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1914–2040

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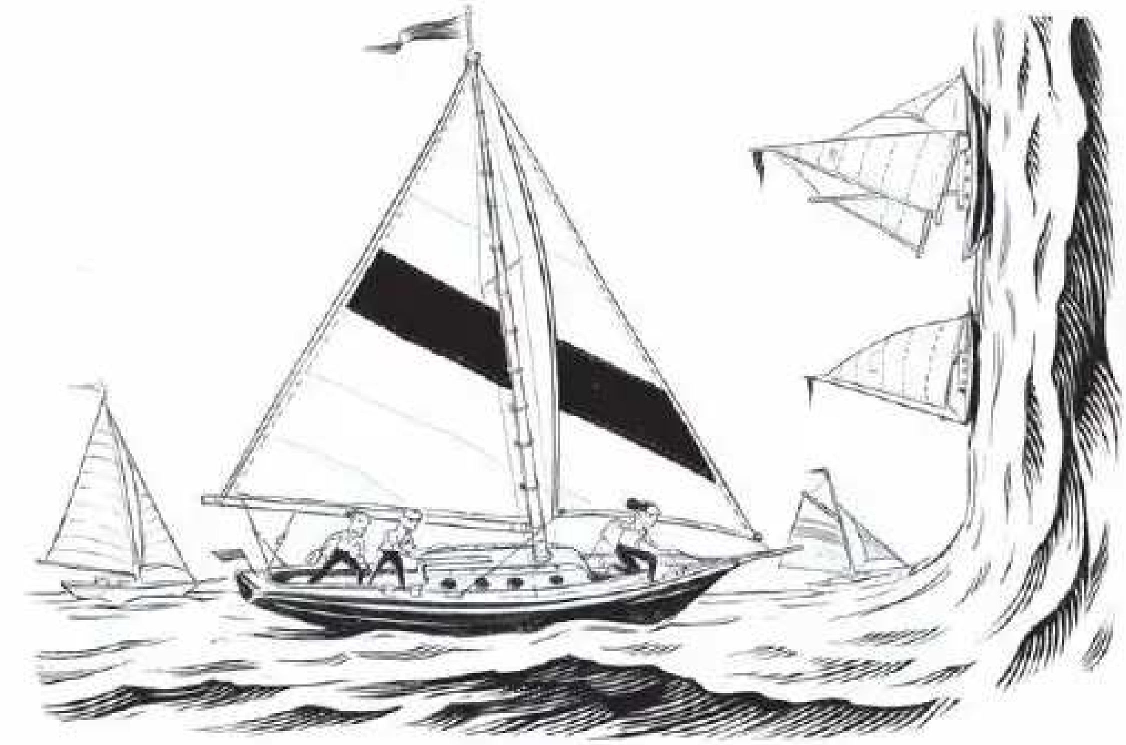


Sea Change

Every May, we publish the results of our annual analysis of chief executive comings and goings during the previous year. This year we've gone further. In "The Lives and Times of the CEO," by Ken Favaro, Per-Ola Karlsson, and Gary L. Neilson (page 48), we show how company leadership has evolved and how it may shift in the future. It's striking how much has remained the same. The preoccupations of industrial magnates before World War I—growth, competition, shareholder value—are still top of mind for chief executives today.

Yet it is also striking how much has changed. On page 56, you'll see one big difference: The rate of increase in the percentage of women CEOs has reached a tipping point. Women still make up a tiny minority of the residents in the corner office, but if current trends continue, their numbers might grow significantly by 2040.

That's especially true if Thomas Malone is right. In the Thought Leader interview on page 88, the head of the MIT Center for Collective Intelligence pinpoints social perception—the ability to sense what other people are thinking and feeling—as the number one factor for successful teams. And he says that in business today, that skill is most prevalent among women.

One should always be skeptical of statements like "this time it's different." But tipping points are real, and there does seem to be a quiet sea change happening. As PricewaterhouseCoopers International chairman Dennis Nally explains on page 44, many CEOs are beginning to see trustworthiness as a prerequisite for doing business. Other signs of change: Prevailing approaches to postmerger integration (page 8), growth (page 26), and digital enterprise (page 32) are shifting. The study of science is changing daily life and discourse in new ways, as our profile of Stephen Wolfram on page 72 shows. Even change management has changed (note our update on page 64).

Within our own domain, we are saying farewell to our mentor Thomas A. Stewart, the firm's chief marketing and knowledge officer since 2008. He is now the CEO of the National Center for the Middle Market at Ohio State University.

And we mark a fundamental change for the former Booz & Company, the firm that publishes this magazine. It is now Strategy&, a global management consulting firm that joined the PwC network this April. The name (pronounced "strategy and") was chosen, in part, to evoke the idea that a powerful strategy never stands alone. It is always paired with the ability to put the concepts into practice. (For more information, please see strategyand.pwc.com.)

Our own identity as a magazine—in print and digital formats—is unchanged, as is the editorial and publishing team. While reaffirming the standards we've long held, we will also now draw more on the thinking and experience of the expanding Strategy& firm, and on the remarkable research and insights of the PwC network. More than ever before, we aspire to be the place you look first for the best thinking—and action—on management. The more things change, the more they stay the same—and vice versa.

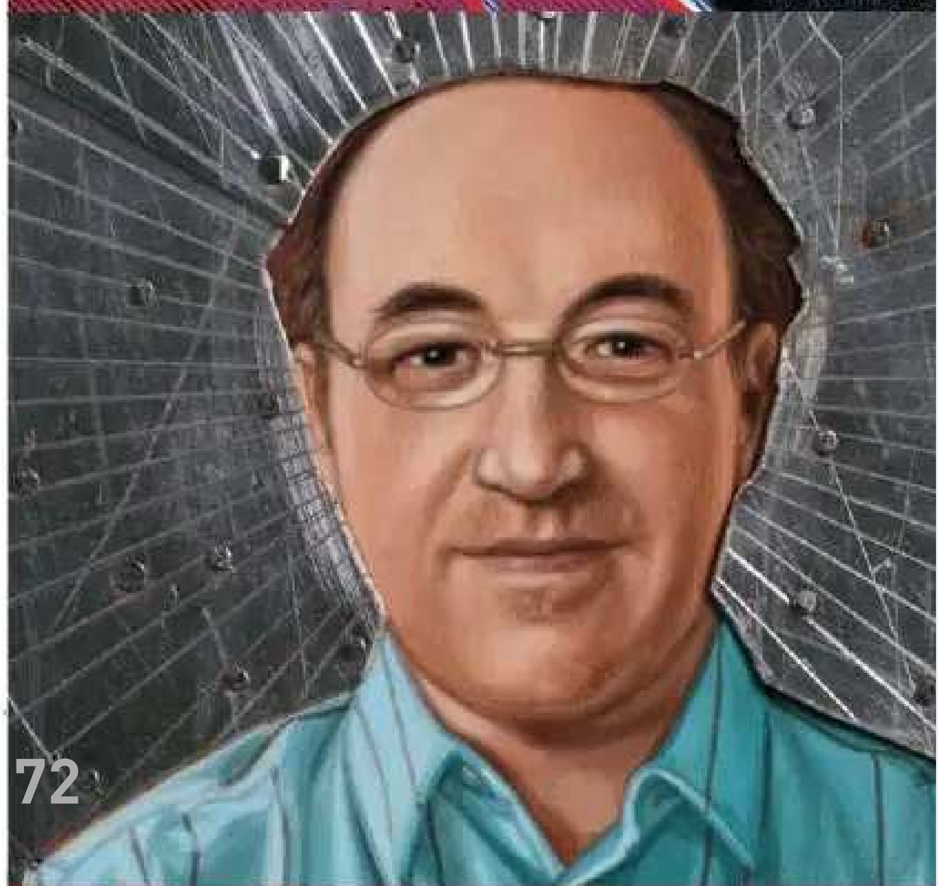
Art Kleiner
Editor-in-Chief
kleiner_art@
strategy-business.com

Illustration by Lars Leetaru

leading ideas

essays

11


72


14

features

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EDITORIAL

Editor-in-Chief
Art Kleiner
kleiner_art@
strategy-business.com

Executive Editor
Paul Michelman
michelman_paul@
strategy-business.com

Managing Editor
Elizabeth Johnson
johnson_elizabeth@
strategy-business.com

Senior Editor
Laura W. Geller
geller_laura@
strategy-business.com

Editor, Digital
Melanie Rodier
rodier_melanie@
strategy-business.com

Deputy Managing Editor
Jen Swetzoff
swetzoff_jennifer@
strategy-business.com

Associate Editor
Christie Rizk
rizk_christie@
strategy-business.com

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s+b Books
Theodore Kinni
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strategy-business.com

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Jeff Garigliano
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Chief Copy Editor
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info@
strategy-business.com

Information Graphics
Linda Eckstein
info@
strategy-business.com

Assistant to the Editors
Natasha Andre
andre_natasha@
strategy-business.com

Art Director
John Klotnia
klotnia@optodesign.com

Deputy Art Director
Kira Csakany

Designer
Seulgi Ho
seulgi@optodesign.com

Contributing Editors
Edward H. Baker
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Christopher Vollmer

PUBLISHING

Publisher and Business
Manager
Gretchen Hall
Tel: +1 617 521 8808
hall_gretchen@
strategy-business.com

Marketing and Public
Relations Manager
Charity Delich
Tel: +1 212 551 6255
delich_charity@
strategy-business.com

Advertising Director
Judith Russo
Tel: +1 212 551 6250
russo_judy@
strategy-business.com

Business Operations
Manager
Bevan Ruland
Tel: +1 973 630 6924
ruland_bevan@
strategy-business.com

Financial Reporting
Taryn-Grace Diaz-Harrison

Circulation Director
Beverly Chaloux
Circulation
Specialists Inc.
bchaloux@circulation
specialists.com

Production Director
Catherine Fick
Publishing Experts Inc.
cfick@publishing
experts.com

PwC Strategy& Inc.

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Editorial and Business Offices
101 Park Avenue
New York, NY 10178
Tel: +1 212 551 6222
Fax: +1 212 551 6732
info@strategy-
business.com

Design Services
Opto Design Inc.
153 W. 27th Street, 1201
New York, NY 10001
Tel: +1 212 254 4470
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Deals That Transform Companies

How to shift your business model with M&A integration.

by Gregg Nahass

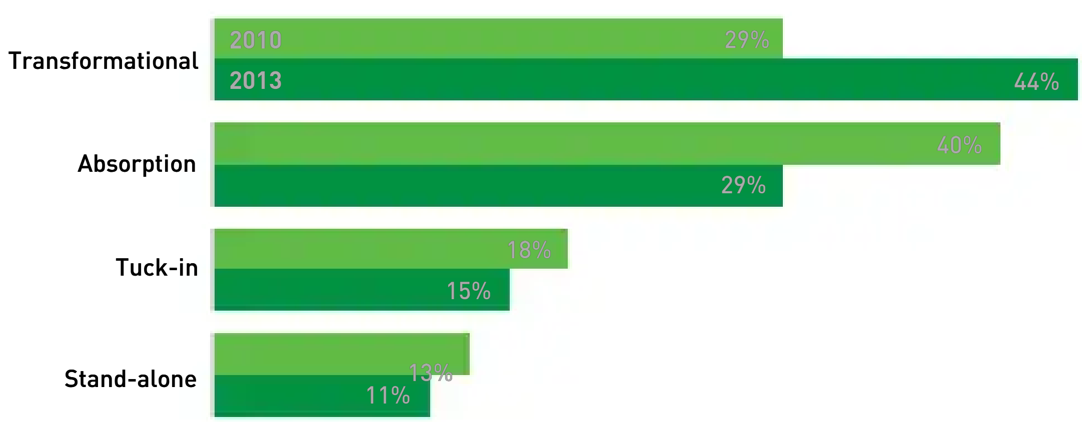
As capital remains cheap and competition increases, more and more corporate finance strategists are willing to take on transformational deals. Unlike absorption deals, in which companies acquire businesses that complement their existing operations, transformational deals involve acquiring new markets, channels, products, or processes in a way that requires significant operational integration. In fact, successful integration is key to realizing the potential value of these deals.

Between 2010 and 2013, the percentage of transformational deals increased from 29 percent to 44 percent, according to PwC's annual survey of senior management of Fortune 1000 companies that had completed mergers or acquisitions in the previous three years (*see Exhibit*). During the same time period that transformational deals grew, respondents reported that absorption deals declined from 40 percent to 29 percent. Although transformational and absorption deals accounted for most of the M&A activity, respondents also reported a small number of tuck-in deals, which involve integrating small companies, and stand-alone deals, which keep the acquired entity operationally separate from the rest of the organization (see "M&A Integration: Looking Beyond the Here and Now," PwC's 2014 M&A Integration Survey Report).

