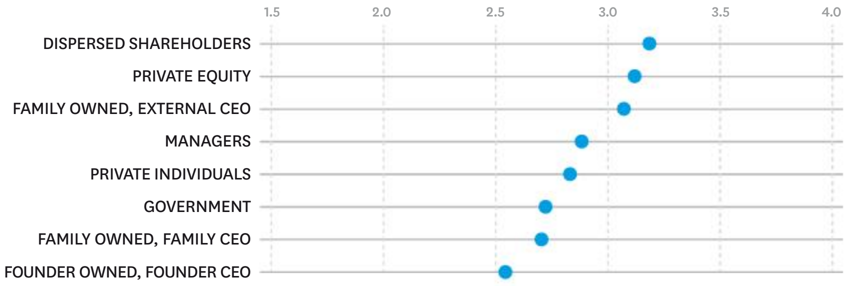
But managers have a different weapon at their disposal, which in our experience can potentially be more effective. It's their presence. The successful adoption stories that we've encountered in our research often took place in organizations where someone very high up signaled the importance of change through personal involvement, constant communication, message reinforcement, and visibility. "Walking the talk" matters enormously and can drastically affect the odds of success for change initiatives.

This idea is supported by a large-scale research project on the relationship between management and CEO behavior that Raffaella conducted with a different team of researchers at the London School of Economics and Columbia University. After a painstaking exercise in which they codified the agendas of more than 1,200 CEOs of manufacturing firms in six countries, they found that management quality was significantly higher in organizations in which CEOs dedicated a larger portion of their time to employees than to outside stakeholders.

Though core management practices may appear to be relatively simple—in that they often rely on nontechnological investments—they are not light switches that can be flipped on and off at will. They require a profound commitment from the top, an understanding of the types of skills required for adoption, and—ultimately—a fundamental shift in mentality at all levels of the organization.

FAMILY-RUN FIRMS TEND TO HAVE WEAKER MANAGEMENT

AVERAGE SCORE BY TYPE OF OWNERSHIP (1 = WORST; 5 = BEST)



NEXT STEPS

Our findings have implications for how managers are trained. Today business students are encouraged to judge case studies about operational effectiveness as "nonstrategic" and to see these issues as not pertinent to the role of the CEO. But it's unwise to teach future leaders that strategic decision making and basic management processes are unrelated, and that the first is far more important to competitive success than the second.

Indeed, our work suggests that the management community may have badly underestimated the benefits of core management practices—as well as the investment needed to strengthen them—by relegating them to the domain of "easy to replicate." Managers should certainly dedicate their time to fundamental strategic choices, but they should not suppose that fostering strong managerial practices is below their pay grade. Just as the ability to discern competitive shifts is important to firm performance, so too is the ability to make sure that operational effectiveness is truly part of the organization's DNA.

One frequent suggestion in this era of flattened organizations is that everyone has to be a strategist. But we'd suggest that everyone also needs to be a manager. Core management practices, established thoughtfully, can go a long way toward plugging the execution gap and ensuring that strategy gets the best possible chance to succeed.

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UNDERSTANDING MANAGEMENT'S VALUE

MANAGEMENT IS MUCH MORE THAN A SCIENCE

THE LIMITS OF DATA-DRIVEN DECISION MAKING

BY ROGER L. MARTIN AND TONY GOLSBY-SMITH

Underlying the practice and study of business is the belief that management is a science and that business decisions must be driven by rigorous analysis of data. The explosion of big data has reinforced this idea. In a recent EY survey, 81% of executives said they believed that "data should be at the heart of all decision-making," leading EY to enthusiastically proclaim that "big data can eliminate reliance on 'gut feel' decision-making."

Managers find this notion appealing. Many have a background in applied sciences. Even if they don't, chances are, they have an MBA—a degree that originated in the early 20th century, when Frederick Winslow Taylor was introducing "scientific management."

MBA programs now flood the business world with graduates—more than 150,000 a year in the United States alone. These programs have been trying to turn management into a hard science for most of the past six decades. In large measure this effort began in response to scathing reports on the state of business education in America issued by the Ford and Carnegie Foundations in 1959. In the view of the report writers—all economists—business programs were filled with underqualified students whose professors resisted the methodological rigor of the hard sciences, which other social sciences had embraced. In short, business education wasn't scientific enough.

ILLUSTRATIONS BY MASA

IN BRIEF

THE PROBLEM

The big-data revolution has reinforced the belief that all business decisions should be reached through scientific analysis. But this approach has its limits, and it tends to narrow strategic options and hinder innovation.

WHY IT HAPPENS

The scientific method is designed to understand natural phenomena that cannot be changed—the sun will always rise tomorrow. It is not an effective way to evaluate things that do not yet exist.

THE SOLUTION

To make decisions about what could be, managers should devise narratives about possible futures, applying the tools of metaphor, logic, and emotion first described by Aristotle. Then they must hypothesize what would have to be true for those narratives to happen and validate their hypotheses through prototyping.

It was in part to remedy this shortcoming that the Ford Foundation supported the creation of academic journals and funded the establishment of doctoral programs at Harvard Business School, the Carnegie Institute of Technology (the predecessor of Carnegie Mellon), Columbia, and the University of Chicago.

But is it true that management is a science? And is it right to equate intellectual rigor with data analysis? If the answers to those questions are no and no—as we will suggest in the following pages—then how should managers arrive at their decisions? We'll set out an alternative approach for strategy making and innovation—one that relies less on data analysis and more on imagination, experimentation, and communication.

But first let's take a look back at where—or rather with whom—science started.

IS BUSINESS A SCIENCE?

What we think of as science began with Aristotle, who as a student of Plato was the first to write about cause and effect and the methodology for demonstrating it. This made "demonstration," or proof, the goal of science and the final criterion for "truth." As such, Aristotle was the originator of the approach to scientific exploration, which Galileo, Bacon, Descartes, and Newton would formalize as "the Scientific Method" 2,000 years later.

It's hard to overestimate the impact of science on society. The scientific discoveries of the Enlightenment—deeply rooted in the Aristotelian methodology—led to the Industrial Revolution and the global economic progress that followed. Science solved problems and made the world a better place. Small wonder that we came to regard great scientists like Einstein as latter-day saints. And even smaller wonder that we came to view the scientific method as a template for other forms of inquiry and to speak of "social sciences" rather than "social studies."

But Aristotle might question whether we've allowed our application of the scientific method to go too far. In defining his approach, he set clear boundaries around what it should be used for, which was understanding natural phenomena that "cannot be other than they are." Why does the sun rise every day, why do lunar eclipses happen when they do, why do objects always fall to the ground? These things are beyond the control of any human, and science is the study of what makes them occur.

However, Aristotle never claimed that all events were inevitable. To the contrary, he believed in free will and the power of human agency to make choices that can radically change situations. In other words, if people choose, a great many things in the world can be other than they are. "Most of the things about which we make decisions, and into which we therefore inquire, present us with alternative possibilities....All our actions have a contingent character; hardly any of them are determined by necessity," he wrote. He believed that this realm of possibilities was driven not by scientific analysis but by human invention and persuasion.

We think this is particularly true when it comes to decisions about business strategy and innovation. You can't chart a course for the future or bring about change merely by analyzing history. We would suggest, for instance, that the behavior of customers will never be transformed by a product whose design is based on an analysis of their past behavior.

Yet transforming customer habits and experiences is what great business innovations do. Steve Jobs, Steve Wozniak, and other computing pioneers created a brand-new device that revolutionized how people interacted and did business. The railroad, the motor car, and the telephone all introduced enormous behavioral and social shifts that an analysis of prior data could not have predicted.

To be sure, innovators often incorporate scientific discoveries in their creations, but their real genius lies in their ability to imagine products or processes that simply never existed before.

The real world is not merely an outcome determined by ineluctable laws of science, and acting as if it is denies the possibility of genuine innovation. A scientific approach to business decision making has limitations, and managers need to figure out where those limitations lie.

CAN OR CANNOT?

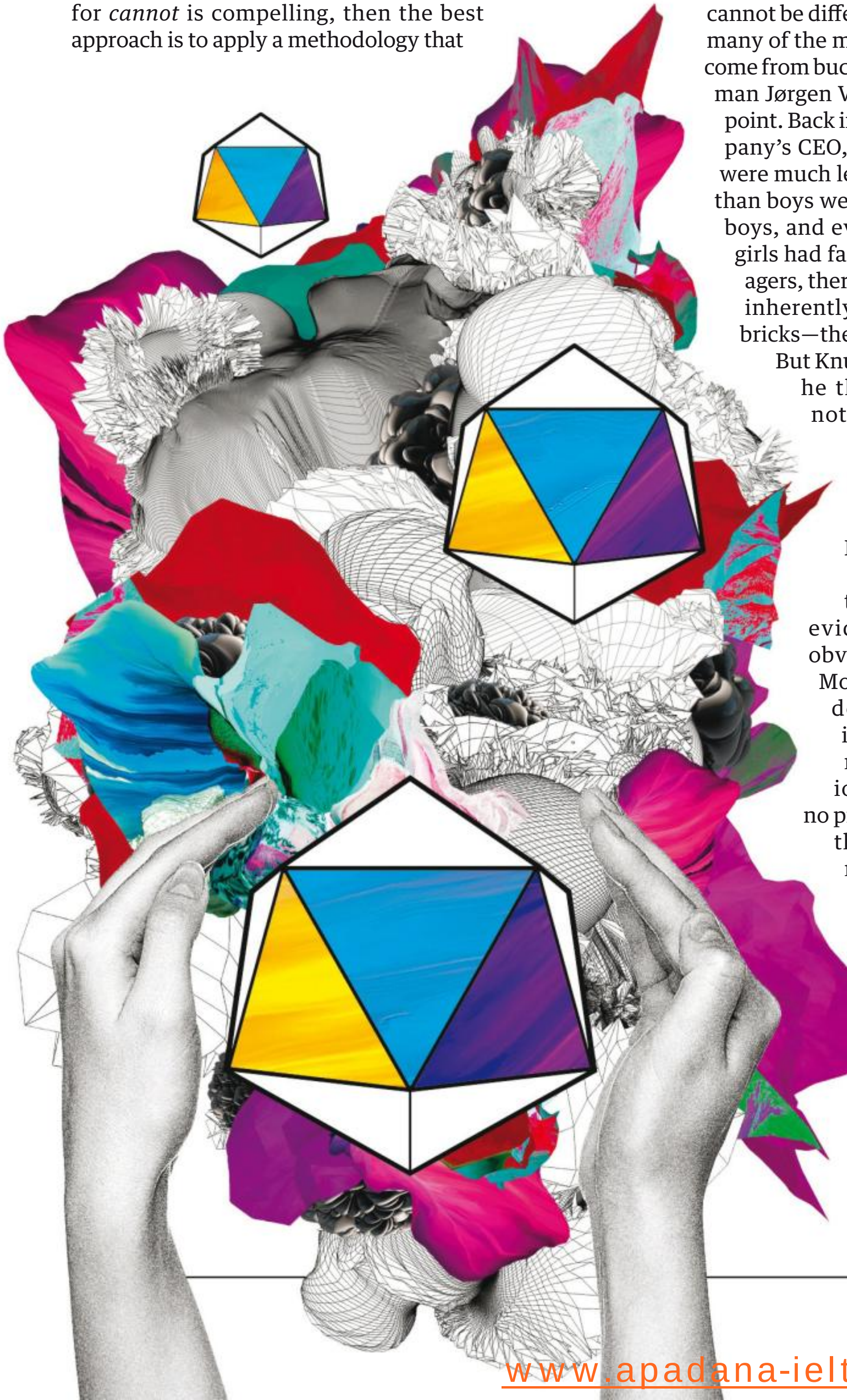
Most situations involve some elements you can change and some you cannot. The critical skill is spotting the difference. You need to ask, Is the situation dominated by possibility (that is, things we can alter for the better) or by necessity (elements we cannot change)?