What's driving this shift? Our analysis suggests that more companies are seeking to fundamentally change their business model or the scale of their enterprise. In many industries, the obvious absorption targets were snapped up during the years following the 2007–09 recession. Now, companies are seeking growth outside their core competencies in an environment that's being reshaped by disruptive technologies, evolving regulation, and changing customer expectations.

Transformational deals need not be big; their hallmark is that they fundamentally reinvent opera-

Exhibit: **The Largest Acquisition Types, 2010–13**



Note: Percentages may not total 100 due to rounding.
Source: "M&A Integration: Looking Beyond the Here and Now," PwC's 2014 M&A Integration Survey Report, pwc.com/US/M&A-Integration-2014

tions and maybe even change the dynamics of the industry. In health-care, for example, payors are buying providers and creating new shared risk–bearing health networks. In telecommunications, mergers between major Internet and cable television companies could create new, innovative models of content creation and distribution. In retail, companies are pursuing deals to transform their operations, including supply chains, as they try to get products to consumers more cheaply and quickly than their competitors do. Amazon is busy building physical warehouses throughout the country, while also seeking greater automation and higher productivity through its $775 million acquisition of Kiva Systems, a robotics startup that services warehouses. Meanwhile, Walmart is turning its formidable network of bricks-and-mortar retail outlets into e-commerce assets from which it can quickly fulfill online orders. The company has been on a buying spree to acquire tech startups in social software, mobile apps, and cloud infrastructure, with the goal of reaching consumers in an omnichannel environment: stores, online, and mobile.

Illustrationb y Adam McCauley

The Integration Challenge

Transformational deals have become desirable, but business leaders agree that they are the most difficult transactions in M&A today. Half of the respondents to PwC's 2014 M&A survey said that their company had the core competency to integrate absorption deals, but fewer than a quarter said the same thing about transformational deals. Respondents also noted how difficult it is to make these deals work. Whereas 65 percent characterized their recent deals, many of which were transformational, as a significant strategic success (i.e., the deal was concluded and the businesses began working together as planned), fewer than half reported success in achieving financial goals, and only 35 percent said they had realized their operational objectives.

The success rate of financial goals tends to be higher than that of operational goals because most companies focus on financial synergies right away to achieve quick wins. Operational goals—such as supply chain integration, business process and systems integration, and the meshing of two different innovation capabilities—are tougher to realize because they require a sustained commitment to integration completion over the long term.

Take R&D, for instance. The search for game-changing technologies may be fueling many transformational deals, but their integration can be extremely challenging. In PwC's 2014 M&A survey, only 30 percent of respondents reported either favorable or very favorable results in integrating R&D. That's partly because R&D tends to be driven by culture and is prone to talent leaking away if employees are dissatisfied in the new environment.

Transformational deals are much more likely to succeed if the new enterprise is distinctive in a coherent way, applying the same capabilities in all the sectors in which it does business (see "The Capabilities Premium in M&A," by Gerald Adolph, Cesare Mainardi, and J. Neely, *s+b,* Spring 2012). For this reason, they require significant operational integration.

In our work, we have discovered seven fundamental tenets to follow for capturing sustained economic value during integration. Although these are important regardless of deal size, complexity, or geographic reach, they are absolutely critical when it comes to transformational deals. If you don't achieve operational excellence soon after the deal is closed, you will not capture the tremendous value promised by a transformational merger or acquisition.

1. Accelerate the transition. Focus on obtaining bottom-line results as quickly as possible to maximize shareholder value.

2. Define the strategy. Clearly state how the new enterprise creates value and how the deal affects its most strategic capabilities.

3. Focus on priority initiatives. Allocate resources to the activities with the greatest potential for financial rewards.

4. Prepare for Day One. Identify and execute critical Day One tasks early, before longer-term, more detailed planning commences.

5. Communicate with all stakeholders. Reach out early and often, describing the deal's rationale and progress to customers, employees, investors, and everyone else in the value chain.

6. Establish leadership at all levels. Assign accountability, define functional authority, and establish clear roles.

7. Manage the integration as a business process. Follow a defined approach to focus resources and capital on the right activities at the right times.

Integrating the Unfamiliar

The root of the transformational challenge is the need to integrate a company—usually a big company—whose operations are unfamiliar. In an absorption deal, the integration team members understand the business. It's not unlike their own. They can make basic assumptions and undertake some planning with a reasonable degree of confidence, even before the close. For a transformational deal, however, waiting until Day One to begin the deep due diligence necessary is potentially much more damaging because it extends uncertainties and delays critical decisions.

These delays and uncertainties can create several integration blind spots that risk undermining the deal. For example, transformational deals are more prone to blind spots involving synergy assumptions, particularly those related to revenue growth. When modeling potential synergies, buyers of transformational deals usually have to consider a greater number of variables than they would for other deals. This often leads them to make subjective assessments as they consider questions such as *What will the market environment be? How will the demand for the product evolve? Can we cross-sell into a new customer base or channel? Can we enter a new market? Will this reduce competition?*

Transformational deals can also be more challenging for cost-based synergies, especially for business process and systems integration. That's because transformational deals require greater collaboration and alignment between the companies to determine the optimal approach—compared to absorption deals, where it's common to simply migrate to the acquirer's procedures and processes.

Agility and Leadership

One way to mitigate delays and uncertainties is to learn in depth about the incoming company's capabilities as early as possible. A characteristic of the highest-performing deals reported in the survey—those with relatively high performance in all three areas: strategic, financial, and operational—is the early involvement of integration teams. In 92 percent of these deals, integration teams started work either before or during due diligence.

This approach requires agility on the part of the integration team. Agility in this context is the ability to act rapidly and creatively in real time: identifying, gathering, and evaluating as much information as possible to make integration decisions and maintain momentum. The team should recognize that transformational integration involves more than pulling IT systems together and realizing synergies. It also means engaging effectively with staff at the acquiring company. Some target company staff members may be reluctant to share what they know. Others may be genuinely inexperienced at explaining what they do. Someone has to pick up the phone to set up meetings and start asking questions.

Integration is successful when senior leadership also preaches and practices agility, staying actively involved, making critical decisions, and managing the pace of integration so that the changes to the combined company happen in a planned and reasonable way. The integration could easily involve hundreds of people in dozens of functional departments or business units. If the top team doesn't set priorities, maybe no one will. That would be devastating to the pace of integration, and, ultimately, to deal success.

Together, agility and leadership can speed the integration. And although speed is necessary, so is long-term commitment. Companies often lose integration momentum between six months and one year after the close. Realizing operational goals takes perseverance, and that's particularly important if companies are to overcome the uncertainty—and capitalize on the opportunity—of the transformational deal. ✚

Reprint No. 00246

Gregg Nahass
gnahass@us.pwc.com
is a partner at PwC, and the U.S. and global leader of the M&A integration practice. He is based in Los Angeles.

Also contributing to this article was PwC principal Aaron Gilcreast.

Is Tech Eroding Consumer Loyalty?

In many categories, the value of brands may be in decline.

by Itamar Simonson and Emanuel Rosen

When Jonney Shih started talking about selling laptops under the Asus brand, it didn't raise too much concern among established players in the PC industry. Shih is the chairman of ASUSTeK Computer Inc. (known simply as Asus), a Taiwanese company that was a contract manufacturer of notebook computers and game consoles. Although Asus was well respected among industry insiders, few consumers were aware of its existence. Conventional wisdom holds that you need to build a trusted brand in order to get people to open their wallets, and establishing a brand is notoriously expensive. Friends and colleagues warned Shih that he wouldn't get far without brand awareness, name recognition, and heavy advertising.

Yet by 2013, it was clear they were wrong. In 2012, Asus reached fifth place in worldwide PC sales, experiencing prominent growth even as overall industry shipments declined. In the first quarter of 2013, Asus reached the number three position in worldwide tablet shipments, according to IDC.

A Shift in Consumer Behavior

How could a company be so successful with almost no initial brand awareness? Shih, and the US$15 billion company that he heads, have benefited from a fundamental shift in the way consumers evaluate and purchase products and services. Consumers used to make these decisions relative to other things—a brand name, a list price, or their own past experience with a company. But today, consumers are basing more and more decisions on the *absolute value* of things.

Relative evaluations are based on comparisons with whatever happens to be most prominent, or placed in front of you on a store shelf or a catalog page. But absolute evaluations go beyond those constraints to use the most relevant information available about each product and feature, and they usually produce better answers.

A technological revolution is driving this shift, as various new tools help us assess the quality of products and services we're considering. Aggregation tools, advanced search engines, reviews from other users, social media, unprecedented access to experts, and other emerging technologies—these things enable consumers to make better decisions without having to rely on relative evaluations.

To be clear, the term *absolute value* doesn't mean the absolute best option (assuming that an absolute best option even exists). Instead, it means a "good enough" solution, which can vary depending on the individual and his or her subjective tastes. The point is that today people can more easily determine the absolute value of something to them—and get closer to knowing what their experience will be with an individual product.

Here's one way that Asus benefits from the shift away from relative evaluations. In the old days, consumers used their own past experience with a brand as a key quality proxy. When Jane was thinking of buying a new laptop, the most accessible piece of information might have been in her memory: "In the past, I used a Dell laptop that worked fine." This was an easy reference point to use, and it led Jane to conclude that the new Dell models on the market must be good too. Some of this way of thinking will continue, of course, but today Jane can go online and

Illustration by Gary Neill

easily find out much better information about any model made by Dell, HP, Asus, or any other company. When quality can be quickly assessed, people are less hesitant to try something new, which means that newcomers like Asus can enjoy lower barriers to entry.

Through the 20th century, the practice of marketing was largely intended to communicate values relative to reference points. But what would happen if one morning consumers woke up and were suddenly able to assess absolute values?

Planet Absolute

Let's imagine a planet—we'll call it planet Absolute—that is almost identical to planet Earth. There's only one difference: Before you buy something on planet Absolute, you press a magic button and know everything you want to know about it—you know exactly how good or bad that product or service is going to be, and how you will like it after using it. Economists would call this "perfect information."

How would people make decisions on planet Absolute?

They wouldn't rely on a brand to determine the quality of a product. They would just press the button. They would not be too impressed by the fact that a product is made in Germany or any country with a reputation for quality. They would just press the button. They wouldn't care as much about the fact that they loved the last model from the same company. When a consumer shopped for a car on planet Absolute, he or she would not need indirect proxies to assess the likely experience with a specific model. Although the consumer might still be influenced by image and status, he or she would not need a brand name to assess the car's quality.

A state of perfect information is, of course, theoretical, and we obviously will never reach the hypothetical planet Absolute. But in more and more areas of life, we're starting to get closer to absolute values, which make us less dependent on relative evaluations. The human brain is not changing, but a fundamental shift in our information environment is under way, with far-reaching, evolving implications for consumer decision making.

Today, review sites (whether Amazon or CNET, Yelp or Zagat) tell us about the reliability and usefulness of products, and help us predict the experience we can expect at restaurants or hotels. Through social media, it's become almost effortless to get recommendations from friends and acquaintances. Post a question on Facebook or Twitter ("Can anyone recommend a camera?") and you're likely to get personalized advice from an expert in your own network. Use Facebook's Graph Search to find out what your friends (or their friends) say about a particular restaurant or movie. Assessing value and price has become much easier too: Mobile apps such as Decide.com, ShopSavvy, and Bakodo inform us about the resale values of products.

Research done in 2011 found that the average shopper consults 10.4 information sources prior to purchase—almost twice as many as in 2010.

In fact, people already use—and trust—these tools. Consider these three facts:

- In 2012, 70 percent of consumers surveyed by Nielsen indicated that they trusted online reviews—which represents an increase of 15 percent in four years.
- Thirty percent of U.S. consumers start their online purchase research with Amazon, which, with its wealth of reviews, is a clearinghouse for product information.
- Research done for Google in 2011 found that the average shopper consults 10.4 information sources prior to purchase—almost twice as many as in 2010.

Two issues are worth addressing here. First, can these technologies be manipulated? No doubt some companies try (and always will) to game the system—for example, by planting positive reviews. Yet despite alarming articles that pop up periodically in the press about fake reviews, paid bloggers, fake "likes," or other schemes, manipulators usually have limited impact, and their effectiveness will decline as rating systems find better ways to deal with them. Reviews are not perfect, but one solution that consumers are *not* turning to is trusting marketers as the main source for information regarding quality.

The second issue: Is the wealth of information creating tremendous clutter that makes decision making even more difficult? Many observers use this concept to support their belief that brands and loyalty are more important than ever. Yet the Web provides effective tools for sorting and using the most relevant information. In most real-world buying situations, options are already well sorted. And with the steady improvement in information and sorting tools, the overload problem will become even less significant.

The cumulative effects of these technologies, and their dramatic impacts on how consumers make decisions, pose a major challenge to established ideas about marketing and related business functions. Simply put, they make influencing consumers through relative tactics and cues, such as brand and price, much harder.

Is this the end of brands? Of course not. Brands still play some important roles that are not likely to go away. And in categories where prestige, status, and emotional links to brands matter a great deal, the rate of change is likely to be slow. So luxury brands (such as Louis Vuitton and Hermès) are on safer ground. Yet in domains where objective, specification-based quality is important—and can be assessed and communicated—even prestigious brands are not immune.

The implications for consumers and businesses are enormous. First, the new reliance on absolute value means that, on average, consumers will tend to make better decisions and become less susceptible to context or framing manipulations. For businesses, it means that marketing is changing forever. ✚

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Itamar Simonson
itamars@stanford.edu
is the Sebastian S. Kresge Professor of Marketing at the Graduate School of Business at Stanford University.

Emanuel Rosen
emanuel.rosen@gmail.com
is the author of *The Anatomy of Buzz: How to Create Word-of-Mouth Marketing* (Currency Doubleday, 2000). Previously, he was vice president of marketing at Niles Software. He's @EmanuelRosen on Twitter.

This article is adapted from *Absolute Value: What Really Influences Customers in the Age of (Nearly) Perfect Information* (HarperBusiness, 2014).

A Diagnosis for Personalized Medicine

The emergence of new technologies could convince physicians and insurers that patient-specific healthcare is here to stay.

by Avi Kulkarni and Nelia Padilla

Personalized medicine (PMx), medical treatment tailored to specific patient populations based on their genetic or molecular biology profiles, has long been heralded as the next big thing in healthcare. It's been about 16 years since Genentech launched Herceptin, a drug for breast cancer patients with a specific genetic mutation. At the time, Herceptin seemed to usher in a revolution for how drugs would be developed and patients would be cured.

In that new version of care, drugs could be tailored to a patient's specific biochemical profile, dramatically improving efficacy rates and reducing the system-wide costs and complications associated with one-size-fits-all medications. For pharmaceutical manufacturers, this approach had the potential to improve sales and profits through a radically new business model: differentiated products for segmented populations (see "A Strategist's Guide to Personalized Medicine," by Avi Kulkarni and Nelia Padilla McGreevy, *s+b*, Winter 2012).

But despite the occasional success story, PMx is largely seen today as the dog that did not bark. With a few exceptions, such as Herceptin, there are few PMx success stories. This is true for several reasons.

First, health insurers remain unconvinced of PMx's merits. One would expect these companies to push hard for personalized medicine, considering that they are the main beneficiaries of more efficient healthcare. Yet most payors seem to believe that the economic benefits of PMx are relatively small. The few PMx-based therapeutics now on the market are much more expensive than conventional therapies—and the prices don't always translate to proportionately better outcomes, such as higher survival rates. For example, Bristol-Myers Squibb released a new metastatic melanoma therapy called Yervoy in the U.S. in 2011. Yervoy costs US$120,000, but in Phase III trials, it added only about 3.7 months of survival time.

In addition, many pharma companies have been hesitant to make the necessary investments in personalized medicine. The steep costs required, including best-in-class PMx development and commercialization capabilities, seem out of proportion to the small markets for each drug. Cancer drugs are the exception, but pharmaceutical companies have focused less on the genetic causes of other diseases. That makes PMx a costlier and riskier proposition.

More broadly, the technologies required to support PMx (to identify and quantify all the molecular markers and mutations in the body that are linked to specific diseases) are still in their infancy. The cost of sequencing the human genome has decreased, but the analysis needed to interpret the data is still expensive. And even the truest of believers are forced to admit that the next step—the molecular analysis of proteins and our understanding of the human proteome (the protein makeup of individual cells and genomes)—is many years from completion.

Illustrationb y Emmanuel Polanco

Even when molecular markers are identified, their absolute clinical relevance is hard to establish. Diagnostic technologies can alert scientists to certain biomarkers in the body, but not how they interact with one another and their environment to cause disease. Currently, clinical relevance has been established for an infinitesimally small number of the millions of biomarkers that the human body is capable of generating.

Finally, the reason success stories are so rare is a notable reluctance among physicians to adopt PMx. Medicine is a cautious discipline, understandably, and in some cases PMx requires practitioners to dispense diagnoses and treatments based on complex molecular changes. For example, in the 10 years since Genomic Health launched its pivotal Oncotype DX test, which can determine the recurrence risk of breast cancer and assess the likely benefit of certain types of chemotherapies, it has faced steep resistance from the medical community. Even though Oncotype DX has been proven as medically relevant technology, and been widely reimbursed by payors, analysts estimate that it is used on only half of all eligible patients.

Realizing the Promise

Despite these problems, the widespread use of PMx in the clinic isn't as hypothetical as it may seem. While researchers, doctors, regulators, payors, and pharmaceutical companies argue among themselves, three solutions are emerging with the potential to help clear the PMx logjam.

Easing regulatory standards. Regulatory bodies such as the U.S. Food and Drug Administration (FDA) could greatly reduce the hurdles for PMx development. In order to balance the FDA's mandate to ensure the health and safety of the public with the objective of encouraging innovation, some experts have proposed an approval system in which drugs and diagnostics could be released onto the market under a provisional approval scheme using existing regulations for diagnostic tests. Meanwhile, patients' real-world experiences could be analyzed to improve promising clinical claims. This system would be a minor modification to existing regulations and guidelines, but it would allow drug and diagnostics developers to get to market quickly in order to test their products in the real world.

Retooling pharma's capabilities for the long term. Many pharmaceutical companies do not realize how much overlap there is between the capabilities required for success in PMx and their existing capabilities in drug development and commercialization. One company that invested in PMx found that the incremental cost of new capabilities was less than $150 million, an amount that could easily be absorbed within the company's $4 billion annual R&D budget. Notably, companies must think of PMx as a long-term play. Those that practice PMx for a majority of programs in development tend to have better drug portfolios and superior economics over several years.

Technology companies are now outpacing medical device makers, which are still addressing complex clinical issues and have little direct interaction with patients as consumers.

Expanding PMx applications to include patient-centric devices. Increasingly, PMx involves patient-centric equipment such as personal, handheld imagers or scanners and biometric devices. This expansion is likely to be the solution that will exert the most influence in moving U.S. healthcare to a PMx future. For example, mobile health sensors have already begun to change the lives of people with chronic diseases. Patients with certain cardiovascular diseases are the best examples: Body surface measurements of heart rate, electrical conductance, and tissue water retention are being coupled with mobile devices such as smartphones to keep the patients and their doctors aware of their health at all times.

Such patient-centric devices can also be combined with molecular biomarkers. For acute coronary syndrome patients, for example, physicians can now evaluate certain gene markers and cardiac proteins before making treatment decisions or prescribing anticlotting medications, and can continue to track patient progress using wireless cardiac monitors. This approach, applied to atrial fibrillation, is already helping to overcome resistance in the medical community. Doctors can see these devices producing usable information—allowing them to treat patients in real time. This grounds the PMx experience for them—a big improvement over waiting for a sample to be run through a black-box device that spits out a list of molecular markers.

The companies taking the first productive steps in mainstreaming PMx through mobile health devices are not medical firms but rather technology players such as Apple and Google. These players have brand names that consumers recognize and trust (compared to medical device companies that have little share of consumers' minds), and they understand how people want to interact with technology. Increasingly, this applies to areas of health and wellness. For example, Nike's FuelBand body monitor, which users wear on their wrist and which connects to a cloud-based app wirelessly, has made it easy to track activities like walking and running. Samsung's Galaxy S5 smartphone contains a heart-rate sensor. Even technology that isn't specifically equipped with diagnostic apps is being used by scientists. One group of researchers is developing an app that uses Google Glass as a wireless diagnostic tool.

Technology companies are now outpacing medical device makers, which are still addressing complex clinical issues and using sales reps to sell to doctors but have little direct interaction with patients as consumers. In fact, tech players are slowly migrating from the consumer and enterprise markets into the more scientific realm. Even though it will mean maneuvering through the FDA's complex device regulations, they are starting to develop devices that have clinically actionable data and results. In South Korea, for example, regulators debated whether or not the Samsung Galaxy S5 should be treated as a medical device because it contains a heart-rate sensor. Ultimately, they decided not to do so—but a similar debate is ongoing in the United States as the FDA tries to determine how to regulate comparable devices.

The migration of technology

companies into healthcare is a needed intermediate step that will help PMx become mainstream, converting it from a science, technology, and engineering domain to a consumer-oriented function. It will help make PMx simpler and more elegant, with fast product cycles, appropriate prices, and a great ability to respond to changes in market demand. Moreover, the mainstreaming trend may also help solve the problem of distracted payors. Insurance companies will not be leading us into the PMx future, but seeing it successfully introduced may allay their concerns about whether PMx is worth paying for.

Ultimately, the PMx companies of tomorrow may be familiar names from today: technology companies that design not just smartphones and software but also devices like glucose-measuring contact lenses or mobile heart sensors. For pharmaceutical firms—and all other healthcare players—that means PMx could finally live up to its potential. +

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Avi Kulkarni
avi.kulkarni@strategyand.pwc.com
is a partner with Strategy& based in San Francisco and a member of the firm's global health practice.

Nelia Padilla
nelia.padilla@strategyand.pwc.com
is a principal with Strategy& based in Boston and a member of the firm's global health practice.

Turnover Alchemy: Converting Employee Losses into Gains

Departing staffers can become a source of new networks and competitive intelligence.

by Orly Lobel

Marty Beard, CEO of LiveOps Inc., a leading cloud-based contact company in Silicon Valley, recently got some bad news: One of his best project managers was leaving for another company. Beard was upset. He worried that LiveOps would suffer from the loss of talent and knowledge, and he considered doing everything in his capacity—including legal maneuvers—to prevent the move. But Beard soon realized that the manager's departure wasn't a total loss. He had gone to work for one of LiveOps's biggest customers, Salesforce.com, and his move had actually become a benefit. Beard now reports that, in a way, the ex-employee is a critical source of insights about an important client.

These days, people are an organization's most valuable asset. Given the work that it takes to recruit, identify, and hire strong talent, companies want to retain their employees at all costs. But in the increasingly mobile labor market, companies should actually view departing employees as continuing assets and employee turnover as a source of long-term strength.

Academic research is starting to quantify the benefits of this turnover. A team of researchers from the Wharton School of the University of Pennsylvania and the University of Maryland studied the effects of "outbound mobility." The researchers examined 154 semiconductor firms over 15 years, systematically exploring linkages between the firms on both sides of an employee move and any patterns in the way the firms cited patents. They found that after an employee changed jobs, both the "sending" and the "receiving" firms became more likely to cite the other firm's patents. That is, companies that lost employees actually gained knowledge.

Why? The researchers theorized that the employees left behind gained access to the knowledge generated at their ex-colleague's new workplace. They became more aware of that company and its ideas, leading to a kind of cross-pollination. The effect was more pronounced when there was a large geographic distance between the two companies, suggesting that the departing employee made his or her old employer more aware of concepts and intellectual capital that it likely wouldn't have encountered otherwise.

Other researchers have found similar advantages from employee turnover. A study published in the *Journal of Economic Geography*, for example, looked at inventors of mobile technology. When an inventor left a particular region, the "knowledge flows" to that region were 50 percent higher than if the inventor had never worked there. (The study looked at geographic transfers, but the logic applies to companies as well.) In many cases, the mechanism behind such flows of knowledge was social capital—personal relationships that stayed strong despite the inventor's departure.

In fact, the idea of social capital informs many of the benefits of departing employees. Part of that social capital stays with the prior employer, introducing a connection between the two firms that might not have existed in the past. When employees at two firms know each other, collaboration, and even competition, can become more effective. Ex-employees make their new firm more aware of the work done by their former firm, often building on those ideas and increasing the chances that the new firm's patents will be licensed. The sending company also strengthens its networks and industry positioning in professional associations, technical committees, and lobbying efforts, growing its industry footprint and making it easier to navigate the market. Perhaps most important, the reputation of companies becomes more relevant when potential hires know someone who used to work at a given company.

Despite these benefits, the common reaction among companies experiencing turnover is to resort to defense and retaliation. They write noncompete clauses into contracts, and they enforce such clauses, increasingly through litigation. According to the *Wall Street Journal*, employer lawsuits against former employees regarding noncompete clauses have risen 60 percent over the past decade.

To be clear, high levels of turnover generally indicate bigger and more systemic problems within a company. And in many instances, noncompete clauses—and lawsuits—are warranted. Employees have access to valuable trade secrets, customer data, and business relationships. The loss of those elements has significant financial and operational consequences for the employer.

Illustration by Phil Hackett

Yet companies are often too quick to resort to measures that may succeed in retaining employees in the short term but that are ultimately counterproductive. If turnover becomes so pervasive that it affects the way a company functions, the focus should be on identifying and curing the core problem, rather than preventing the symptom. That is, the firm's leaders are better off asking why their best talent is leaving than trying to intimidate people into staying. In extreme circumstances, this approach leads to adverse selection, or keeping people around who no longer want to work there.