Suppose you plan to build a bottling line for plastic bottles of springwater. The standard way to set one up is to take "forms" (miniature thick plastic tubes), heat them, use air pressure to mold them to full bottle size, cool them until they're rigid, and finally fill them with water. Thousands of bottling lines around the world are configured this way.

Some of this cannot be other than it is: how hot the form has to be to stretch; the amount of air pressure required to mold the bottle; how fast the bottle can be cooled; how quickly the water can fill the bottle. These are determined by the laws of thermodynamics and gravity—which executives cannot do a thing to change.

Still, there's an awful lot they can change. While the laws of science govern each step, the steps themselves don't have to follow the sequence that has dominated bottling for decades. A company called LiquiForm demonstrated that after asking, Why can't we combine two steps into one by forming the bottle with pressure from the liquid we're putting into it, rather than using air? And that idea turned out to be utterly doable.

Executives need to deconstruct every decision-making situation into *cannot* and *can* parts and then test their logic. If the initial hypothesis is that an element can't be changed, the executive needs to ask what laws of nature suggest this. If the rationale for *cannot* is compelling, then the best approach is to apply a methodology that will optimize the status quo. In that case let science be the master and use its tool kits of data and analytics to drive choices.



In a similar way, executives need to test the logic behind classifying elements as *cans*. What suggests that behaviors or outcomes can be different from what they have been? If the supporting rationale is strong enough, let design and imagination be the master and use analytics in their service.

It's important to realize that the presence of data is not sufficient proof that outcomes cannot be different. Data is not logic. In fact, many of the most lucrative business moves come from bucking the evidence. Lego chairman Jørgen Vig Knudstorp offers a case in point. Back in 2008, when he was the company's CEO, its data suggested that girls were much less interested in its toy bricks than boys were: 85% of Lego players were boys, and every attempt to attract more girls had failed. Many of the firm's managers, therefore, believed that girls were inherently less likely to play with the bricks—they saw it as a *cannot* situation. But Knudstorp did not. The problem, he thought, was that Lego had not yet figured out how to get girls to play with construction toys. His hunch was borne out with the launch of the successful Lego Friends line, in 2012.

The Lego case illustrates that data is no more than evidence, and it's not always obvious what it is evidence of. Moreover, the absence of data does not preclude possibility. If you are talking about new outcomes and behaviors, then naturally there is no prior evidence. A truly rigorous thinker, therefore, considers not only what the data suggests but also what within the bounds of possibility could happen. And that requires the exercise of imagination—a very different process from analysis.

Also, the division between *can* and *cannot* is more fluid than most people think. Innovators will push that boundary more than most, challenging the *cannot*.

DATA IS NOT LOGIC. IN FACT, MANY OF THE MOST LUCRATIVE BUSINESS MOVES COME FROM BUCKING THE EVIDENCE.

BREAKING THE FRAME

The imagination of new possibilities first requires an act of unframing. The status quo often appears to be the only way things can be, a perception that's hard to shake.

We recently came across a good example of the status quo trap while advising a consulting firm whose clients are nonprofit organizations. The latter face a "starvation cycle," in which they get generously funded for the direct costs of specific programs but struggle to get support for their indirect costs. A large private foundation, for instance, may fully fund the expansion of a charity's successful Latin American girls' education program to sub-Saharan Africa, yet underwrite only a small fraction of the associated operational overhead and of the cost of developing the program in the first place. This is because donors typically set low and arbitrary levels for indirect costs—usually allowing only 10% to 15% of grants to go toward them, even though the true indirect costs make up 40% to 60% of the total tab for most programs.

The consulting firm accepted this framing of the problem and believed that the strategic challenge was figuring out how to persuade donors to increase the percentage allocated to indirect costs. It was considered a given that donors perceived indirect costs to be a necessary evil that diverted resources away from end beneficiaries.

NATURAL SCIENCE EXPLAINS THE WORLD AS IT IS, BUT A STORY CAN DESCRIBE A WORLD THAT DOES NOT YET EXIST.

We got the firm's partners to test that belief by listening to what donors said about costs rather than selling donors a story about the need to raise reimbursement rates. What the partners heard surprised them. Far from being blind to the starvation cycle, donors hated it and understood their own role in causing it. The problem was that they didn't trust their grantees to manage indirect costs. Once the partners were liberated from their false belief, they soon came up with a wide range of process-oriented solutions that could help nonprofits build their competence at cost management and earn their donors' confidence.

Although listening to and empathizing with stakeholders might not seem as rigorous or systematic as analyzing data from a formal survey, it is in fact a tried-and-true method of gleaning insights, familiar to anthropologists, ethnographers, sociologists, psychologists, and other social scientists. Many business leaders, particularly those who apply design thinking and other user-centric approaches to innovation, recognize the importance of qualitative, observational research in understanding human behavior. At Lego, for example, Knudstorp's initial questioning of gender assumptions triggered four years of ethnographic studies that led to the discovery that girls are more interested in collaborative play than boys are, which suggested that a collaborative construction toy could appeal to them.

Powerful tool though it is, ethnographic research is no more than the starting point for a new frame. Ultimately, you have to chart out what could be and get people on board with that vision. To do that, you need to create a new narrative that displaces the old frame that has confined people. And the story-making process has principles that are entirely different from the principles of natural science. Natural science explains the world as it is, but a story can describe a world that does not yet exist.

CONSTRUCTING PERSUASIVE NARRATIVES

It may seem unlikely, but Aristotle, the same philosopher who gave us the scientific method, also set out methods for creating compelling narratives. In *The Art of Rhetoric* he describes a system of persuasion that has three drivers:

- **Ethos:** the will and character to change the current situation. To be effective, the author of the narrative must possess credibility and authenticity.
- **Logos:** the logical structure of the argument. This must provide a rigorous case for transforming problems into possibilities, possibilities into ideas, and ideas into action.
- **Pathos:** the capacity to empathize. To be capable of inspiring movement on a large scale, the author must understand the audience.

A multibillion-dollar merger of two large insurance companies offers an example of how to use ethos, logos, and pathos. The two firms were longtime competitors. There were winners and losers in the deal, and employees at all levels were nervous and unsettled. To complicate matters, both firms had grown by acquisition, so in effect this was a merger of 20 or 30 different cultures. These smaller legacy groups had been independent and would resist efforts to integrate them to capture synergies. On top of that, the global financial crisis struck just after the merger, shrinking the industry by 8%. So the merged enterprise's leaders faced a double challenge: a declining market and a skeptical organizational culture.

The normal approach to postmerger integration is rational and reductionist: Analyze the current cost structures of the two organizations and combine them into one smaller structure—with the attendant layoffs of "redundant" employees. However, the leader of the merged companies did not want to follow the usual drill. Rather, he wanted to build a new organization from the ground up. He supplied the ethos by articulating the goal of accomplishing something bigger and better than a standard merger integration.

However, he needed the logos—a powerful and compelling case for a future that was different. He built one around the metaphor of a thriving city. Like a city, the new organization would be a diverse ecosystem that would grow in both planned and unplanned ways. Everybody would be part of that growth and contribute to the city. The logic of a thriving city captured the imagination of employees enough for them to lean into the task and imagine possibilities for themselves and their part of the organization.

The effort also required pathos—forging an emotional connection that would get employees to commit to building this new future together. To enlist them, the leadership group took a new approach to communication. Typically, executives communicate postmerger integration plans with town halls, presentations, and e-mails that put employees on the receiving end of messages. Instead the leadership group set up a series of collaborative sessions in which units in the company held conversations about the thriving-city metaphor and used it to explore challenges and design the work in their sphere of activity. How would the claims department look different in the thriving city? What would finance look like? In effect, employees were creating their own mini-narratives within the larger narrative the leaders had constructed. This approach required courage because it was so unusual and playful for such a large organization in a conservative industry.

The approach was a resounding success. Within six months, employee engagement scores had risen from a dismal 48% to a spectacular 90%. That translated into performance: While the industry shrank, the company's business grew by 8%, and its customer satisfaction scores rose from an average of 6 to 9 (on a scale of 1 to 10).

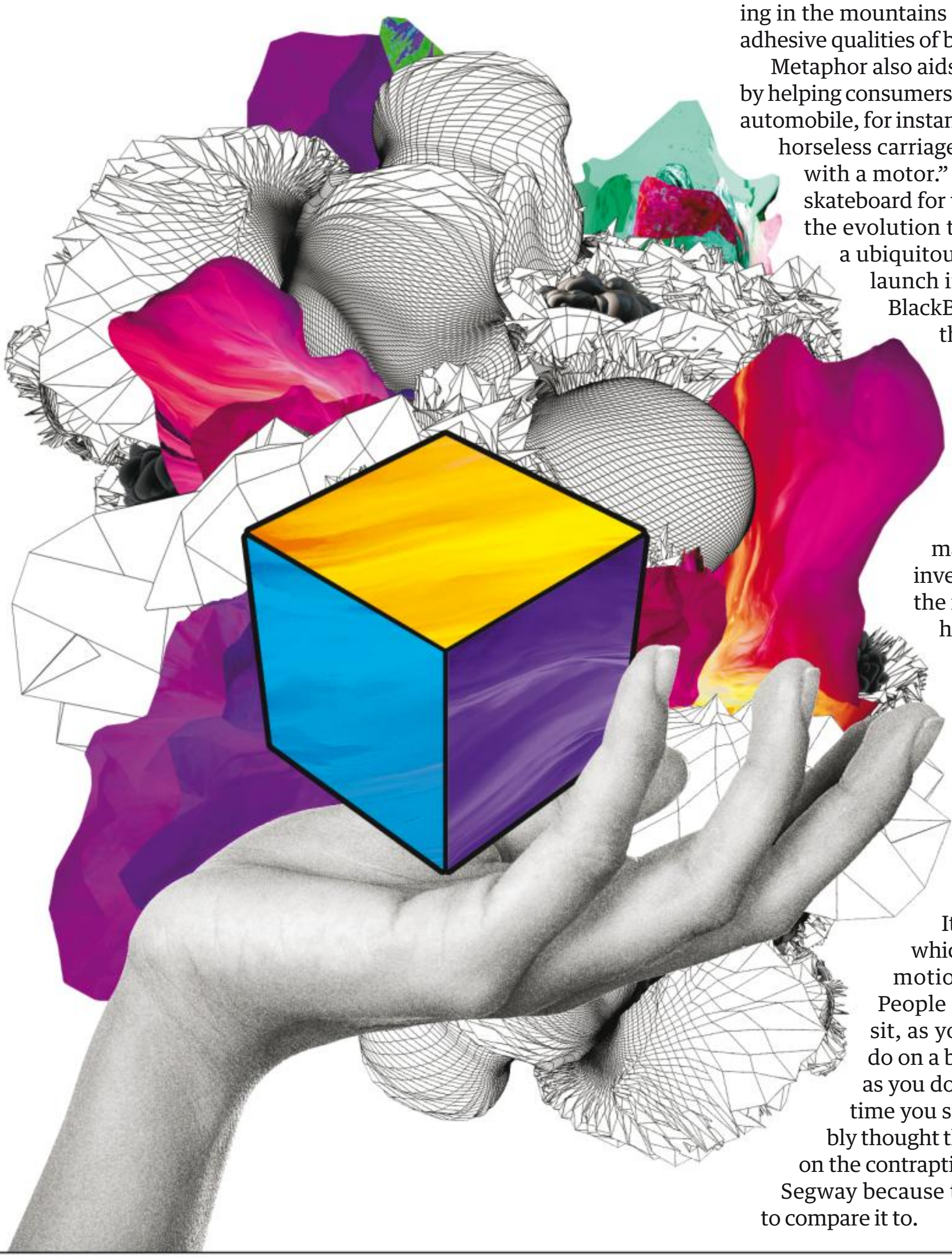
This case illustrates the importance of another rhetorical tool: a strong metaphor that captures the arc of your narrative in a sentence. A well-crafted metaphor reinforces all three elements of persuasion. It makes logos, the logical argument, more compelling and strengthens pathos by helping the audience connect to that argument. And finally, a more compelling and engaging argument enhances the moral authority and credibility of the leader—the ethos.