Moreover, to determine the real business risk from a departing employee, companies should distinguish between those leaving for current and potential cooperators—a group that includes clients, suppliers, and partners—and those leaving for companies that pose a direct competitive risk. For the first group, companies need to become better at seizing opportunities for gain. Amicable departures can help pave the way for future collaborations, turning ex-employees into allies who can provide critical insider insight into those companies. For the latter group—those who are moving to direct competitors—the loss is clearly more of a threat. But even in those cases, a caveat applies: A company that may be your competitor in one product line or service may well be your customer in others.

Forward-thinking companies are learning how to integrate this reality into their recruiting, marketing, and outreach strategies. For example, many organizations now have alumni networks that allow people to retain ties to their former employer. (Among other benefits, these networks almost always include personnel directories, which foster stronger connections among alums—even those who may not have been at the company at the same time.) In particular, although some companies used to have implicit, or explicit, rules stipulating they would never rehire anyone who had left the firm, most are recognizing how archaic and vindictive those policies seem and are scrapping them.

Companies are now actively tapping into alumni networks to hire "boomerang" employees—those who have left the firm and then come back. For example, IBM's alumni network, "the Greater IBM Connection," allows the company to reach back into the pool of ex-employees to serve its current personnel needs. Boomerang hiring is low cost, carries lower risk, and results in faster reintegration. After all, the employee and the company have much better information about each other than employees with no direct experience.

Beyond rehiring, corporate alumni programs focus on strengthening the firm's brand in the market, encouraging word-of-mouth referrals, and building opportunities for strategic alliances. That is, they take advantage of social capital. Pushing this idea one step further, Virgin Group Ltd.'s Richard Branson makes a habit of working with former employees to help them start their own businesses. Such corporate venture capital is on the rise; companies are increasingly funding their own ex-employees' efforts to launch new companies, blurring the lines between the formerly distinct ideas of abrupt talent departure and productive continuity.

Moving from a zero-sum state of mind to one focused on mutual benefits is not easy for anyone, especially market competitors. However, these days, competition and cooperation do not make up an either/or proposition, but rather two ends of a dynamic spectrum. Fundamentally, some turnover will always be inevitable, and in the right context, it's a sign that the company is succeeding in developing its people. Retention is important, but it's not the only objective. Equally important is the ability to turn those inevitable employee losses into gains. By adopting the right mind-set and approach, a company can gain market attention, new partners, and goodwill ambassadors in the industry at large. ✚

Amicable departures can help pave the way for future collaborations, turning ex-employees into allies who can provide critical insider insight.

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Orly Lobel
lobel@sandiego.edu
is the Don Weckstein Professor of Labor and Employment Law at the University of San Diego. Her latest book is *Talent Wants to Be Free: Why We Should Learn to Love Leaks, Raids, and Free Riding* (Yale University Press, September 2013). She's @OrlyLobel on Twitter.

When Big Data Isn't an Option

Companies that only have access to "little data" can still use that information to improve their business.

by David Meer

An advertising agency met with a client—who happened to be a U.S. Marine Corps colonel—and the conversation turned to the topic of reliable data. "Look," said the colonel, "if I'm on a battlefield trying to defend a hill and I get a piece of intelligence, even if I'm not 100 percent sure that it's accurate, I will make decisions based on that intelligence." He strongly believed that it's better to have *some* information than none—and that you'd be a fool to disregard it just because it falls short of being definitive. One could say that the colonel was a proponent of "little data."

There is, of course, a great deal of discussion about the potential of "big data," the high-volume, high-velocity, high-variety information assets that require new forms of data processing to enable companies to make better decisions and operate more efficiently. Giant data sets are being created by aggregates of individuals' behavior (on social media sites such as Twitter and Instagram, for example), by transaction logs, and by automated information-sensing devices. Companies are increasingly mining these data sources to understand more about their customers' behavior and preferences, and even to anticipate stock market movements. Early successes by a few companies have caused others to start investing in the infrastructure, software, and talent required to mine big data.

There is, however, one important caveat. Many companies—probably most—work in relatively sparse data environments, without access to the abundant information needed for advanced analytics and data mining. For instance, point-of-sale register data is not standard in emerging markets. In most B2B industries, companies have access to their own sales and shipment data but have little visibility into overall market volumes or what their competitors are selling. Highly specialized or concentrated markets, such as parts suppliers to automakers, have only a handful of potential customers. These companies have to be content with what might be called little data—readily available information that companies can use to generate insights, even if it is sparse or of uneven quality. For these companies, the U.S. Marine colonel's words will resonate more than the latest data-mining algorithm or social listening platform.

With the right mind-set, virtually all sources of information can be exploited to improve products, the customer experience, or profits.

Several commentators have made the point that the implications of big data go beyond new data sources, analytical techniques, and technology. Rather, a paradigm shift—away from management based on gut feelings and toward data-driven decision making—is already under way, and accelerating. The shift is so profound that companies lacking complete or clean market data can no longer use this deficit as an excuse to rely on the status quo. They must make a concerted effort to use the data that is available to them (imperfect as it may be) or to explore innovative, low-cost ways to create new data.

In one example, a large beverage manufacturer wanted to improve its sales to bars, restaurants, and entertainment venues. For years, this company had been buying syndicated data from an established source, which covered more than 100,000 establishments. Unfortunately, the data was collected and structured to serve a broad set of clients and featured a standard segmentation scheme that did not provide enough insight for the beverage company into how to serve different segments. So the company decided to adopt a series of little data techniques to come up with a solution customized to its needs.

It started with observational research, visiting bars and restaurants and qualitatively cataloging the clientele and their consumption patterns. Synthesizing this information resulted in more actionable segment definitions. The next step was to quantify the segmentation—determining how many establishments were in each segment. The beverage manufacturer developed an algorithm based on observable characteristics, then asked its sales professionals to classify all the bars and restaurants in their territories based on the algorithm. (This is a classic little data technique: filling in the data gaps internally.) Finally, for each major segment, the company designed tailored product assortments, pricing, and marketing programs. Pilot projects in two large cities have shown significant lifts in total sales and share penetration, and the company is now rolling out the initiative nationwide.

Other companies have used little data successfully as well. In one case, a maker of industrial coating products had limited data on pricing broken down by customer and region. As a result, it couldn't build robust price elasticity models using classical regression analysis. By using other analytical techniques, however, the company was able to identify specific areas in which it

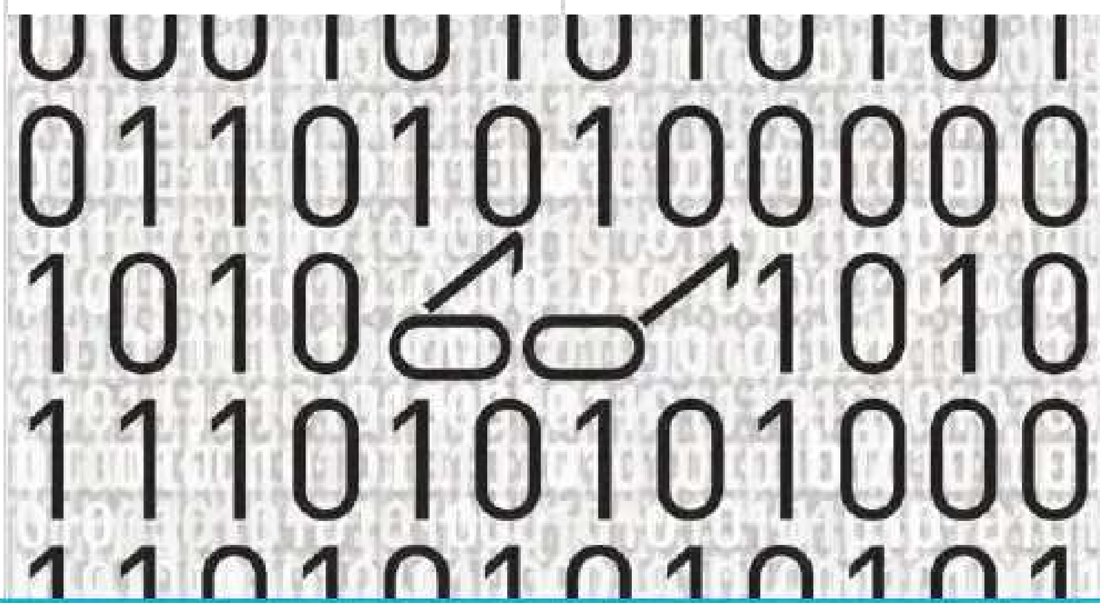

Illustration by Opto Design

could improve pricing and service policies. It moved to a value-based pricing approach to ensure its most profitable customers were receiving the highest service levels. Implementation in one business unit in one region alone yielded a 4 percent increase in sales.

In another instance, a regional health insurance company trying to differentiate itself through outstanding customer experience realized that its call center was a potential source of data about customer pain points and potential solutions. The company took full transcripts of the calls—not just the summaries entered by service representatives—and applied available text-mining algorithms. From this data, the company was able to improve the format and language of its written communications, and streamline the call-center process. In addition, it uncovered an opportunity to introduce storefront locations in certain neighborhoods in order to improve its customer interactions and increase customer retention rates.

Even large companies are able to make use of little data techniques. The Chinese large-appliance giant Haier uses information gathered by service technicians to drive innovation. In the late 1990s, some technicians, for example, found that rural customers were using their washing machines to wash vegetables, leading to clogs. Haier used this information to develop a new type of washer, which the company says is "mainly for washing clothes, sweet potatoes, and peanuts."

With the right mind-set, virtually all sources of information can be exploited to improve products, the customer experience, or a company's profits. Little data techniques, therefore, can include just about any method that gives a company more insight into its customers without breaking the bank. As the examples above illustrate, mining little data doesn't mean investing in expensive data acquisition, hardware, software, or technology infrastructure. Rather, companies need three things:

- **The commitment to become more fact-based in their decision making.** This commitment is often spurred by a sense that competition is heating up or the company is falling behind changing customer habits and preferences. But fact-based decision making can be an important source of competitive advantage for market-leading companies.
- **The willingness to learn by doing.** Since little data applications are not commercially available via third parties, companies have to use trial and error. However, once a few priorities have surfaced, a series of pilot projects will give the company useful experience and, with a little luck, some early successes that can inspire the rest of the organization.
- **A bit of creativity.** To generate richer data, companies need to get creative, in part by tapping into the customer interactions that take place naturally. For instance, retailers can intercept shoppers in store locations for quick iPad-assisted surveys. Any website with a registration form can add questions that reveal preferences beyond the basic data usually collected. Call-center conversations are another opportunity to gather data on a particular topic, and the text can be mined for greater insight into the customer. Some companies create advanced user panels of savvy customers to get input during the R&D process for new products. Others rely on their sales representatives to report trends in customer preferences and competitors' activities. The bottom line: Companies have to put in the extra effort required to capture and interpret data that is already being generated.

Companies often start the journey by picking a product, a region, and a problem that needs attention and running one or more pilot projects. This allows executives to demonstrate to themselves and the rest of the organization that the return on effort and cost is justified. Once companies start investing in analytics, they almost never stop, because the things they learn drive improvements in the business that more than pay for the analysis. The activity becomes self-funding. In some cases, companies that start with little data end up recognizing the value of the resulting insights and expanding their investment to incorporate larger data sets and more advanced analytics. For others, little data is all that's needed. In either case, the benefits are clear: Executives get insight into what they can do to improve their competitive position, or—to put it in terms that a Marine Corps colonel might appreciate—identify what might be charging up the hill to surprise them. It's hard to put a price tag on that. +

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David Meer
david.meer@strategyand.pwc.com
is a partner with Strategy&'s consumer and retail practice, and is based in New York.

A Guide to the Next Million Innovators

Tech entrepreneur Christopher Schroeder explains why you need to pay attention to the mobile-powered masses.

by Jen Swetzoff

When he was invited to judge a conference for aspiring entrepreneurs in Dubai in November 2010, Christopher Schroeder was admittedly skeptical. "I couldn't get it through my head that politically and socially hierarchical places like (then) Mubarak's Egypt were kicking up a technology ecosystem," he said. "But my world view completely changed after the event."

In fact, the Washington, DC–based Internet entrepreneur and venture capitalist was so impressed by what he witnessed—more than 2,000 young, tech-savvy men and women from North Africa to Yemen participating with smartphones in hand and big ideas in mind—that he spent the next three years interviewing hundreds of entrepreneurs and investors in the Middle East to better understand their aspirations, motivations, and innovations. Schroeder's research culminated in his first book, *Startup Rising: The Entrepreneurial Revolution Remaking the Middle East* (Palgrave Macmillan, 2013). And today, he's convinced that what's happening in the Middle East is just the beginning of a tech-enabled, "bottom-up revolution" that will soon disrupt traditional business practices everywhere.

Schroeder recently sat down with *strategy+business* to discuss innovation in the Middle East and why he thinks leaders around the world continue to underestimate the power of mobile technology.

S+B: What makes the Middle East ripe for innovation?

SCHROEDER: An entrepreneurial spirit has long been there. Dubai was a desert 17 years ago, and somebody willed that city to happen. But the biggest difference today is the ubiquitous access to software and technology. The spread of broadband, increasingly through smartphones, has already begun to change everything, and it will only accelerate over the next five years.

S+B: How so?

SCHROEDER: Most mobile providers expect at least 50 percent smartphone penetration in the region. The Gulf has already exceeded this level. So we're not just talking about better phones, and more of them, but literally supercomputers in the hands of millions. This means that millions of people can see how millions of other people live. They can connect with anybody anywhere and collaborate instantly.

I think people are underestimating the fact that the entire world soon will have access to essentially all of human knowledge at their fingertips. Really, what's happening is that we're unleashing a complete revolution in bottom-up human behavior. The essence of empowerment is the ability to feel that you're not afraid, and that you're not alone. If someone like you does something really cool, you start to believe you can do it too. Then you have a flywheel effect of people doing amazing things.

S+B: What do you mean by a revolution in "bottom-up" behavior?

SCHROEDER: There's a line in my book from an Egyptian woman, Dina Sherif, who's a corporate social responsibility expert. She said it never ceases to amaze her how well-intentioned, top-down institutions—like governments and big businesses—think that they, sitting in Washington or in London, have the best idea of what's good for people on the ground in their markets.

But all of a sudden, with technology, people everywhere have a voice. We have access to what people all over the world are actually doing, what they're capable of accomplishing, what works, and what doesn't work. Given the opportunity, people can often solve the problems in their backyard better than anyone else can. So to play out Dina's phrase, she said a top-down view sees people as problems, while a bottom-up view sees people as assets who can solve their own problems.

S+B: How are companies capitalizing on this bottom-up phenomenon?

SCHROEDER: First, I'd argue that technology capabilities that connect us—like Google, Facebook, Twitter, texting, and so on—are the ultimate facilitation platforms. With Google, almost anybody anywhere can find orderly access to the world's knowledge. And through Facebook and Twitter, almost anybody anywhere can connect with others under almost any circumstance.

Many entrepreneurs in the

Middle East now, in these early days of technological innovation, are improvisers or problem solvers doing things that are specific to their region. But I believe that at some point soon, we're going to be surprised by how global they become.

I'd pay attention to May Habib's Qordoba, a translation platform that allows people to work from home on a part-time basis. It has a huge growth opportunity because only about 1 percent of content online is currently in Arabic. As an investor, I think Souq.com (effectively the Amazon of the region) is going to be a juggernaut. The founder and CEO, Ronaldo Mouchawar, is an amazing salesperson and a great culture builder, and he has executed well. And I've also seen some interesting ideas in mobile payments; I'd expect to see increasingly frictionless transactions through devices.

S+B: How important are "big data" and social media for growth?

SCHROEDER: I think the ability to understand in aggregate and at highly specific levels what people are doing, thinking, and caring about is a massive challenge that is now more digestible through data. And the more responsive any institution is to what people are *really* doing, as opposed to what we *think* they're doing, increases their opportunity to engage the bottom-up phenomenon. As Alyse Nelson, the CEO of Vital Voices (a global women's support and empowerment organization), says in my book, social networks, particularly via mobile devices, are dramatically shifting power dynamics. Real influence can come as much from a Twitter account as from the corner office.

Often—not always, but often—traditionally top-down institutions have tremendous difficulty understanding and embracing the power of these new tools to engage from the bottom up.

But for large corporations, there's an unbelievable opportunity—if they're willing to enter a world of coauthorship and understand that everyone brings something to the table. Over the next 10 years, these tools will foster innovation and create significant new markets. There's a reason smart companies like Vodafone Egypt are


Christopher Schroeder

partnering with and even investing in startups in their backyard. They want to learn.

S+B: What can multinationals and governments do to encourage innovation in emerging markets?

SCHROEDER: Anything that helps maximize the movement of people, goods, and ideas.

Although so much of the entrepreneurial ecosystem is happening naturally from the bottom up, a top-down structure is very important when it comes to areas like infrastructure, the rule of law, and education. As one positive example, the president of Rwanda, Paul Kagame, recently said that everyone in his country is going to have access to LTE within the next two or three years. Not 3G, not 4G; they're going to leapfrog to the fastest broadband. They're wiring the entire country—and bringing in a company from South Korea to help them do it. The president is totally committed. He wants to get a tablet in every child's hand in that period of time, and the government has already given out more than 150,000 tablets, along with training, to young people. So if that can happen there, it can potentially happen anywhere.

And with increasing access to mobile technology, a real awakening is happening. Young people are saying, "I can do stuff that my parents told me I couldn't, and I can stand toe-to-toe with anybody in the world." This brings with it a sense of tenacity, an utter commitment that comes with great entrepreneurs everywhere. This is the transition that's happening in the Middle East and other emerging markets now.

S+B: What else do business leaders need to understand about the increasingly mobile-driven global economy?

SCHROEDER: Ben Horowitz, the cofounder of Andreessen Horowitz, the venture capital firm, often talks about courage, and he doesn't just mean bravery. He means an assuredness—not an arrogance, but an assuredness; being willing to walk through walls to make an idea happen. You can usually tell whether an entrepreneur has it within 15 minutes of meeting him or her.

That's important because most "overnight" successes don't happen overnight. They might take eight years. As I once heard the great entrepreneur David Bradley say: Life isn't an arrow; it's a sine wave. So

Photographb y Violaine Lenoir

what really matters for most of us, as human beings and as businesspeople, is, what are you like in the low end of a sine?

Everyone loves you when you're at the top. You're a hero, you're smarter than everybody else, and people talk about you in powerful ways. When you're down in the low end, everyone thinks you're an idiot, and your employees may be questioning your leadership.

But you learn a lot about yourself and other people when you're in the low end. If you know it won't be forever, if you know you'll get to your goal eventually, and here's how you'll figure it out, that's fantastic. Successful people don't doubt that they have the ability to change the world. But they should remember that the journey's going to be an incredibly, shockingly bumpy one.

Success, and leadership more broadly, is about having the kind of courage that comes from a raw desire to make something happen that was not there before—and wanting it in your teeth. If you have that, the rest tends to take care of itself. This is true around the globe. +

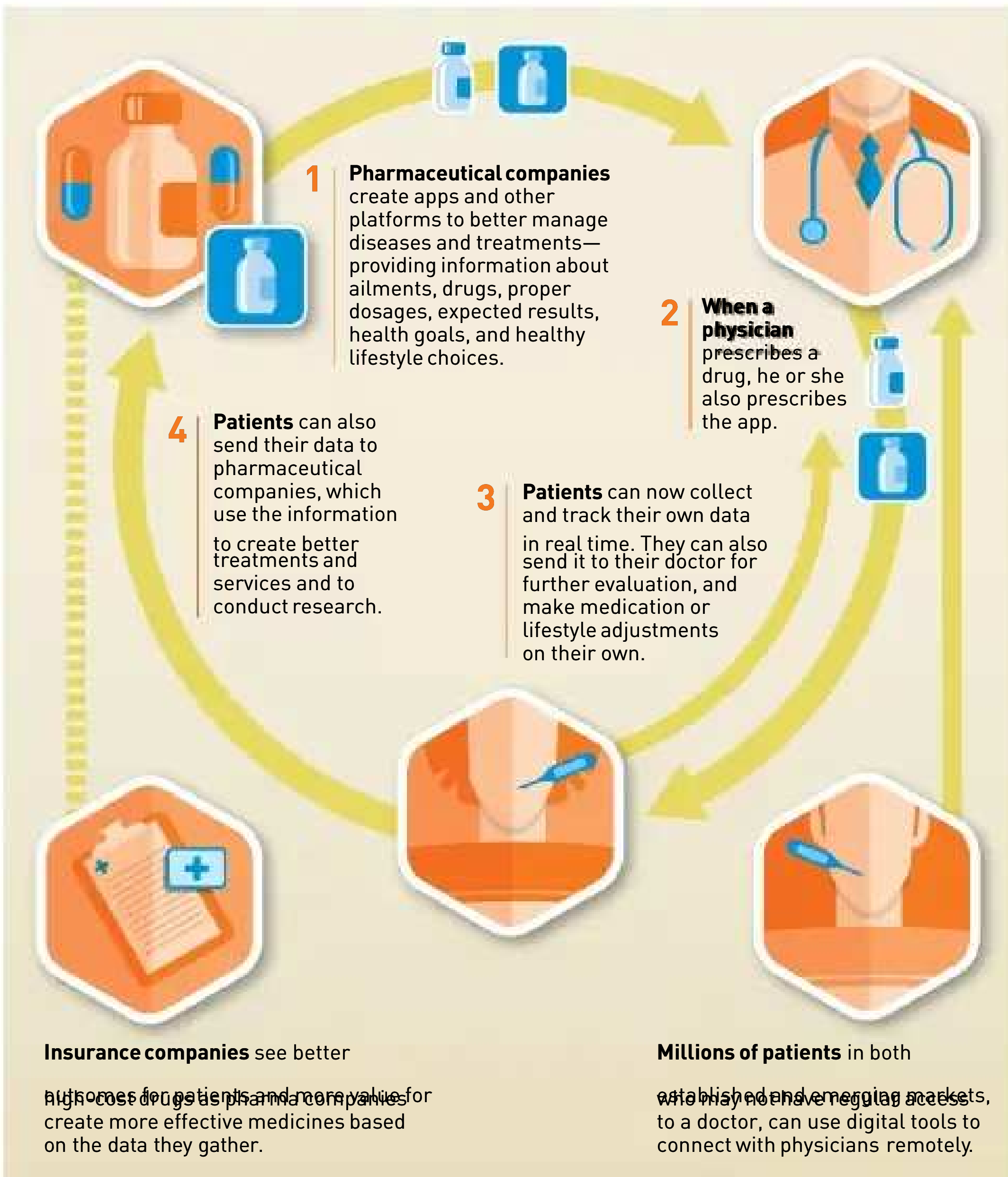
Reprint No. 00242

Jen Swetzoff
swetzoff_jennifer@strategy-business.com
is deputy managing editor of *strategy+business*. She's @JenSwetzoff on Twitter.

s+b Trend Watch

Doctors and patients are starting to use digital tools to manage healthcare more efficiently, but the current environment remains disjointed. Looking toward the future, however, pharmaceutical companies and other stakeholders will adopt existing technologies and develop new ones. And in the process, they will help create a more connected digital healthcare ecosystem that has benefits for everyone. Here's what it might look like.

The Coming Digital Healthcare Landscape



Source: "Digital Health: A Way for Pharma Companies to Be More Relevant in Healthcare," Strategy& white paper, Nov. 2013, strategyand.pwc.com/digital-healthcare

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STRATEGY & LEADERSHIP

Growing When Your Industry Doesn’t

Success and profits flow to companies with uniquely valuable market propositions—regardless of their sector.

by Kasturi Rangan and Evan Hirsh

If we had a nickel for every executive who appeared on CNBC and blamed his or her company’s inability to grow on a weakness in the market, we’d be richer than Croesus. Of course, there’s a reason this explanation for uninspiring performance is so common: It’s readily available. At any given time, roughly half of all industries are growing below the level of GDP. And it’s only natural to blame something external for one’s problems.

The trouble is, a weak market isn’t a valid excuse. Plenty of companies that achieve above-average shareholder returns compete in average or below-average industries. Consider Polaris Industries, a maker of snowmobiles, whose revenues and shares have both surged in a sector (leisure equipment and products) that is not exactly “hot.” On average, a dollar invested in Polaris’s shares has risen 24 percent per year for the last 10 years, while the average stock in the global leisure segment returned just 9 percent annually. Or think of Tupperware Brands, which achieved a 22.4 percent average annual gain in the last 10 years, versus the 3.6 percent average annual gain of household durables companies worldwide.

There are always some companies that find a formula for growth and success in industries that aren’t doing anything special—that are just bumping along with the economy, or underperforming it. If you’re an executive in one of these industries, it’s your job to ignore the excuses and figure out how to join the ranks of overachievers.

In our analysis of shareholder returns over the last few decades, we found the phenomenon of superior performance to hold true in every industry, in every part of the world, and over every time period that was long enough to allow the leaders to become apparent. Between 2003 and 2013, for instance, 30 percent of companies with top-quartile shareholder returns (our proxy for success) were in industries growing at or below the rate of GDP. Even industries at the bottom of the heap produced their share of top performers (*see Exhibit*).

How do the winners in low-growth industries do it? By taking market share from others. And not only do they take market share, but they take it profitably, often without reducing prices. When companies successfully get these two things going together—market share and profitability gains—they in effect create their own growth cycle, one that is independent of the industry cycle. A sort of disequilibrium takes hold, allowing the companies that created it to become dominant in their sectors.