WHY METAPHORS MATTER

We all know that good stories are anchored by powerful metaphors. Aristotle himself observed, "Ordinary words convey only what we know already; it is from metaphor that we can best get hold of something fresh." In fact, he believed that mastery of metaphor was the key to rhetorical success: "To be a master of metaphor is the greatest thing by far. It is...a sign of genius," he wrote.

It's perhaps ironic that this proposition about an unscientific construct has been scientifically confirmed. Research in cognitive science has demonstrated that the core engine of creative synthesis is "associative fluency"—the mental ability to connect two concepts that are not usually linked and to forge them into a new idea. The more diverse the concepts, the more powerful the creative association and the more novel the new idea.

With a new metaphor, you compare two things that aren't usually connected. For instance, when Hamlet says to Rosencrantz, "Denmark's a prison," he is associating two elements in an unusual way. Rosencrantz knows what "Denmark" means, and he knows what "a prison" is. However, Hamlet presents a new concept to him that is neither the Denmark he knows nor the prisons he knows. This third element is the novel idea or creative synthesis produced by the unusual combination.



When people link unrelated concepts, product innovations often result. Samuel Colt developed the revolving bullet chamber for his famous pistol after working on a ship as a young man and becoming fascinated by the vessel's wheel and the way it could spin or be locked by means of a clutch. A Swiss engineer was inspired to create the hook-and-loop model of Velcro after walking in the mountains and noticing the extraordinary adhesive qualities of burrs that stuck to his clothing.

Metaphor also aids the adoption of an innovation by helping consumers understand and relate to it. The automobile, for instance, was initially described as "a horseless carriage," the motorcycle as "a bicycle with a motor." The snowboard was simply "a skateboard for the snow." The very first step in the evolution that has made the smartphone a ubiquitous and essential device was the launch in 1999 of Research in Motion's BlackBerry 850. It was sold as a pager that could also receive and send e-mails—a comforting metaphor for initial users.

One needs only to look at the failure of the Segway to see how much harder it is to devise a compelling narrative without a good metaphor. The machine, developed by superstar inventor Dean Kamen and hyped as the next big thing, was financed by hundreds of millions in venture capital. Although it's a brilliant application of advanced technology, hardly anyone uses it. Many rationalizations can be made for its failure—the high price point, the regulatory restrictions—but we would argue that a key reason is that the Segway is analogous with absolutely nothing at all. It is a little wheeled platform on which you stand upright and largely motionless while moving forward. People couldn't relate to it. You don't sit, as you do in a car, or pedal, as you do on a bicycle, or steer it with handles, as you do a motorcycle. Think of the last time you saw a Segway in use. You probably thought the rider looked laughably geeky on the contraption. Our minds don't take to the Segway because there is no positive experience to compare it to.

We're not saying that an Aristotelian argument can't be made without a metaphor; it is just much harder. A horseless carriage is easier to sell than the Segway.

CHOOSING THE RIGHT NARRATIVE

When you're facing decisions in the realm of possibilities, it's useful to come up with three or four compelling narratives, each with a strong metaphor, and then put them through a testing process that will help you reach consensus around which one is best. What does that entail? In the *cannot* world, careful analysis of data leads to the optimal decision. But in the *can* world, where we are seeking to bring something into existence, there is no data to analyze. To evaluate your options, you need to do the following:

Clarify the conditions. While we have no way of proving that a proposed change will have the desired effect, we can specify *what we think would have to be true about the world* for it to work. By considering this rather than debating what is true about the world as it is, innovators can work their way toward a consensus. The idea is to have the group agree on whether it can make most of those conditions a reality—and will take responsibility for doing so.

This was the approach pursued many years ago by a leading office furniture company that had developed a new chair. Although it was designed to be radically superior to anything else on the market, the chair was expensive to make and would need to be sold at twice an office chair's typical price. The quantitative market research showed that customers reacted tepidly to the new product. Rather than giving up, the company asked what would have to be true to move customers from indifference to passion. It concluded that if customers actually tried the chair, they would experience its breakthrough performance and become enthusiastic advocates. The company went to market with a launch strategy based on a customer trial process, and the chair has since become the world's most profitable and popular office chair.

Soon after, the company's managers asked themselves the same question about a new office design concept that eliminated the need to build walls and install either flooring or ceilings to create office spaces. This product could be installed into the raw space of a new building, dramatically simplifying and lowering the cost of building out office space. It was clear that the company's customers, building tenants, would be interested. But for the new system to succeed, landlords would also have to embrace it. Unfortunately, the new system would eliminate the revenues they typically made on office build-outs, so it was unlikely that they would cooperate in applying it, despite its advantages to the tenants. The project was killed.

Create new data. The approach to experimentation in the *can* world is fundamentally different from the one in the *cannot* world. In the *cannot* world, the task is to access and compile the relevant data. Sometimes that involves simply looking it up—from a table in the Bureau of Labor Statistics database, for example. Other times, it means engaging in an effort to uncover it—such as through a survey. You may also have to apply accepted statistical tests to determine whether the data gathered demonstrates that the proposition—say, that consumers prefer longer product life to greater product functionality—is true or false.

In the *can* world, the relevant data doesn't exist because the future hasn't happened yet. You have to create the data by prototyping—giving users something they haven't seen before and observing and recording their reactions. If users don't respond as you expected, you plumb for insights into how the prototype could be improved. And then repeat the process until you have generated data that demonstrates your innovation will succeed.

Of course, some prototyped ideas are just plain bad. That's why it's important to nurture multiple narratives. If you develop a clear view of what would have to be true for each and conduct prototyping exercises for all of them, consensus will emerge about which narrative is most compelling in action. And involvement in the process will help the team get ready to assume responsibility for putting the chosen narrative into effect.

IN THE *CAN* WORLD, THE RELEVANT DATA DOESN'T EXIST BECAUSE THE FUTURE HASN'T HAPPENED YET. YOU HAVE TO CREATE IT BY PROTOTYPING.

THE FACT THAT scientific analysis of data has made the world a better place does not mean that it should drive every business decision. When we face a context in which things cannot be other than they are, we can and should use the scientific method to understand that immutable world faster and more thoroughly than any of our competitors. In this context the development of more-sophisticated data analytics and the enthusiasm for big data are unalloyed assets.

But when we use science in contexts in which things can be other than they are, we inadvertently convince ourselves that change isn't possible. And that will leave the field open to others who invent something better—and we will watch in disbelief, assuming it's an anomaly that will go away. Only when it is too late will we realize that the insurgent has demonstrated to our former customers that things indeed can be different. That is the price of applying analytics to the entire business world rather than just to the appropriate part of it.

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Harvard Business Review

Experience

SEPTEMBER–OCTOBER 2017

ILLUSTRATION BY BENOIT TARDIF

COULD YOUR PERSONALITY DERAIL YOUR CAREER?

DON'T TAKE THESE TRAITS TO THE EXTREME.

BY TOMAS CHAMORRO-PREMUZIC

WHEN CONSIDERING WHAT it takes to succeed at work, we often focus on innate strengths: high intelligence, the ability to learn, the ambition to achieve, and the social skills to develop strong relationships. But these characteristics always coexist with weaknesses—aspects of personality that might seem innocuous or even advantageous in some circumstances but that when left unchecked can wreak havoc on careers and organizations.

Two decades ago the psychologists Robert and Joyce Hogan created an inventory of these "dark side" traits—11 qualities, ranging from *excitable* to *dutiful,* that when taken to the extreme, resemble the most common personality disorders. (See the exhibit "Dark Traits Defined.") Since then their related assessment, the Hogan Development Survey (HDS), licensed by the eponymous company with which I am affiliated, has been widely adopted within the field of industrial-organizational psychology as a way to identify individuals' development needs.

After profiling millions of employees, managers, and leaders, we know that most people display at least three of these dark-side traits, and about 40% score high enough on one or two to put them at risk for disruption in their careers—even if they're currently successful and effective. The result is pervasive dysfunctional behavior at work.

Worryingly, leaders tend to do a poor job of evaluating their own dark sides, particularly as they gain power and move up the ranks. Some perceive their career advancement as an endorsement or encouragement of their bad habits. Eventually, however, those weaknesses may derail them, and perhaps their teams and organizations, too. For example, *cautious* leaders may convey the illusion of control and risk management in the short term, but being overly cautious may cause them to be so risk-averse that they obstruct progress and innovation. Being *excitable* may help you display passion and enthusiasm to coworkers and subordinates, but it can also make you volatile and unpredictable, which is taxing to others. *Diligence* helps you pay attention to details and strive to produce quality work, yet in excess it can morph into procrastination and obsessive perfectionism.

Research over decades suggests that it's very difficult to change core aspects of your personality after age 30. But you can—through self-awareness, appropriate goal setting, and persistence—tame your dark side in critical situations, by changing your behaviors.

UNDERSTANDING THE DARK SIDE

Dark-side traits can be divided into three clusters. Those in the first are distancing traits—obvious turnoffs that push other people away. Being highly *excitable* and moody has this effect, for instance. So does having a deeply *skeptical,* cynical outlook, which makes it hard to build trust. Another example is *leisurely* passive-aggressiveness—pretending to have a relaxed, polite attitude while actually resisting cooperation or even engaging in backstabbing.