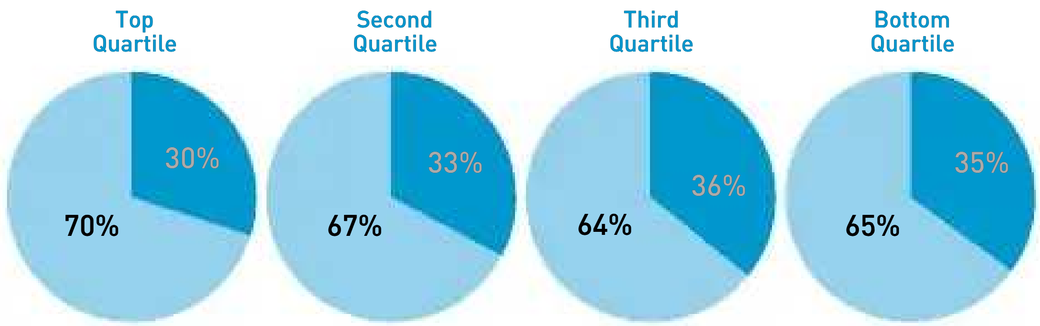
We all know what equilibrium looks like. Equilibrium is the state that exists when a set of companies with fundamentally similar offerings compete within a market, getting similar returns and amassing market shares within a few points of one another. Not to put too fine a point on it, but equilibrium isn’t all that interesting. When markets are in equilibrium, competing players (and sometimes there are only a few worth talking about) battle for minuscule amounts of market share. However well developed these companies’ operational abilities, or how-

Illustration by Lars Leetaru

Exhibit: **Industry Irrelevance**

Between 2003 and 2013, an analysis of 6,984 global firms in 64 industries revealed that slow-growth industries can still produce top performers.

Company Performance by Total Shareholder Returns



Companies in industries growing **below** global GDP growth rate

Companies in industries growing **above** global GDP growth rate

Source: CapIQ and Strategy&

ever talented their executives, no one studies them for ideas about how to achieve off-the-charts business success.

Disequilibrium is much more dynamic. The companies that create the conditions for it generally don't follow a template, but discover a particular advantage they can use to tilt the market in their direction and keep it that way. These enterprises often become a source of fascination (and envy) among competitors because they offer proof that in business, true advantage can be created and sustained for years, or even for decades, when companies are especially shrewd—no matter the overall state of the industry.

Creating Disequilibrium

Among the more vivid examples of how a company can introduce disequilibrium into its market—and earn above-market returns as a result—is Blockbuster Video. Blockbuster has now been relegated to the dustbin of business history, but before it came apart in the digital revolution, the company enjoyed a prolonged run of success in which it capitalized on a form of disequilibrium that it had managed to create.

Blockbuster entered the movie rental industry in the mid-1980s, when there were about 60,000 rental stores already in place. The price of renting a movie was falling rapidly, and within a few years the industry began consolidating. By the late 1980s, if you had asked most movie rental store owners (the large majority of them local, independent businesspeople) how their business was doing, they would have given you a pretty gloomy answer. But not Blockbuster.

In a market that generally consisted of cramped, musty stores, with quirky selections and inventory prone to malfunctioning, Blockbuster stood out. Its retail spaces were well organized, with wide selections that featured hundreds of new titles. It built an extensive customer database that allowed it to optimize the mix of titles in each store—a far cry from local rental places, where "customer intelligence" came down to the owner's intuition or personal taste. And Blockbuster was big enough to gain scale advantages—including in what it paid for its inventory.

Blockbuster's superior model allowed the company to wrest existing customers from many smaller stores, and to pull in a fresh set of customers just entering the market. By 1990, the aggregate dollar value of movies rented and watched on home VCRs (the prevailing technology at the time) had essentially reached its market peak and was flattening out. Yet in this slow-growing market, Blockbuster thrived. Its share grew from 10 percent in 1990 to 35 percent in 1995 to 45 percent in 2000.

Blockbuster created disequilibrium in one of the two ways it can be done, through changes on the supply side of the market. *Supply-side changes* that push a market in one company's favor usually involve advantages in quality, functionality, cost/price, service, or selection. Blockbuster had the last three of these in abundance.

The other way to create disequilibrium is through changes that capture demand that didn't previously exist (or that was inaccessible). *Demand-side changes* are typically enabled by some sort of technology shift, such as—ironically—the one that would eventually cause Blockbuster itself to fall to a newcomer named Netflix. (More on this bit of history soon.) But demand-side changes can also be enabled by new regulations, such as those that paved the way for interstate banking in the U.S. in the 1980s. The banks that moved the fastest secured the most new customers, increasing their share of the available revenue and profits and giving themselves a huge advantage, at least temporarily.

Executives who want to create disequilibrium should begin by asking themselves a few questions:

- What do we do that's unique, that customers value?

• Can our competitors match this capability we have?

• Are there any coming technological or regulatory shifts that could transform our market, and if so, do we have a well-thought-out plan for addressing them?

Holding On to an Advantage

Some degree of disequilibrium, created by a company with a clear source of advantage at a given moment, is actually quite common. But usually it doesn't last. Only when market leaders take steps to deepen and extend whatever is working for them can they sustain their advantage. And then companies can sometimes hold on for decades, continuing to grow even when their industry is static or shrinking.

Companies in the lead typically have two important levers available to them. First, they can *manage the ecosystems* of their industry—taking steps to gain favor with important suppliers, thwart competitors, and influence their industry's structure. Second, they can *use pricing strategically*. Of course, pricing is a sensitive area. Like some other competitive tools (including M&A, product bundling, and hiring away a rival's top talent), pricing must be used in a way that doesn't cross a line and open the company up to accusations of anticompetitive behavior. (Microsoft and AT&T, pre-divestiture, are examples of companies that have had their wings clipped by regulators.) The stories of market leaders Netflix and Johnson Controls Inc. (JCI), which we'll come to shortly, help illustrate the power of these tactics.

If the leading company uses its advantages smartly, other companies slip in both market share and profitability. And the effect is cumulative: The less successful companies' weakening position leads to a reduction in investments, further hindering the quality of what these companies can offer to the market. Some of them don't survive, allowing the leader to grow yet more in influence and market power.

"It's like we have a fortress, and our competitors are down below, trying to get over the moat and beat down the fortress door," one executive said to us during a period when his company was reaping the benefits of disequilibrium. "I'm up here pouring boiling oil on their heads."

"It's like we have a fortress, and our competitors are down below, trying to get over the moat and beat down the fortress door."

Not every executive speaks about the satisfaction of beating rivals so colorfully. But the ones in slow-growing industries all recognize, on some level, that the gains are finite and it's ultimately "us" or "them."

From Leader to Loser

The success of a leading company's business always spurs competition, from the existing rivals and, often, from brand-new entrants. If the competition doesn't offer anything fundamentally new, the leader will hold on to most of its market share or even gain additional share. But if a rival comes up with a superior approach and has the wherewithal to extend that new advantage, the disequilibrium dissolves. And then the fortress the leader has built for itself can become a trap that ensnares it.

Here we can resume the Blockbuster story line: Starting in the mid-1990s, the company's success attracted two new players, Hollywood Video and Movie Gallery, both of which were largely copying Blockbuster's model of running well-organized video stores nationally. The new chains created headaches for Blockbuster and, as viable alternatives for consumers, had an impact on Blockbuster's growth and profitability. But the leader held on to its lead, opening almost 6,100 stores between 1990 and 2000, more than twice the number of the other two chains combined. The new entrants simply did not offer enough differentiation to overcome the disequilibrium Blockbuster had created.

The real turning point for Blockbuster (and the movie rental industry) came in late 1999, with the emergence of Netflix. With its model of allowing consumers to order DVDs online and receive them by mail a few days later, Netflix tapped into an appetite for online shopping and convenience that was just beginning to take shape. Nothing in Blockbuster's capabilities system was built to serve this need, and for the first time in its history, the company found itself behind a trend instead of initiating one. Things only got worse in 2007, when Netflix began making a library of movies available to its customers via streaming technology. Blockbuster had no answer to the value proposition of streamed video entertainment. It wasn't long before Blockbuster's greatest assets, its physical spaces, were becoming a huge liability and an unproductive drain on the company's cash and capital. In 2010, having failed to evolve its decades-old business model, Blockbuster filed for bankruptcy. It closed its last stores in January 2014.

For the better part of the past decade, Netflix has been taking advantage of disequilibrium. Looking at the company's performance, including a subscriber base and revenues that rose by more than 250 percent between 2009 and 2013, you might think that home video rental is a sweet place to be. But for most companies, it isn't. It's just that Netflix built the position and made the investments needed to get a good share, then a better share, then a huge share, of a slow-growing business. Netflix's recent talk of raising prices—a possibility introduced in a letter to shareholders earlier this year—shows it understands the power it has and is looking for additional ways to capitalize on it.

Netflix's determination to double down and keep getting better at the things that set it apart is a lesson for every company.

Winners' Relentlessness

Netflix's determination to double down and keep getting better at the things that set it apart is a lesson for every company. In fact, it demonstrates a path to winning that's more reliable in low-growth industries.

In low-growth industries, external shocks, whether from technology or regulatory change, are less common. Companies in those industries actually have a better chance than those in high-growth industries of maintaining their advantage and achieving superior total shareholder returns (TSR) for extended periods of time—counterintuitive but true. Companies in low-growth industries can often turn internal operations and process innovations into sources of competitive advantage, continually improving in those areas and upping the ante for rivals.

Consider JCI, and in particular the company's North American energy storage business, known as Power Solutions. Batteries have been a slow-growth industry for decades. In the early 1990s, after losing Sears, its biggest customer, the division struggled. The unit's leaders realized they had to make some fundamental changes. They undertook a major restructuring program, stripping out operational complexity and attacking inefficiencies of every type. The resulting 25 percent cost reduction allowed the business to survive, and, gradually, to become stronger.

Through a relentless, disciplined focus on continuous cost improvement and through critical investments in advanced process technology, JCI's battery business transformed itself into the industry front-runner. The company was able, over time, to offer better prices and warranties than most of its rivals. This allowed it to build back a sizable U.S. market share. Pretax operating profit in the Power Solutions business unit has grown 17 percent annually for the past decade—a remarkable achievement in a slow-growth industry. Market share increases have been a big contributor to the unit's stellar profit performance. So has the company's low cost basis, which has helped create a situation in which increased customer demand and economic gains usually benefit JCI's bottom line and further strengthen its position.

One can't attribute the whole of JCI's astonishing 20-year TSR run to the performance of its energy storage business, but batteries have certainly played a role in it. Though providing only 15 percent of JCI's revenue, the Power Solutions business unit contributes more than 30 percent of the company's pretax operating profit.

And then there is Polaris, whose present domination in the sports vehicle segment is partly a story about cost and partly a story about microsegmentation. When Scott Wine joined the Medina, Minn., company as chief executive, in a calamitous 2008, he knew that his first job was to cut costs. But he exempted Polaris's engineering department from the cuts. He had two reasons for doing this. First, he was counting on his engineers to be innovative about removing costs, so that a Polaris side-by-side vehicle (also known as a utility vehicle) would be cheaper to produce than one from Yamaha or Kawasaki. Second, Wine knew that Polaris would need its engineers if it was to increase the commonality of the parts the company used across its product lines, which was a prerequisite to allowing the company to innovate more quickly.

The opportunity to get great returns is probably better where you are than in a market that's growing by double digits.

Within a few years, Polaris had one of the lowest cost bases in the industry and a lineup of side-by-side vehicles at multiple price points, with different seating capacities, with different form factors, and running on different types of energy systems, including diesel and electric. "We had created an armada," Wine told us, remembering the first time he saw the full new side-by-side product line, displayed in a semicircle on a field outside Polaris's R&D facility in Minnesota. "You weave all of those things together"—that is, Polaris's cost advantage and the different types and price points of its products—"and you see how we've been able to take so much share."

Polaris's stock price, around US$23 when Wine joined the company, is more than five times higher as of this writing. (By contrast, the stock prices of Kawasaki and Honda, the latter being one of Polaris's big rivals in motorcycles, have stayed more or less steady.) The company's revenue growth has averaged 27 percent per year in that time, versus 8 percent for Polaris's peer group. Yet Wine says that what matters is the company's ability to build on what it has achieved. "The real challenge for me starts now," he told us, and relates to "what we can do for the next four or five years." In effect, Wine is talking about perpetuating the cycle that Polaris has begun.

What does all this mean, if you're a CEO in a slow-growing industry? It means you shouldn't go looking for a "better" industry, one that's growing more rapidly than yours. Embrace your own segment. Counterintuitive as it sounds, the opportunity to get great returns for shareholders is probably better where you are than in a market that's growing by double digits. You can make those better returns come to you by figuring out where you have an advantage, or might gain one, in terms of cost, service, selection, or a disruptive new product. Make an increase in market share your main measure of winning. And finally, once you've got the advantage, keep on doing what you need to do to extend it. The nature of any market is that the opportunity is finite. It's you or them. +

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Kasturi Rangan
kasturi.rangan@strategyand.pwc.com
is a partner with Strategy& based in Cleveland. He specializes in corporate and business unit growth strategies for automotive and other industrial companies.

Evan Hirsh
evan.hirsh@strategyand.pwc.com
is a partner with Strategy& based in Cleveland, focusing on operational improvement programs and new strategy development for automotive and other industrial companies.

Also contributing to this article was *s+b* contributing writer Robert Hertzberg.

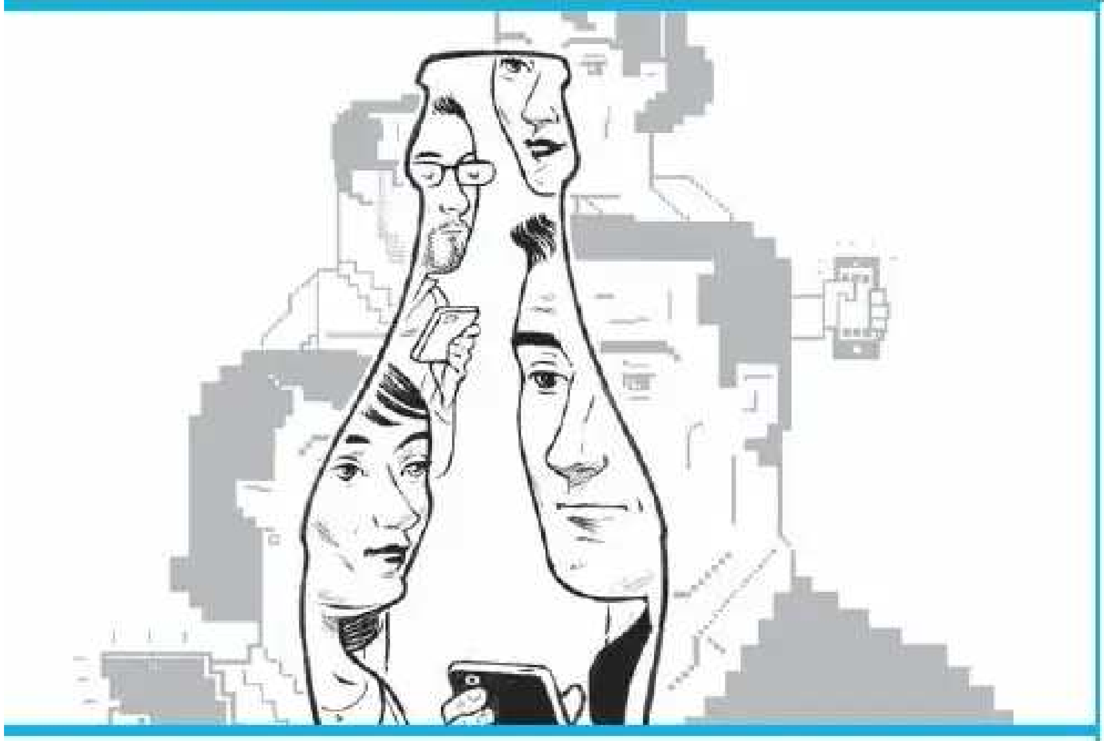

Illustration by Lars Leetaru

How to Choose the Right Digital Marketing Model

Four clear paths for winning and retaining customers today.

by Matt Egol, Michael Peterson, and Stefan Stroh

Look at virtually any consumer industry, and you'll see how changes in digital technology are fundamentally altering the way that consumers engage with brands before, during, and after a purchase. Consumers today expect to browse, research, solicit feedback, evaluate, and push the "buy" button at their own pace, and at the time and place—and via the platform—of their choosing. Consumers also continue to engage with brands online after a purchase and to share experiences with one another. Much of this consumer journey is beyond the direct control of companies, and marketing organizations are sprinting merely to keep pace.

The good news for chief marketing officers (CMOs) is that digital marketing can offer detailed data on and analysis of consumer behavior, as well as precise results about a marketing program's effectiveness, with a degree of detail and precision that previous generations of CMOs could hardly fathom. The challenge is that these new technologies and consumer behaviors are raising the requirements for what will succeed in the market.

Building powerful consumer experiences requires brands to operate outside their comfort zone; for example, they must work with much shorter cycle times, with more rapid and frequent iterations, and through a broader vendor ecosystem than the traditional advertising agency process.

In addition, consumers increasingly demand marketing messages and offers that are highly personalized, relevant, and targeted. Miss the mark, and you risk losing them forever. In that regard, digital marketing offers both greater rewards (in terms of higher engagement and ROI) and greater risk (due to the execution complexity and the need for behavioral changes across the organization).

In this environment, CMOs know they need new capabilities to succeed. In a recent survey of more than 300 CMOs in the United States that Strategy& conducted with the Association of National Advertisers and Korn/Ferry, 72 percent said that building capabilities in the area of digital marketing is vital. The difficulty is that there's no one set of capabilities that applies universally. Companies must identify what kind of marketing organization they need to make their strategy a success, choose a digital marketing model based on their strategic objectives, and then focus on developing a handful of marketing capabilities that will allow them to bring that model to life and consistently excel.

Four Digital Marketing Models

Strategy& has identified four equally successful digital marketing models: Digital Branders, Customer Experience Designers, Demand Generators, and Product Innovators. A company's focus for marketing investment might have elements of each, but odds are that one of these models represents the right marketing organization for your company.

• **Digital Branders** are most often consumer products companies or other marketers that focus on building and renewing brand equity and deeper consumer engagement. These companies are shifting their investment from traditional linear advertising toward more immersive digital multimedia experiences that can connect consumers to the brand in new ways. They are reimagining how they engage consumers, with the primary goal of recruiting new consumers to the brand and driving loyalty through multiple experiences with the brand.

- **Customer Experience Designers** use customer data and insights to create a superior end-to-end brand experience for their customers. Typically, these companies (such as financial-services companies, airlines, hotels, and retailers) build their business models around customer service. By reinventing how they interact with customers, and wowing them at multiple touch points, these companies hope to create an ongoing dialogue and build a loyal customer base.

- **Demand Generators** (typically retailers) focus on driving online traffic and converting as many sales as possible across channels to maximize marketing efficiency and grow their share of wallet. All elements of the digital marketing strategy—website design, search engine optimization, mobile connected apps, and engagement in social communities—are tailored to boost sales and increase loyalty. Although Demand Generators also need to leverage content to drive engagement, they're more focused on driving volume and efficiency than on curating the deep, emotional branded experiences that Digital Branders pursue.

- **Product Innovators** use digital marketing to identify, develop, and roll out new digital products and services. These companies employ digital interactions with consumers primarily to rapidly gather insights that can shape the innovation pipeline. By helping nurture new sources of revenue, the marketing group increases the value of the company.

The Menu of Capabilities

These digital marketing models are not industry-specific. In fact, companies in the same industry can choose different digital marketing strategies with which to go to market. For example, in the telecommunications industry, Vodafone aligns most closely with the Digital Brander model, Verizon functions as a Customer Experience Designer, KPN/E-Plus is a Demand Generator, and Orange is a Product Innovator.

Consumers increasingly demand marketing messages and offers that are highly personalized, relevant, and targeted.

Each of these companies has focused on a different set of capabilities to bring its digital marketing strategies to life, and each capability entails building the right combination of processes, tools, knowledge, skills, and organization.

There are eight basic marketing capabilities, which are more or less relevant depending on which of the four digital marketing models a company applies. (Of these eight, the first four focus on building insights and the last four focus on activation based on those insights.)

1. Segmentation and needs assessment, or the use of digital research tools to analyze transactions, identify customer pain points, and interpret non-transaction data (e.g., social media). By better understanding how specific subsets of customers assess, purchase, and use products, the company can more directly target advertising, promotions, and content along the path to purchase.

2. Measurement, or the development of consistent metrics across the full path to purchase (i.e., at home, on the go, and in stores). This capability also includes metrics for consumer engagement across paid media (e.g., advertising), owned media (such as the company website), earned media (coverage in other publications), or shared media (e.g., Facebook or YouTube). Implemented correctly, these metrics can help quantify ROI across the digital marketing program.

3. Real-time decision making, fostered by regular monitoring of social sentiment and brand health that enables adjustments during marketing campaigns—including branded media and in-store merchandising—to make them more effective.

4. Personalization and targeting, or the creation of a singular view of the consumer across sales channels and digital touch points through the integration of multiple data sources—including household data, shopping behavior, mobile data, and Web analytics. Companies can also augment customer profiles with social media data to improve target marketing and specific offers.

5. Optimized content, or the dissemination of branded content through multiple direct-to-consumer platforms (such as websites, mobile devices, and social media channels) that are easy to search and navigate. Optimized content helps the company engage consumers and drive registration and sales across a variety of formats, so that it can better provide relevant products and services to those consumers for specific occasions or phases of life.

6. Innovation, spurred by the leveraging of social media for richer consumer insights that fuel product development. Besides improving the product itself, these insights can enhance the customer's experience with the product.

7. Social influence and advocacy, or the provoking of consumer engagement to create and share content, while also mining this social sentiment to further improve consumer engagement. Companies with strong social influence and advocacy can encourage consumers to create and share content about the brand within their social networks, and then use the resulting insights to optimize their marketing communications.

8. Omnichannel experience, or the implementation of marketing programs across channels. This capability also entails investing in technology, analytics, and talent to support seamless mobile, social, and e-commerce experiences, allowing consumers to engage with the company wherever and whenever they want. Omnichannel experiences also include integrated marketing programs with third parties, along with broader media and trade-promotion strategies.

Exhibit: **Capabilities Mapped to Digital Marketing Models**

	Capability	Digital Branders	Customer Experience Designers	Demand Generators	Product Innovators
INSIGHT AND ANALYTICS	Segmentation and needs assessment	2	4	2	3
	Measurement	1	2	3	4
	Real-time decision making	2	2	4	1
	Personalization and targeting	4	2	4	1
PLATFORMS AND ACTIVATION	Optimized content	4	3	1	2
	Innovation	1	3	2	4
	Social influence and advocacy	4	2	3	2
	Omnichannel experience	3	4	3	2

Note: 1 = not relevant; 4 = highly relevant
Source: Strategy& analysis

Building the Right Capabilities

It's virtually impossible to be great at all of the digital marketing capabilities we've identified. That's why each company must focus only on the capabilities that align best with its digital marketing model. There is a link that connects the company's strategy, the digital marketing model it needs, and the marketing organization and marketing capabilities required to succeed with that model. The capabilities necessary to succeed as a Digital Brander will be different from those required by a Demand Generator. This is not an ironclad relationship—there are multiple paths to success, and even companies pursuing the same Demand Generator model, for instance, may choose to emphasize different capabilities. But in general, certain models require that the company have a specific set of supporting capabilities (*see Exhibit*).

Digital Models in Practice

Coca-Cola is a perfect example of a Digital Brander. Teens and young adults are its biggest consumer segments, and to keep its brand strong with these consumers, Coca-Cola is hyper-focused on finding ways to embed itself in popular culture. With this in mind, the company has invested in differentiated capabilities including “optimized content” and “social influence and advocacy.” This means that Coca-Cola identifies experiences that are consistent with its brand, creates content around those experiences, and then encourages its community of users to share additional content that they create through social engagement. Although not all of this material goes viral in the communities Coca-Cola is targeting, the company is far more successful than others, thanks to the development of these specific capabilities.

For example, in one recent promotion, Coca-Cola developed unique vending machines equipped with video displays that allowed consumers in two cities (Lahore, Pakistan, and Delhi, India) to interact. Because of political and religious differences, the two groups know very little about each other, but the video project—an update of the company's famous “I'd like to buy the world a Coke” campaign—was aimed at connecting them through a shared experience. The campaign generated tremendous buzz for

Coke, and was heavily shared on social media, in part because it was so emotionally resonant.

Another example of seeding content into popular culture was a Coke Zero contest on social media for “my favorite dance moves.” The winning dance went viral around the globe, with the Coke Zero brand integrated into the content throughout. Coca-Cola was recognized as the marketer of the year at Cannes in 2013, in large part due to its innovative approach to marketing through shared content.

Virgin’s airline operations, on the other hand, are a good example of a Customer Experience Designer. Like many other airlines, Virgin wants to avoid being seen by passengers as simply a utility. Instead, it aims to create a more customer-centric branded experience that starts before the customer buys a ticket, continues during the flight, and extends after the trip is over. With this in mind, Virgin has focused attention on building a “segmentation and needs assessment” capability and an “omnichannel experience” creation capability.