Traits in the second cluster are, in contrast, seductive qualities—geared to pull people in. They're often found in assertive, charismatic leaders, who gather followers or gain influence with bosses through their ability to "manage up." But these traits can also have negative consequences, because they lead people to overestimate their own worth and fly too close to the sun. Being *bold* and confident to the point of arrogance is a good example; so is being puckishly

DARK TRAITS DEFINED

TRAIT	DEFINITION	CLINICAL VERSION	UPSIDE	DOWNSIDE
CLUSTER 1: DISTANCING TRAITS				
Excitable	moody, easily annoyed, hard to please, emotionally unstable	bipolar	passion, enthusiasm	outbursts, volatility
Skeptical	distrustful, cynical, sensitive to criticism, focused on the negative	paranoid	politically astute, hard to fool	mistrustful, quarrelsome
Cautious	unassertive, resistant to change, slow to make decisions	avoidant	careful, precise	indecisive, risk-averse
Reserved	aloof, indifferent to others' feelings	schizoid	stoic, calm under pressure	uncommunicative, insensitive
Leisurely	overtly cooperative but privately irritable, stubborn, uncooperative	avoidant	relaxed, easygoing on the surface	passive-aggressive, driven by personal agenda
CLUSTER 2: SEDUCTIVE TRAITS				
Bold	overly self-confident, entitled, with an inflated sense of self-worth	narcissistic	assertive, filled with conviction	arrogant, grandiose
Mischievous	risk-taking, limit-testing, excitement-seeking	psychopathic	risk-tolerant, charmingly persuasive	impulsive, manipulative
Colorful	dramatic, attention-seeking, tends to interrupt rather than listen	histrionic	entertaining, expressive	socially obtuse
Imaginative	thinks and acts in unusual or eccentric ways	schizotypal	creative, visionary	subject to wacky ideas, constant change
CLUSTER 3: INGRATIATING TRAITS				
Diligent	meticulous, precise, detail-oriented	obsessive-compulsive	hardworking, high standards	perfectionistic, micromanaging
Dutiful	eager to please, reluctant to act independently or express disagreement	dependent	compliant, loyal	submissive, conflict-averse

SOURCE "DEALING WITH THE DARK SIDE," BY ROB KAISER (*TALENT QUARTERLY,* 2016)

mischievous, with an enormous appetite for reckless risk.

The third cluster contains ingratiating traits, which can have a positive connotation in reference to followers but rarely do when describing leaders. Someone who is *diligent,* for instance, may try to impress her boss with her meticulous attention to detail, but that can also translate into preoccupation with petty matters or micromanagement of her own direct reports. Someone who is *dutiful* and eager to please those in authority can easily become too submissive or acquiescent.

Not all dark-side traits are created equal. In a global meta-analysis of 4,372 employees across 256 jobs in multiple industries, distancing traits had a consistently negative impact on individuals' work attitudes, leadership, decision making, and interpersonal skills (reflected in poor performance ratings and 360-degree reviews). But the seductive traits sometimes had positive effects. For instance, *colorful,* attention-seeking leaders often get better marks from bosses than their more *reserved* counterparts. And *bold,* ultra-confident CEOs often attain high levels of growth in entrepreneurial ventures. Dark-side traits also differ in their consequences. A *mischievous,* risk-taking leader who is under pressure to demonstrate financial growth can destroy an entire organization with a single impulsive decision. An *excitable* leader might simply wreck his career with a public temper tantrum.

It's worth noting that a complete lack of these traits can be detrimental as well. An extremely calm, even-tempered, soft-spoken manager—someone who isn't remotely *excitable*—may come across as dull or uninspiring. The key, then, is not to eliminate your personality weaknesses but to manage and optimize them: The right score is rarely the lowest or the highest but moderate.

MANAGING YOUR DARK SIDE

If you are unable to complete a full psychological assessment to identify your potential derailers, you can take an abbreviated version of the HDS at www.hoganx.io (with registration required) or simply compare your typical patterns of behavior with the basic profiles of the traits, shown in the exhibit. Even better: Ask bosses, peers, subordinates, and clients to give you honest and critical feedback on your tendency to display these traits. Tell them that you want to improve and need their candor. How do they see you when you're not at your best? Do any of the traits sound a little (or a lot) like you? You might mention a pattern you've noticed or that others have commented on. You can improve your self-awareness through formal feedback mechanisms, such as performance appraisals, 360s, check-ins with your manager, and project debriefs. The key to gathering accurate information is to recognize that people will generally avoid offering critiques, especially to leaders, unless the behaviors are truly egregious. So in addition to assuring them that you welcome their honest assessments, you should listen carefully for subtle or offhand remarks.

Remember, too, that people in your personal life are likely to be more familiar with your dark side than work colleagues are, so ask for their candid opinions as well. At work you're often on your best behavior. In private, when you're comfortable being yourself and are relatively unconstrained by social etiquette, you're more likely to show your true colors.

It's also important to identify danger zones. As your situation changes—say you get a new manager, take a promotion, or switch organizations—different derailers may become more pronounced, and the context will determine whether they are more or less problematic. For example, a high score on *imaginative* may be useful if you're in an innovation role or working for an entrepreneurial boss, but it's worrisome if you're in risk management or have a conservative manager. Stress brings out dark-side traits by taxing our cognitive resources and making us less able to exert the self-control needed to keep our worst tendencies in check. And when we're under too little pressure—too relaxed—we may display some of the dark

CASE STUDY 1
FROM GETTING ALONG TO GETTING AHEAD

Jane, the R&D manager of a global pharmaceutical company, is liked by her team and her boss, largely because of her emotional intelligence. However, her positive attributes are often eclipsed by her dark side. As someone who scores high on *dutiful,* Jane rarely disagrees with her reports and does so even less often with her boss, and she has real trouble providing negative feedback. She often underestimates big problems and rarely takes the initiative to suggest new ideas or projects. After her HDS scores revealed that these issues were rooted in her personality, Jane committed to making some changes. Her regular meetings with direct reports now start with a request: "Tell me what I can do better, and I'll do the same for you." She has become more assertive in critical situations: challenging the poor performers on her team, routinely presenting her manager with strategic recommendations, emphasizing things she "would do differently," and joining a couple of blue-sky task forces as an impetus to think more independently about big-picture innovation. As a result, Jane feels that her reputation has moved from "good manager" to "potential leader," while her team's mentality has shifted from "getting along" to "getting ahead," which has improved its performance.

CASE STUDY 2
FROM HOTHEADED TO MORE CONTROLLED

Amir is a sales VP with a high *excitable* score. Though he'd always regarded himself as passionate and energetic—willing to speak out in leadership meetings and engage in heated debate on important business issues—interviews with his manager and peers revealed that others perceived him as hotheaded and lacking an executive disposition—a person who would verbally lash out at anyone who offered an opinion contrary to his own. He learned to temper this derailer by incorporating three behavioral changes into his routine. First, he started taking short walks before regularly scheduled team meetings to compose his thoughts and consider topics that might arise and trigger his emotions. Second, as group discussions began, he moved his watch from his left arm to his right as a reminder to maintain control. Third, he began using "information-seeking behaviors" with peers in team meetings—such as asking, "Can you tell me a bit more about your idea and how it might improve the situation?" Colleagues recognized the sincere effort he was making and began to regard him as more "considerate" and "controlled."

CAREER ADVANCEMENT IS A FUNCTION OF HOW PEOPLE SEE YOU. UNFORTUNATELY, EVEN SMALL SLIPS—IGNORING NEGATIVE FEEDBACK, RESPONDING IMPULSIVELY TO UNPLEASANT E-MAILS—CAN CAUSE SIGNIFICANT REPUTATIONAL DAMAGE.

traits we successfully hide when we are more focused.

The next step is to preempt your derailers with behavioral change. You may have to feel your way toward that through successive approximations—tracking others' perceptions, making adjustments, doing more gauging, and so on. The goal here is not to reconstruct your personality but, rather, to control it in critical situations.

Change may involve engaging in a new behavior. For example, if you are highly *reserved,* which often leaves others wondering what you think, commit to speaking up once in each meeting, use e-mail to communicate thoughts on critical issues, or convey your feedback through others. You might also work to eliminate certain behaviors. For example, if you are highly *colorful,* you might avoid watercooler chitchat or hold back from volunteering for important presentations so that a colleague or a subordinate can take center stage. These changes may make you uncomfortable at first, but the more you practice, the more natural they will feel, and the more likely they will be to become habits.

To control your dark-side traits long-term, you'll need to view reputation management as central to your development. This may seem like a superficial strategy for change, but career advancement is a function of how people see you. When your dark-side traits negatively affect others' perceptions of you, they become barriers to career success and good leadership. Unfortunately, even small slips—ignoring negative feedback when you are *bold,* responding to unpleasant e-mails in an impulsive manner when you are *excitable,* or getting carried away by awkward ideas when you are *imaginative*—can cause significant reputational damage.

To be sure, taming your dark side is hard work. Most people don't really want to change—they want to *have* changed. But if you identify the traits that trip you up, modify certain behaviors, and continue to adjust in response to critical feedback, you will greatly enhance your reputation, and with it your career and leadership potential.

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CASE STUDY

WHEN IT'S TIME TO EXPAND BEYOND THE BASE

AN EXTREME-RACE COMPANY CONSIDERS A VIP TIER.

BY MARCO BERTINI AND NADER TAVASSOLI

It was the morning after the Phoenix race. Erica Jackson, CMO of Mendoza Marathon Corporation, had risen early to watch people register for next year's event, and she expected an enthusiastic crowd. But when she arrived at the field, she saw only dour looks and slumped shoulders.

She spotted Alan Kurtz, MMC's chief operating officer, and headed over to join him, but a racer intercepted her. "Do you work for Mendoza?" he asked, sounding annoyed.

Erica looked down at the MMC logo on her water bottle, remembered her matching hat, and knew she was outed. She'd joined the company six weeks before, after a long stint as CMO of Atawear, a sports apparel firm. An avid runner, she was excited to work with CEO Danny Mendoza, the former Olympian and founder of MMC, which ran races combining ultramarathons and military-style obstacle courses. The events had started as a personal challenge among Danny and his friends but now had grown to more than 50 races across Canada, Europe, and the United States. Danny couldn't compete in or even attend all the races himself anymore, but he encouraged his staff to participate as often as possible. Staying connected to MMC athletes—especially the "Mendoza maniacs," as the hard-core racers called themselves—was vital to him.

"This is a nightmare," the racer said. "I didn't even compete yesterday, but I had to drive overnight from L.A. to get here to register. I took a day off work, and now the line isn't even moving."

"You can register online," Erica began, but the racer rolled his eyes.

Erica sighed. During her first weeks on the job, Danny had encouraged her to go on a "listening tour," meeting with MMC staff and athletes, and she quickly learned that the registration process was a huge pain point, frustrating both diehards and first-timers. Racers had

CASE STUDY CLASSROOM NOTES
Bertini and Tavassoli teach the original case in their undergrad and executive courses to examine the role of core customers in growing a company's brand and bottom line. Is it OK to upset your loyalists along the way?

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HBR's fictionalized case studies present problems faced by leaders in real companies and offer solutions from experts. This one is based on "How Far Can the Ironman Go?" by Marco Bertini, Nader Tavassoli, and Sergio Nuñez Alvarez, forthcoming from London Business School.

two options: compete with thousands of others to register online when slots went on sale (which was usually fruitless; a recent *GQ* article had noted that MMC bibs sold out faster than Springsteen tickets) or stand in line for a limited number of tickets at the race site, typically with a few hundred other racers. Showing up in person improved the odds and was what enthusiasts typically opted for, claiming the online madness was for amateurs.

"What's your name?" Erica eyed the racer's bulging biceps and MMC tattoo. He was clearly serious about training.

"Toby, 11." This was how Mendoza maniacs introduced themselves: name and number of races completed. "This is maddening. I'm a dedicated athlete, but my wife has had it with the amount of time and money I put into training. The huge time sink just to register makes it even worse."

"I'm Erica, zero—so far. And I can tell you we're absolutely working on it. We haven't nailed down the details, but we're getting there." The line started moving, so Toby threw her a skeptical look and shuffled forward. Erica turned to find Alan right behind her.

"Making big promises?" he teased.

"Well, he's right," she retorted. "We have to makes things better for the Tobys of the world."

The maniacs are an important customer group, but they're not the only one. The segment that fuels MMC's brand is not necessarily the same as those that boost its profits.

EXCLUSIVE MEMBERSHIP

The following week, Erica and Alan met with Danny to go over the new registration scheme, which Alan had been working on for the past year. His idea was to introduce an exclusive membership program, tentatively called Mendoza Access, which offered advance entrance to any race for a $1,500 annual fee. Market research had shown that committed maniacs like Toby were already shelling out that kind of money—sometimes more—just on travel to registration sites. And many signed up for multiple events in case later they weren't able to get into their first choice. This meant they took bibs that then went unused, exacerbating the scarcity problem for would-be racers. The new plan would offer a hassle-free entry process while boosting revenue. Erica thought Alan's proposal made a lot of sense. She'd seen VIP programs work well in her previous role, and she was eager to put in place a process that worked for everyone.

Participants in Ironman races spend from $8,000 to $35,000 a year and an average of 20 hours a week on race preparation.

"Does the $1,500 include the cost of registration?" Danny asked.

"No, they'd still be paying the $350 entry fee," Alan replied. "But if you consider that they're already paying for between two and six registrations, flights, hotels, and meals—not to mention the time they waste getting to the sites—this is a much better deal."

"And this will open more slots for other racers—people who haven't run with us before?"

"That's the idea. With Mendoza Access members signing up only for the races they actually plan to run, we're estimating an overall gain of several thousand spots," Erica said. "We're actually being more inclusive with the Access program without raising registration fees. It's a win-win."

Danny had been clear that he didn't want a proposal that raised prices across the board—keeping the fee relatively affordable was important to him. Alan and Erica had presented this solution because it was more targeted, focusing on price increases only for those willing to pay to avoid hassle and to save on registration fees.

"And we'd be doing all of this without significantly adding to our costs, which is what Carlton is looking for," Alan said, referring to the private equity firm that had recently invested in MMC. Danny knew his brand was underexploited, and Carlton had promised to help him expand MMC's customer base (and thereby boost Carlton's own returns) while staying true to the company's ethos of challenging people to push their physical and mental limits.

"Telling me it appeals to the suits won't help your case," Danny said. "I don't care what they think." Erica and Alan exchanged a quick glance. They both knew he was under pressure from Carlton to improve the bottom line, but he hated focusing on profits. When he talked about expansion, it was in terms of getting more people to embrace the MMC lifestyle. "I care about our racers."

"Access members will get other perks too. VIP passes for spectators, a subscription to our magazine, and discounts in the store," Alan noted.

An alternative strategy would be for MMC to increase the registration fee. Or it could adopt a dynamic algorithm where prices fluctuate in real time (or close to it) according to demand—a common approach among sellers of services with fixed, perishable capacities such as airlines, hotels, and car rental companies. Ride-sharing services, such as Uber, also use this approach with surge pricing.

Price increases can have serious consequences for brands. When Netflix raised the cost of its service by 60% in 2011, 800,000 users canceled their service and the firm's market cap plummeted by more than 70%.

Erica could tell Danny still wasn't convinced.

"Why don't we float it by some of our fans?" she said.

"Like in focus groups? What is this—1989?" Danny grumbled.

"No, online. Facebook, Twitter. Let's get a sense of how people will react. We don't have to share all the details, just the general idea."

"They're going to love it," Alan said. "And if they don't, they'll learn to."

SOCIAL SENTIMENT

"These are actual quotes?" Danny asked incredulously a week later. He was reading through a report Erica had handed him. "'For $1,500, the membership card better be made of unicorn skin!'" he recited. "'Buy access to run with filthy-rich weekend warriors who paid to cut the line instead of real athletes? No thanks.'"

Was Erica smart to suggest testing the idea this way? Would it have been better to ask for feedback in a more structured, less public manner?

Erica cringed inwardly. She'd been just as surprised by some of the heated responses and was starting to feel less sure about the proposal. She knew better than to be swayed by a few vocal people online, but even in her short tenure as CMO, she had come to realize how much Danny valued each and every racer.

"The response has been mixed," Alan admitted.

"Mixed? These are brutal," Danny said, reading another. "'MMC is now just a bunch of money-sucking corporate vampires who don't care about the people who made these races what they are.' That doesn't sound 'mixed' to me."

"We need to look at the overall picture," Erica said. "There were three times more positive responses than negative. Quite a few people said, 'Sign me up!'"

Danny was still focused on the comments. He read another: "'I get that you're running a business, but this is insulting. Why don't you just send Danny over here to kick my puppy?'"

"Should we pull the plug?" he asked.

Can MMC ditch the program now without repercussions, or has the damage already been done?

"No," Alan said firmly. "There's risk, no doubt. But the people who comment on social media are the most vitriolic, and even if you tally up the negative comments, it's a small minority of our Facebook followers. If we lost those people, it wouldn't be the end of the world, especially if we wind up with 3,000 new Access members. This is about growing the brand—and our revenues. I know you don't want to piss off our core fans, but we have to attract a larger group of customers.

If the top athletes no longer want to participate, will other racers take their place? Or will the brand be hollowed out without its core group?

"Look at Porsche," he continued. "Launching the Cayenne and getting into the SUV market had purists freaking out, but it became a best-selling model and fans didn't jump ship. The brand's as strong as ever."

"Do you agree, Erica?" Danny asked.

She hesitated. Alan had a good point about Porsche, but her gut was telling her that maybe their case was different.

"I'm on the fence. I see where Alan is coming from. I also know you—I mean, we—don't want to be seen as sellouts, and I can't help but think of Doc Martens. When they started actively marketing their boots to the masses, the out-crowd of punks, rockers, and artists abandoned them, and the brand lost its cool factor."

"So you're saying we might make a lot of money, but we're going to be as uncool as Doc Martens?" said Danny.

"I don't think that analogy holds," Alan said. "MMC isn't a fashion trend. It's a way of life, an addiction even. Maniacs may get mad, but no one has to buy Access if they don't like it. And it'll take more than this to make them stop racing. Our fans consider themselves part of the MMC family."

Which analogy seems more relevant to MMC's situation: Porsche or Doc Martens?

"But we're not the only game in town anymore," Erica said.

"Nothing has to be set in stone. We can give it a shot and roll it back if need be," Alan said. "We'll apologize and go back to the way things were. Family forgives, right?"

SKIP THE LINE

Erica was working late that night when Alan's name popped up on Slack.

You working too? she typed.

Yup, he wrote back. *How'd you think the meeting went today?*

Not great. I keep thinking about Toby. The tattoo guy in Phoenix?

Yeah. He just wants to race, and it feels like we're trying to cash in on his dedication.

Why shouldn't we—we're the ones giving him what he wants! Don't forget, he's Toby, 11. 11! *Do you really think he'll abandon us now?*

SEE COMMENTARIES ON THE NEXT PAGE

SHOULD MMC MOVE FORWARD WITH MENDOZA ACCESS? THE EXPERTS RESPOND

I CAN UNDERSTAND why Erica and Danny are getting nervous about the new pricing scheme, but there's no need to throw the baby out with the bathwater. The Access program solves some real problems for the company related to queuing and oversubscribing. The MMC team just needs to do a better job of positioning it as one of several offerings meant to keep customers happy and engaged.

Registering for a Mendoza race, or buying a ticket to a soccer match, is not the same as buying a pint of milk. People feel far more emotionally invested about spending their "leisure money"—the typically small amount they have left after paying for essentials like food, housing, transport, taxes, and so on. Therefore, the pressure on such products to deliver is fierce: It had better be a damn good experience. And when you have hard-core fans, the expectations are even higher.

REGISTERING FOR A MENDOZA RACE IS NOT LIKE BUYING A PINT OF MILK.

I know from my career running soccer clubs that some fans feel as if the brand is part of their DNA. There's a sense of quasi-ownership reflected in Toby's MMC tattoo, and in the reaction of soccer fans when owners try to update the stadium or the jersey. They think we're messing with something they own—and that we don't have the right to do it.

But just because a vociferous minority is yelling doesn't mean that MMC needs to change its approach. Erica could make the program stronger if she took the time to segment the consumer base and understand the makeup of the various customer types, all of whom have different drivers for their loyalty to the brand. There are surely wealthy racers who would happily pay the Access membership premium, and there is no reason why this product shouldn't be offered and used to boost the bottom line. Others may enjoy the queuing experience and won't find the program appealing.

We had plenty of ideas at Manchester United that we expected our core fans to love—but had mixed results. For example, we thought it'd be great to offer our luxury-box owners the opportunity to have merchandising brought to them in their box. Some of our customers were thrilled to avoid the hassle and crush of shoppers, but others were appalled at the idea. For them, part of the experience was going to the store, interacting with other fans, and touching the products. So for those fans, we created a fast-track checkout. Another idea we tried was to have a soccer legend (an ex-player) stop by the luxury box to say hello. We assumed that this would be a huge perk, and for many of our core fans, it was. But others were upset by the idea. They were not soccer fans; rather, they had bought the luxury box to entertain clients or guests. They worried that having a legend drop in unexpectedly might interrupt important business conversations—or even embarrass them should they fail to recognize the former player.

When you have fans who believe they own your product, you have to make changes in collaboration with them. Erica and Alan should consider establishing a customer forum—a group that represents the full spectrum of racers, not just the maniacs—and then holding brainstorming sessions to discuss the Access program. MMC could say to this group, "We all know that race bibs are going unused, which isn't good for anyone. How do we solve that problem?"

Of course, while it's essential to keep your core customers engaged, if you are going to grow your brand as MMC wants to, you need to broaden your appeal. Instead of pulling the plug on Mendoza Access, Danny and his team should position the program as one of many options the company offers its customers.

MICHAEL BOLINGBROKE, A SPORTS EXECUTIVE, WAS FORMERLY THE CEO OF INTER MILAN, THE COO OF MANCHESTER UNITED, AND A SENIOR VP AT CIRQUE DU SOLEIL.

HUIB VAN BOCKEL IS THE FOUNDER OF TENZING AND THE AUTHOR OF *THE SOCIAL BRAND*. HE WAS FORMERLY THE HEAD OF MARKETING FOR RED BULL UK AND EUROPE.

IF DANNY AND his team move forward with the Mendoza Access program, they're essentially delivering the message that cash is more important to the company than the dedication of their maniacs. They risk irreparably damaging their brand by alienating those core customers.

Whether the maniacs—or any MMC racer for that matter—can afford the $1,500 is irrelevant. Asking your biggest fans, especially ones who tattoo your logo on their bodies, to shell out even more money to continue doing the events they love isn't a smart way to grow your business. Erica and Alan could certainly find other ways to build the brand while addressing customer pain points.

First of all, it's a mistake to think of the long queues and the challenges of registration as a negative. Having a product that's harder to get than a Springsteen ticket is a problem that most companies would die for. When I was at both MTV and Red Bull, we organized events where lots of people couldn't get hard-to-attain tickets, and it only increased the power of our brand. When something is scarce, people want it more. MMC should use this to its advantage. Imagine the PR value of a tagline like: "It's harder to get into a Mendoza than Harvard." Instead of giving people a way out of the long lines, Erica and Alan should find ways to make the waiting more fun by encouraging them to engage, swap stories, and build relationships.

Second, if your main problem is people being blocked out of races, an obvious way to grow your business is to organize more events. But proceed with caution: Don't create overcapacity. At MTV, we sold out an awards show in the Netherlands every year. One year, we moved to a bigger venue, and we had empty seats—which made the event feel less fun and exclusive. The leaders at MMC should keep their finger on the pulse, so they know when they're reaching the tipping point where it becomes too easy to get into a race and they risk having undersubscribed events.

I'd also recommend tackling the multiple-registration problem head on. MMC could raise the registration fee (after selling Danny on the idea, of course) to deter customers from signing up for more events than they can participate in—or simply forbid the practice and put penalties in place for no-shows. That might ruffle some feathers but would probably antagonize hard-core fans less than the Access program since it will generate more spaces without asking them to pay more.

Finally, instead of exploiting maniacs' willingness to pay, MMC should focus on rewarding their loyalty. It could set up a Mendoza Maniacs Club where once you've completed 10 races, you get access to premium perks, like never having to queue again. Such an approach would mean giving up an opportunity for extra revenue, but it would have the benefit of not annoying the maniacs to the point that they abandon MMC.

IT'S A MISTAKE TO THINK OF THE LONG QUEUES AS A NEGATIVE.

Erica's right to be concerned about competition when she says they're no longer the only game in town. People could defect for other races if MMC doesn't cement customer commitment to the brand. But participants who have completed 10 MMC races already have high sunk costs—a loyalty program would make it even less attractive for them to switch to a competitor. In theory, almost anyone can cough up $1,500, but a Maniacs club will keep the diehards loyal and give the starters something to aspire to.

The next time Erica speaks to an annoyed customer in a queue—let's say "Sarah, 9"—she can smile and say, "Just one more race, Sarah. One more race."

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Reprint Case only R1705X
Reprint Commentary only R1705Z

COMMENTS FROM THE HBR.ORG COMMUNITY

Move Forward
MMC should move forward. There will always be overzealous critics of big changes, but that isn't a reason not to change. MMC has consumers who have gone to great lengths to be involved. Now the CMO has the insight necessary to successfully message this change and meet objections head-on.
Andrew Fatato, senior copywriter, Possible

Market It Differently
MMC should change the program's name from "Access," which implies something one must pay for, to "Loyal" or "Hero," which suggests a product for hard-core fans. Then MMC should offer it only to fans who've run at least three races, making it aspirational. The focus should be on relationships, not the product.
Sabina Mehmedovic, project manager, Bombayworks

Wrong Turn
If MMC alienates its core loyalists, it will put its strong brand integrity at risk. Access programs can always be introduced down the line. Good strategists need to be flexible, which sometimes means listening to those who truly care about the product.
Mary Beth Caschetta, owner, Caschetta Consulting

BRIAN WALKER

CEO,
HERMAN MILLER

WHAT I'M READING...

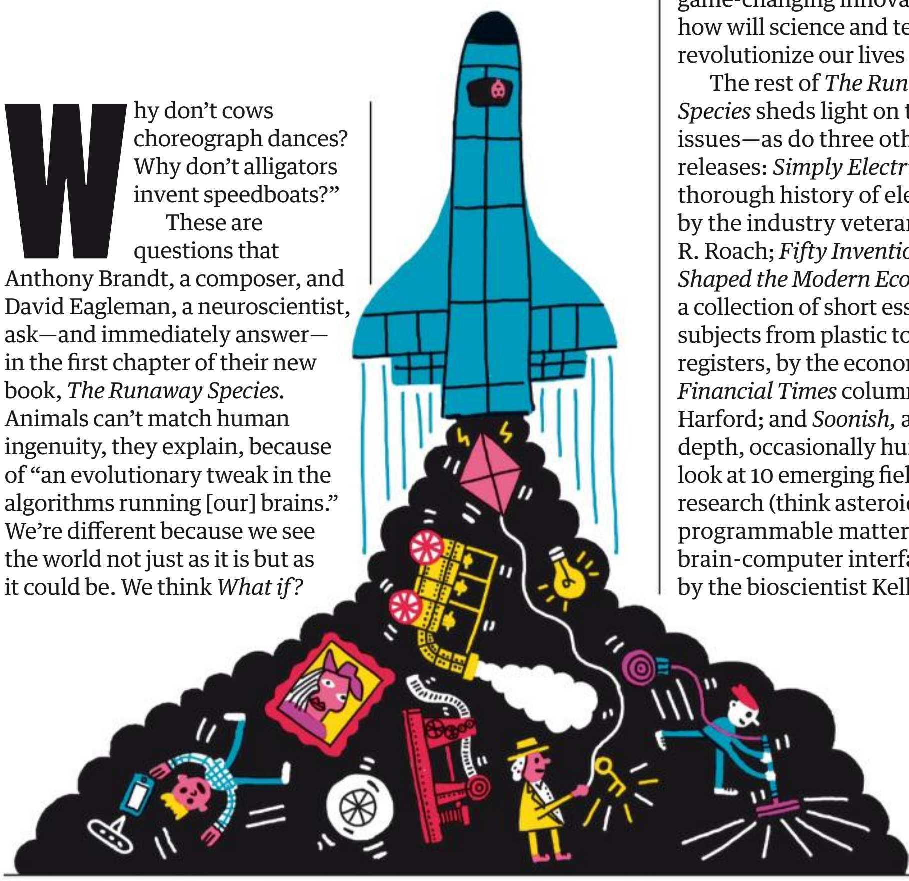
I start each morning with the *New York Times* and the *Wall Street Journal.* I tend to read online during the week, but I get a hard copy of the *Times* on the weekends, because it's a better reading experience. I scan all the design industry rags each week too, and glance at magazines such as *Dwell, Fortune,* and *Fast Company.* When it comes to choosing books, I focus on history: biographies of Adams, Jefferson, Lincoln, Truman. Their stories give you perspective; you realize that things have always been a little crazy in politics.

"IN THE MORNING, I'M MULTITASKING: EXERCISING, CHECKING E-MAIL, WATCHING THE NEWS."

SYNTHESIS
GAME-CHANGING INVENTIONS

WHAT MAKES AN IDEA REVOLUTIONARY?

BY ALISON BEARD



Why don't cows choreograph dances? Why don't alligators invent speedboats?"

These are questions that Anthony Brandt, a composer, and David Eagleman, a neuroscientist, ask—and immediately answer—in the first chapter of their new book, *The Runaway Species.* Animals can't match human ingenuity, they explain, because of "an evolutionary tweak in the algorithms running [our] brains." We're different because we see the world not just as it is but as it could be. We think *What if?* and can therefore create our own futures. And what an existence we've fashioned so far: language and accounting, the wheel and the plow, vaccines and medicines, cinema and skyscrapers, satellites and smartphones.

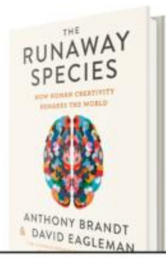
Of course, even ideas conceived and developed by the world's best minds rarely lead to meaningful progress on that level. So which inventions have had the most impact—and why? What can they teach us about game-changing innovation? And how will science and technology revolutionize our lives next?

The rest of *The Runaway Species* sheds light on these issues—as do three other recent releases: *Simply Electrifying,* a thorough history of electricity by the industry veteran Craig R. Roach; *Fifty Inventions That Shaped the Modern Economy,* a collection of short essays on subjects from plastic to property registers, by the economist and *Financial Times* columnist Tim Harford; and *Soonish,* an in-depth, occasionally humorous look at 10 emerging fields of research (think asteroid mining, programmable matter, and brain-computer interfaces), by the bioscientist Kelly Weinersmith and her cartoonist husband, Zach.

Wisely, none of the authors really attempt to answer the first question: Which inventions do or will matter most? Whether the light bulb and the steam engine trump space travel and Google search is something for philosophers to debate. It's more useful to explore why some ideas transformed business, culture, and society while others didn't.

Skimming all four books might lead you to believe that top-tier invention begins and ends with individual genius: Brandt and Eagleman often reference Picasso; Roach's chapter titles include "Benjamin Franklin's Kite," "Samuel Morse's Telegraph," and "Thomas Edison's Light"; Harford tends to focus on the people behind his economy-shaping ideas; the Weinersmiths interviewed an array of "scientific oddballs."

But a closer read reveals an emphasis on collaboration and cross-pollination: between experts in different disciplines, researchers and technologists, entrepreneurs and financiers, private and public sectors. "Creativity is an inherently social act," Brandt and Eagleman



The Runaway Species: How Human Creativity Remakes the World
Anthony Brandt and David Eagleman
Catapult, 2017

WWW.ROYALEXHIBITIONS.CO.UK; MEMORIESARECAPTURED/ISTOCK

WHAT I'M WATCHING...

I put on CNBC as soon as I hit the gym, around 5 AM, so that *Squawk Box* can tell me what's happened overnight: companies, markets, and world events. When I'm commuting—which is only about 25 minutes a day—I have the network's satellite radio station on in the car. If it's not business news, I'm probably tuning in to college sports; I follow Michigan State, my alma mater, and the rest of the Big Ten. I like well-done Netflix series like *The Crown*, too.

WHO I'M FOLLOWING...

I track a wide range of folks on Twitter and some through LinkedIn: Jim Cramer, from CNBC; Walter Isaacson, who's a great writer; innovation experts like Clayton Christensen, of HBS, and the inventor-entrepreneur-investor Tony Fadell. I also follow people who practice and study good management, such as Doug Conant, the former CEO of Campbell Soup; Mark Benioff, the CEO of Salesforce, which our company both sells to and buys from; and Zeynep Ton, a professor at MIT whose research focuses on wages and how to build a better workforce.

contend. Just as great art comes from "bending, breaking and blending" previous work, "groundbreaking technologies... result from inventors 'riffing on the best ideas of their heroes.'" (This argument is bolstered by delightful visuals.)

The Weinersmiths agree wholeheartedly, noting that "big discontinuous leaps, like the laser and the computer, often depend on unrelated developments in different fields." One of Roach's more compelling chapters explains how George Westinghouse paired his business know-how with the science of "brilliant, quirky" Nikola Tesla to build a commercial-scale alternating-current power system. And Harford notes that iPhone technology wouldn't have been possible without government-funded experimentation.

The courage to take risks and fail is another key theme across these books. Harford suggests that the best way to foster future innovation may be to simply allow "smart people to indulge their intellectual curiosity without a clear idea of where it might lead." Roach lauds the two men who harnessed and explained electromagnetism—the "workbench experimenter" Michael Faraday and the "mathematical prodigy" James Clerk Maxwell—for their "willingness to go in a direction that was at odds with the accepted theories of the day."

Brandt and Eagleman talk about the Wright brothers' tests of 38 different airplane wing surfaces and James Dyson's 5,127 vacuum prototypes and offer a charming quote from Edison: "When you have exhausted all possibilities, remember this: you haven't." They note that the idea isn't to just tolerate failure but to expect it, because you've generated so many options that some will need to fall away before the best can rise to the top.

Soonish captures this ethos perfectly. Each chapter explains a complex goal and the various technologies being developed to achieve it. For example, scientists are working on six possibilities for cheap access to space: reusable rockets; air-breathing rockets/spaceplanes; "mega-superguns" that would launch rockets; laser ignition; starting at a very high altitude (via spaceport, balloon, or aircraft); and space elevators/tethers. Time will tell which (if any) of these ideas pan out.

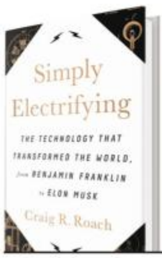
Other recommendations that pop up in these books include understanding what Roach calls "the needs and preoccupations" of one's time; providing equal-opportunity education that emphasizes problem solving; launching innovation contests; investing more in pure science; and "rightsizing" regulation (which is easier said than done).

Finally, all these authors emphasize that innovation is best viewed through what Roach calls a "wide-angle lens"—genesis, development, and consequences. As Harford explains, "Inventions shape our lives in unpredictable ways—and while they're solving a problem for someone, they're often creating a problem for someone else." So with any new idea "it makes sense to at least ask ourselves how we might maximize the benefits and mitigate the risks." The Weinersmiths do that: For each technology they cover, they also outline "the ways it might make everything terrible, and the ways it might make things wonderful."

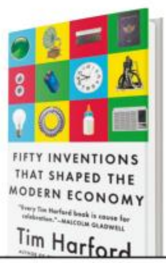
Human beings are wired to seek all kinds of novelty. But surely we can focus on ideas that will help, more than hurt, the world.

"NEW TECHNOLOGIES ARE ALMOST NEVER THE WORK OF ISOLATED GENIUSES WITH A NEAT IDEA. AS TIME GOES ON, THIS IS MORE AND MORE TRUE."
Kelly and Zach Weinersmith, *Soonish*

ALISON BEARD is a senior editor at *Harvard Business Review.*



Simply Electrifying: The Technology That Transformed the World, from Benjamin Franklin to Elon Musk
Craig R. Roach
BenBella Books, 2017



Fifty Inventions That Shaped the Modern Economy
Tim Harford
Riverhead Books, 2017

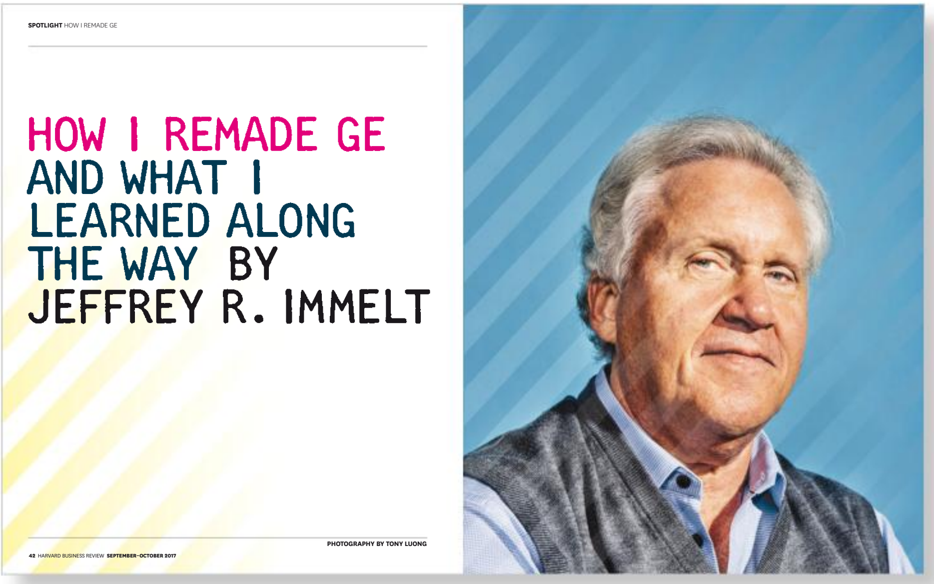
Soonish: Ten Emerging Technologies That'll Improve and/or Ruin Everything
Kelly and Zach Weinersmith
Penguin, 2017

SPOTLIGHT

LEADING TRANSFORMATION

In this package we examine how GE undertook the massive task of transitioning from a classic conglomerate to a global technology-driven company.

page 41


SPOTLIGHT HOW I REMADE GE

HOW I REMADE GE AND WHAT I LEARNED ALONG THE WAY BY JEFFREY R. IMMELT

PHOTOGRAPHY BY TONY LUONG

42 HARVARD BUSINESS REVIEW SEPTEMBER–OCTOBER 2017

HOW I REMADE GE

During his 16 years as CEO, Jeffrey Immelt led a team of 300,000 people through recessions, bubbles, and geopolitical risk and engineered a radical makeover of GE, repositioning the firm as a digital industrial company looking to define the future of the internet of things.

Writing on the eve of his announcement to step down from the company's helm, Immelt shares what he learned about leading a giant organization through massive changes. He outlines several lessons:

- Be disciplined. This means nesting initiatives within one another and staying away from new ideas that don't fit.
- Soak. Effective leaders don't react instantly to emerging trends; they read, contemplate, and listen until they believe to their cores that the world is profoundly changing.
- Make it existential. Every time Immelt drove a big change, he treated it as if it were life or death.
- Be all in. You can't regard a transformation as an experiment—"You won't get there if you're a wuss," Immelt says.
- Be resilient. Transformation requires staying power, and leaders need a thick skin to see it through.
- Be willing to pivot. Even as you're making a major commitment of resources, you need to accept that you're unlikely to get the strategy perfect out of the gate.
- Embrace new kinds of talent. GE now has more senior people from outside the company than at any time in its history and has increased its employment of women, minorities, and workers from outside the U.S. It has transformed its culture and operating rhythm, choosing speed over bureaucracy.

Immelt's legacy at GE will be a complicated one. During his tenure earnings tripled and market share reached record highs, yet the P/E ratio plummeted and the stock price underperformed—no doubt in part because the payoff from some of his bets won't be clear for a long time to come.

THE COMPLETE SPOTLIGHT PACKAGE IS AVAILABLE IN A SINGLE REPRINT. **HBR Reprint** R1705B

GE'S GLOBAL GROWTH EXPERIMENT

Like many other companies, GE under Immelt had to figure out how to balance serving local needs with the economies of worldwide scale. Harvard Business School's Ranjay Gulati looks at how it tackled the challenge. He identifies several important takeaways for other multinationals: Give the local organizations clout, embrace creative abrasion, build strong functions, and eliminate strategic blind spots.

REINVENTING TALENT MANAGEMENT

As GE has changed its mix of businesses and strategies, the profile of its workforce has changed, too: The company has hired thousands of digerati. These workers have little tolerance for the bureaucracy of a conventional multinational, posing new challenges to the company's talent management. This article, by HBR senior editor Steven Prokesch, looks at how GE is using analytics to augment its core HR processes, with applications launched or in the works to address career and succession planning, training, identifying high potentials, helping employees form networks, talent retention, and cultural change.

COULD YOUR PERSONALITY DERAIL YOUR CAREER?

Tomas Chamorro-Premuzic
page 138


COULD YOUR PERSONALITY DERAIL YOUR CAREER?

Two decades ago the psychologists Robert and Joyce Hogan created an inventory of 11 qualities, ranging from *excitable* to *dutiful,* that when taken to the extreme, resemble the most common personality disorders. Subsequent profiling of millions of employees, managers, and leaders reveals that most people display at least three of these "dark side" traits, and about 40% score high enough on one or two to put them at risk for career disruption. For example, being *excitable* may help you display passion and enthusiasm to coworkers and subordinates, but it can also make you volatile and unpredictable. Having a deeply *skeptical,* cynical outlook makes it hard to build trust. And *diligence,* in excess, can morph into procrastination and obsessive perfectionism.

The author discusses the individual traits and suggests how to manage them, which involves identifying the ones that trip you up, modifying some of your behaviors, and continuing to adjust in response to critical feedback. In the process, you can greatly enhance your reputation, your career, and your leadership potential.

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FEATURES

LEADING TEAMS

THE OVERCOMMITTED ORGANIZATION

Mark Mortensen and Heidi K. Gardner | page 58

By assigning people to multiple teams at once, organizations can make more-efficient use of time and brainpower and do a better job of solving complex problems and sharing knowledge across groups. But competing priorities and other conflicts can make it hard for teams with overlapping membership to stay on track. Group cohesion often suffers, and people serving on several teams concurrently may experience burnout.

Through extensive research and consulting, the authors have identified several ways that both team and organizational leaders can reduce the costs of multiteaming and better capitalize on its advantages. Team leaders should launch the team well to establish trust and familiarity, map every member's skills, carefully manage time across teams, and boost motivation by emphasizing opportunities to learn. Organizational leaders should focus on mapping and analyzing patterns of team overlap, promoting knowledge flows among teams, and buffering teams against shocks.

All this represents a significant investment of time and effort. But organizations pay a much higher price when they neglect the costs of multiteaming in hot pursuit of its benefits.

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MANAGING YOURSELF

HAPPINESS TRAPS

Annie McKee | page 66

Numerous studies show that close to two-thirds of U.S. employees are bored, detached, or jaded and ready to sabotage plans, projects, and other people. Why so much unhappiness among professionals who have the capacity to shape their work lives? The author highlights three of the most common reasons—ambition, doing what's expected of us, and overwork—which seem productive on the surface but are harmful when taken to the extreme.

To break free of these "happiness traps," you first have to accept that

IT'S TIME TO CLAIM OUR RIGHT TO HAPPINESS AT WORK.

you deserve happiness at work. Then you can use your emotional intelligence—particularly emotional self-awareness, emotional self-control, and organizational awareness—to understand which trap has ensnared you. Finally, you must actively seek meaning and purpose in day-to-day activities, foster hope in yourself and others, and build friendships at work.

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OPERATIONS

THE SURPRISING POWER OF ONLINE EXPERIMENTS

Ron Kohavi and Stefan Thomke | page 74

In the fast-moving digital world, even experts have a hard time assessing new ideas. Case in point: At Bing a small headline change an employee proposed was deemed a low priority and shelved for months until one engineer decided to do a quick online controlled experiment—an A/B test—to try it out. The test showed that the change increased revenue by an astonishing 12%. It ended up being the best revenue-generating idea Bing ever had, worth $100 million.

That experience illustrates why it's critical to adopt an "experiment with everything" approach, say Kohavi, the head of the Analysis & Experimentation team at Microsoft, and Thomke, an HBS professor. In this article they describe how to properly design and execute A/B and other controlled tests, ensure their integrity, interpret results, and avoid pitfalls. They argue that if a company sets up the right infrastructure and software, it will be able to evaluate ideas not only for improving websites but also for new business models, products, strategies, and marketing campaigns—all relatively inexpensively. This will help it find the right path forward, especially when answers aren't obvious or people have conflicting opinions.

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ECONOMICS & SOCIETY

MANAGING OUR HUB ECONOMY

Marco Iansiti and Karim R. Lakhani | page 84

A small number of digital superpowers—Alibaba, Amazon, Microsoft, and others—have become "hub firms" because they control access to billions of mobile customers coveted by all kinds of product and service providers. These hubs drive increasing returns to scale and claim a disproportionate share of the value being created in the global economy.

The authors argue that the hub economy will continue to spread across more industries, concentrating more power in the hands of a few. As an example, they take an in-depth look at the auto industry and how Apple and Alphabet/Google are poised to become the main beneficiaries as cars turn into digitally connected spaces for work, entertainment, and shopping.

As hubs proliferate and expand their reach, the danger is that they will exacerbate economic inequality and threaten social stability. It is thus incumbent on all stakeholders—traditional companies, start-ups, institutions, and communities—to make certain changes in the ways they do business. Moreover, hub firms themselves must lead responsibly for the good of all, not just creating and capturing value but doing more to sustain other players in the ecosystem.

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MARKETING

COMPETING ON SOCIAL PURPOSE

Omar Rodríguez Vilá and Sundar Bharadwaj page 94

Consumers increasingly expect brands to have a social purpose beyond mere functional benefits. As a result, companies are taking social stands in very visible ways. For example, TOMS's one-for-one program donates shoes and other goods for every product the company sells. Such programs can benefit society and the brand, but they may fizzle or actually harm the company if they're not carefully managed. (Recall Starbucks's widely mocked Race Together campaign.)

Marketing professors Vilá and Bharadwaj have developed an approach they call "competing on social purpose," which ties a brand's most ambitious social aspirations to its most pressing growth needs. An effective strategy creates value by strengthening a brand's key attributes or building new adjacencies. At the same time, it mitigates the risk of negative associations and threats to stakeholder acceptance. In order to create value for all stakeholders—customers, the company, shareholders, and society at large—managers must integrate considered acts of generosity with the strategic pursuit of brand goals.

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HOW I DID IT

COMPENSATION

COMP TARGETS THAT WORK

Radhakrishnan Gopalan, John Horn, and Todd Milbourn | page 102

Most companies struggle with setting executive performance targets. From 2006 to 2014, almost all of the 1,000 largest U.S. firms completely changed their CEOs' performance metrics at least once, and almost 60% changed them multiple times. The problems with such targets are well known: They often encourage managers to sacrifice a firm's long-term health or to manipulate their numbers in order to make their bonuses.

What companies need is an incentive structure that makes it easier to meet targets by creating real value than by gaming the system. New research analyzing data from more than 900 firms over 15 years suggests companies can create one by following these four principles: Use multiple metrics; increase payouts at a constant rate; reward relative performance; and include nonfinancial targets.

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MANAGERS CAN GAME METRICS BY LOWBALLING BUDGETS AND FORECASTS.

NONPROFIT MANAGEMENT

AUDACIOUS PHILANTHROPY

Susan Wolf Ditkoff and Abe Grindle | page 110

Private philanthropists have helped propel some of the most important social-impact success stories of the past century: Virtually eradicating polio globally. Ending apartheid in South Africa. Creating a universal 911 service in the United States. These efforts have transformed or saved hundreds of millions of lives. That we take them for granted now makes them no less astonishing: They were the inconceivable moon shots of their day before they were inevitable success stories in retrospect.

Today's donors aspire to similarly audacious outcomes, but despite having written big checks for years, many aren't seeing transformative results. A study of 15 breakthrough initiatives, ranging from broad access to end-of-life hospice care to the widespread use of a lifesaving oral rehydration solution in Bangladesh, revealed five shared elements that may help philanthropists improve the odds of swing-for-the-fences success.

Effective initiatives: Build a shared understanding of the problem and its ecosystem; set concrete and compelling "winnable milestones"; design approaches that work at massive scale; drive demand; and embrace course corrections.

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OPERATIONS

WHY DO WE UNDERVALUE COMPETENT MANAGEMENT?

Raffaella Sadun, Nicholas Bloom, and John Van Reenen | page 120

Business schools teach MBA students that you can't compete on the basis of management processes because they're easily copied. Operational effectiveness is table stakes in the competitive universe, according to the strategists. But data from a decade-long research project involving 12,000 firms challenges that thinking.

The study examined how well companies performed 18 core management practices. It found vast differences in how they execute basic tasks like setting targets, running operations, and grooming talent, and that those differences matter: Firms with strong managerial processes do significantly better on high-level metrics such as profitability, growth, and productivity. What's more, the differences in process quality persist over time, suggesting that competent management is not easy to imitate.

In this article the authors review the findings of the research and explore what prevents executives from investing in management capabilities, arguing that such investments are a powerful way to become more competitive.

HBR Reprint R1705K

MANAGING ORGANIZATIONS

MANAGEMENT IS MUCH MORE THAN A SCIENCE

Roger L. Martin and Tony Golsby-Smith | page 128

The idea that management is a hard science, which MBA programs have promoted for the past six decades, has become even more entrenched in the era of big data. But a scientific approach has its limits, say Martin, the coauthor of the best seller *Playing to Win*, and consultant Golsby-Smith. In fact, overreliance on scientific analysis tends to narrow strategic options and shut down innovation. That's because it's designed to understand natural phenomena that cannot be changed. It's not an effective way to evaluate possibilities—things that do not yet exist.

The two authors offer an alternative approach to strategy making and innovation that relies on imagination, experimentation, and communication. To make decisions about what could be, managers should devise narratives about possible futures, using the storytelling tools first proposed by Aristotle (who ironically also originated the scientific method). If executives then hypothesize what would have to be true for those narratives to happen and validate their hypotheses through prototyping, they can determine which narrative has the most compelling chance of success.

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ENTREPRENEURSHIP

SOUQ.COM'S CEO ON BUILDING AN E-COMMERCE POWERHOUSE IN THE MIDDLE EAST

Ronaldo Mouchawar
page 35

In 2005, when Souq.com was founded, the Middle East had tremendous potential for e-commerce: Its total population was more than 350 million, half of whom were younger than 25. But the region was highly fragmented in terms of laws and customs, logistics, and payment infrastructure. Mouchawar tells how Souq grew from auction website to B2C-only business by enabling alternative payment methods and managing delivery in a region where basic logistics systems were still evolving.

The largest e-commerce provider in the Middle East today, Souq operates in seven countries representing more than 135 million people—and it was recently acquired by Amazon.

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COMING IN SEPTEMBER: WORK AND THE LONELINESS EPIDEMIC

DR. VIVEK H. MURTHY, the 19th surgeon general of the United States and a tech entrepreneur, argues that addressing social isolation and cultivating emotional well-being at work can lessen people's loneliness. Drawing on his experience as both the nation's doctor and an internist, Murthy shares his insights into how our colleagues' and our own actions on the job hold important keys to our health.

This is not a manual for HR. It's an interactive conversation about you, your health, your job, and how you can help your colleagues feel happier and more connected. It's about how organizations can make emotional well-being a muscle that strengthens employees and boosts team productivity.

What's more, helping your colleagues feel less isolated is good for the bottom line. Research suggests that organizations with less-lonely, more-connected employees are more creative and perform better than other organizations.

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Francesca Gino

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Nicholas Bloom

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Erik Brynjolfsson and Andrew McAfee

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LIFE'S WORK
MICHAEL STRAHAN
ATHLETE/TV HOST

"WHEN I HEAR THAT KIDS TODAY HAVE NO IDEA I PLAYED FOOTBALL, IT MAKES ME REALIZE THAT THIS CAREER HAS TRANSCENDED THE ONE I HAD BEFORE."

As a star defensive end for the New York Giants, Strahan led his team to many big victories, including the Super Bowl win that capped his NFL career. But his postretirement moves—to broadcast-TV hosting gigs on *Live! with Kelly and Michael* and then *Good Morning America*—have given him a different kind of fame. He now also runs SMAC, a talent management and production company, with Constance Schwartz-Morini.
Interviewed by Alison Beard

How did you make the leap from the NFL to mainstream media?
When I played football, I gave it everything I had. But I realized there was life after it, and for me, that was doing interviews. Fox had a show called *The Best Damn Sports Show Period*, which I used to do, and when I retired, it was a natural progression to *Fox NFL*. But *Live! with Kelly and Michael* was something I never thought I'd get. They called me to fill in for Regis when he was on vacation, which turned into 20 times guest hosting, and then they offered me the job. With *Good Morning America*, I still think, "What am I doing here?" But it's been about having fun, putting in maximum effort, and not limiting myself.

Did any of those steps make you particularly nervous?
Of course; I'm nervous every day. But that's the excitement: live TV, facing the unknown. When I first retired, I actually did a sitcom on Fox: 12 episodes, and then it was off the air. People might say, "You failed." But I don't look at failure like that. I ask, "What did I learn?" And the sitcom taught me that I don't want to be an actor. I like shows that are fast and on point, with lots of moving parts and content that stimulates me.

What's the key to a successful second act?
When any athlete tells me they want to have my career, I say, "Focus on what you do now. Everything else will be a branch off that main body of work. Then find something else you're passionate about and willing to work for as hard as you do with sports." At SMAC we don't take clients just to have names on the roster. We take the right people for us, who understand that they're going to have to be involved and work to make success happen.

How do you push people to better performance?
Make everybody feel empowered. Think about the player who sits on the bench but who during the week is getting you ready to play. He needs to feel valuable—that he has a part in the success of the group. So when I played, before every game I would walk through the locker room and go from the equipment managers to the coaches, doctors, and trainers to the players and touch each person on the shoulder or give a pound or a hug. With Brandon Jacobs, a big running back and a rowdy guy, I would get in his face and yell; with [quarterback] Eli Manning, I would just put my hand out and say, "Go have fun." You've got to know your people; there are different ways to motivate. And the guys knew the routine. It was my way of connecting. That has carried over to everything else. When I walk into the GMA offices, I speak to the security guys and cameramen just like I speak to my cohosts. We're all there to do one thing: make the show successful. We all need one another.

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