In practice, this means the airline uses purchasing and behavioral data to segment customers, identify needs and pain points, and create a personalized experience across all channels—whether customers are at home on the computer, on a mobile phone, using in-flight screens, or interacting with Virgin staff members.

For example, Virgin is investing in a more interactive and personalized in-flight experience that is tailored to different segments of travelers. A frequent traveler to London might get specialized content after takeoff, like the latest reviews of restaurants around Piccadilly. Passengers will also be able to interact with a concierge service while on the flight and with other passengers via Chatter, a social media messaging platform from Salesforce.com. The entertainment options and other aspects of the experience will also be personalized on the basis of a user profile built over time (through factors such as the videos customers opted to watch, the meals and drinks they purchased, and other personalized elements).

By curating the passenger’s journey, Virgin hopes to create a community and deliver an experience that goes beyond the flight itself.

By curating the passenger’s journey in this manner, Virgin hopes to create a community and deliver an experience that goes beyond the flight itself to reinforce the airline’s brand image of adventure and fun. Virgin’s corporate culture is a significant asset in this endeavor—its highly engaged employees embrace the idea of cultivating positive experiences for customers. (That has helped Virgin America become the fastest-growing airline in the United States.) Critically, Virgin’s marketing investments are intended to support this culture, while also empowering employees to innovate and continue improving the customer experience.

And then there is Walmart, a prototypical Demand Generator. For example, the company is focused on converting visits to its website, social media properties, and mobile apps into actual sales. To accomplish this, it has developed capabilities in “real-time decision making” and “personalization and targeting.”

The company’s in-house media platform, Walmart Exchange, is a robust ad-serving platform that allows brands to target shoppers precisely, measure the ROI of both online and offline impact, optimize content and assortment of products, and track non-Walmart.com digital ads to see which sites are driving traffic to Walmart.com (and whether users are making purchases). For example, a shopper who visits the website after viewing a targeted display ad embedded with a health-and-beauty-aid coupon might find an assortment of other, related products to consider on the site.

Beyond these offers and assortment tools, Walmart is also developing relevant content aimed at driving conversion—and pushing its network consumer packaged goods manufacturers to do the same. For example, “how to” videos, ratings, reviews, and listings of foods’ nutritional content can all help drive engagement and conversion on the company’s site. Investments in this kind of optimized content can boost conversion by more than 70 percent.

Perhaps the least typical of the digital marketing models (but no less powerful than the others) is the Product Innovator. Henkel, a manufacturer of various household chemical products including detergents, adhesives, and cosmetics, based in Germany, is a clear Product

Innovator. The company so strongly emphasizes R&D that about 40 percent of its annual cosmetics sales come from products that were launched within the previous 24 months. On the marketing side, this success is due to a finely honed innovation capability as well as a sophisticated measurement capability that continually tracks preset key performance indicators to determine whether to continue a product trial or stop it and redirect resources to more promising projects.

The company encourages employees in the marketing and R&D departments to participate in the innovation process through idea-generation contests and incentives. Marketing employees are also required to work in sales regularly to stay in touch with the market and help identify customer pain points. The payoff is an innovation process that has generated consistent results. For instance, one recent product innovation—a laundry detergent known as MAS Color "con un Toque de Suavidad" ("with a Touch of Softness")—won the "Best New Product" award in the household care category in Mexico.

Bringing the Capabilities to Life

No matter which marketing model a company selects—and which capabilities a company chooses to emphasize—the CMO must make certain decisions and adapt certain aspects of the marketing organization to bring the digital model to life. For example, the CMO must decide whether the marketing capabilities will be developed internally or outside the company. If the CMO wants the capabilities in-house, the organization will need to ensure that the right skills, processes, technology, and governance are in place, along with metrics to measure results. This is hard work, and sometimes it's preferable to leverage outside partners and vendors as the company stitches together the capabilities needed to support the digital marketing model. As part of this "stitching-together" process, marketers are redefining how they work with media partners to create and distribute content, as well as how they manage social media. CMOs are also learning to work more closely with technology providers to understand better how to leverage technology such as data analytics, media mix modeling, content management, and customer relationship management.

The CMO must decide how best to manage these capabilities—centrally within the organization or distributed throughout the company at the business unit level. The right approach is usually some combination of the two. The central function naturally houses the design of capabilities, selects and coordinates with outside vendors, and administers those marketing functions with particular scale advantages (e.g., search engine optimization or social listening). At the same time, certain capabilities need to reside at the business unit level if they are to be incorporated into the daily workflow of the business units—and the marketing function overall.

For example, Procter & Gamble invests in scale marketing programs through center-led teams. Some of these scale programs—such as BrandSaver, e-Store, and Tremor—have their own general manager and P&Ls. The company also embeds specialized talent in the divisions and customer teams as a way to further integrate planning and execution processes. L'Oréal, by comparison, takes a more decentralized approach, building capabilities primarily at the level of divisions and customer teams. The company is willing to sacrifice scale to push talent closer to its brands, with fewer capabilities built and governed centrally. This decentralized structure is in keeping with the culture of greater competitiveness among brand teams at the company.

To bring the digital marketing model to life, the CMO must also think carefully about which behaviors to encourage and which to discourage—and how to nudge employees to adjust their behavior accordingly. This kind of cultural evolution is not easy and requires that leaders make use of all formal and informal organizational levers at their disposal. Formal levers include organizational structure, decision rights, discrete career models, and financial incentives. Informal levers include networks of relationships across organizational boundaries, shared vision and objectives, individual goals, and common sources of pride.

Finally, the CMO must decide on a road map and sequencing of efforts. Odds are that some capabilities will take longer to build than others; it's important to incorporate this variation into expectations and create stepping-stones by which the marketing organization can pursue capability goals over the next 12, 24, and 36 months.

The Journey Starts Now

Much of today's "customer journey" occurs in the digital realm—a place beyond the direct control of companies, but highly sensitive to efforts to provoke and amplify social engagement. As a result, marketers need to adopt digital marketing models to better engage customers before, during, and after the purchase. They need to "pull" consumers into an ongoing conversation about the company's products and services. There is no one right way to accomplish this engagement, and there are many possible pathways to success. But it's critical that marketing organizations begin the digital journey as soon as possible to keep pace with shifting consumer expectations and behaviors. +

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Matt Egol
matthew.egol@strategyand.pwc.com
is a partner with Strategy&. He leads the firm's work in e-commerce and shopper marketing, and specializes in strategy and capability development for consumer brand markets, marketing services firms, and media companies.

Michael Peterson
info@strategy-business.com
was formerly a partner with Booz & Company.

Stefan Stroh
stefan.stroh@strategyand.pwc.com
is a partner with Strategy& based in Frankfurt. He focuses on digital strategy and transformation programs, working with companies in the travel and transport, high-tech, and consumer products sectors.

Also contributing to this article were Strategy& principal Sebastian Blum and senior associate Paolo Castano.

Management in the Second Machine Age

Future leaders will succeed by being entrepreneurial and by rethinking the balance between financial and social goals.

by Tim Laseter

The developed world stands at the cusp of a major transformation unlike anything experienced since the Gilded Age. That period (the name was coined by Mark Twain and his neighbor Charles Dudley Warner in their 1873 satire of the times) offered immense economic expansion and wealth creation in the United States, but it also led to a major disruption in the occupational mix of the citizenry and an associated set of social upheavals. Entrepreneurs built colossal businesses while laborers shifted from farms to factories.

Erik Brynjolfsson and Andrew McAfee of MIT have coined a new term for the coming era in the title of their latest book, *The Second Machine Age* (W.W. Norton, 2014). They chronicle the advance of Moore's law (the seemingly inexorable doubling of microprocessor power every 1.5 to two years over the last half-century) as it yields technological advances such as autonomous cars that easily conquer the complex task of driving.

More importantly, the authors note that respected scholars as recently as 2004 had highlighted driving as an example of a task too complicated for computers and inherently requiring human capacity. Even a casual scan of the traditional media uncovers further examples of this ferocious progress, including robots that can run, developed for the military, and a computer program that inferred Newton's second law of motion from the movement of a double pendulum—a device that creates a chaotic pattern to the human eye.

Although no one can confidently predict how this new age will unfold, most economists take an optimistic view—they believe that the positive economic effects will offset the inevitable disruption of employment: Those in traditional blue-collar occupations are facing dislocation as computers take over jobs like truck driving, factory work, call center support, and even burger flipping. But just as our rural, agrarian society eventually settled into an urban, manufacturing economy, this disruption will ultimately yield a stronger economy and better standard of living.

The obvious historical transition of farm to factory offers hope, but it misses a less obvious transformation that occurred over the last century. A fresh look at the U.S. census data reveals that the big shift in the 20th century wasn't all about labor. In fact, there was a huge shift into managerial occupations. And today it's not just the working class that faces disruption, but the managerial class as well.

Businesses today are drawing upon smart machines using statistical models to cull valuable insights from the exabytes of new digital information created daily. Machines such as IBM's *Jeopardy*-winning Watson are being trained to displace highly trained experts as disparate as medical diagnosticians, financial advisors, and professional chefs. Smarter machines will reduce the number of traditional management jobs in the second machine age and force a change in both the practice and philosophy of management for the millennials poised to become the next generation of managers.

Illustration by Lars Leetaru

An examination of the Gilded Age offers two lessons for the coming disruption. First, managers must become entrepreneurial again: Number-crunching computers will replace number-crunching managers. Second, the new generation of managers must address the social challenges of the emerging disruption. Unlike the entrepreneurs of the Gilded Age, they should incorporate a social mission into their definition of business success, rather than making philanthropic gestures following the achievement of success.

Managers must become entrepreneurial again: Number-crunching computers will replace number-crunching managers.

The Rise of the Manager

The 1920 census of the U.S. documented the occupational mix of its 41 million working citizens within a hierarchy defined by industry and role. For example, 12.8 million people were employed in the "manufacturing and mechanical industries" and nearly 11 million were employed in "agriculture, forestry, and animal husbandry." Those results already reflected a critical economic transition from the 1910 census. Merely a decade earlier, more U.S. workers—12.7 million, representing nearly a third of the population—had been employed in agriculture, forestry, and animal husbandry. But during the second decade of the 20th century, manufacturing employment grew 21 percent in the United States while the more traditional agriculture-related segment dropped 13 percent. Of course, we all know that over the following century U.S. employment in manufacturing continued to grow, then ultimately waned as the U.S. economy shifted to services in the 1980s.

That's the conventional wisdom, but it misses an important reality. A look at the latest occupational census data shows a more fundamental shift. The modern U.S. economy isn't based so much on *service* as it is on *management*. At 38 percent of total employment, "management, professional, and related occupations" was the largest occupational employment category for the 142.5 million people classified by the 2012 census. Accounting for more than 30 percent of employment a century ago, the "farming, fishing, and forestry occupations" category now accounts for less than 1 percent of employment and is subsumed under the broader category of "natural resources, construction, and maintenance occupations," which in aggregate accounts for only 9 percent of employment.

In fairness, the large management category includes professionals and those working in financial operations. The subcategory of "managerial occupations" totals only 16 million people—of which 1.5 million are classified as "chief executives." But let's put that into perspective: Chief executives now outnumber the entire U.S. workforce of farmers, fishermen, and foresters by about 50 percent.

Lessons of the Gilded Age

In the Gilded Age, there really were no professional managers running businesses. Instead, entrepreneurs with no formal education in management used their intuition to build business empires based upon creative ideas. Consider the case of Andrew Carnegie. Born to a working-class Scottish family, Carnegie first worked in a Pittsburgh cotton factory—12 hours a day, six days a week, at age 13—before becoming a telegraph messenger boy at age 15 and eventually a telegraph operator at age 18. From there, he advanced through the railroad industry and began accumulating wealth through savvy investing. He turned his attention to the steel industry in 1864 and eventually built a business empire by adopting the vastly more efficient Bessemer steel-making process and vertical integration. By the end of the 19th century, the U.S. dominated global steel production and Carnegie ran the largest and most efficient steel company in the world.

Carnegie faced a challenge, however. His empire had scaled beyond his personal capacity to manage it. U.S. financier John Pierpont (J.P.) Morgan offered a solution: a transfer of power from owner–entrepreneurs to professionally managed, publicly traded companies. In 1901, Morgan merged Carnegie's steel empire with other players to form the United States Steel Corporation. Now the world's richest man, the 66-year-old Carnegie turned his attention full-time to philanthropy. He advocated for, and demonstrated by example, "the gospel of wealth," arguing that the rich had a moral obligation to use their wealth for the good of society. Over the course of his lifetime, Carnegie ultimately gave away US$350 million, part of which went to fund more than 2,800 public libraries.

Noticing that a growing number of his graduates were entering the world of commerce, the president of Dartmouth College, William Jewett Tucker, approached Dartmouth alumnus Edward Tuck with the idea of creating the first graduate school in commerce. Tuck, a successful banker, donated several hundred thousand dollars' worth of railroad stock in 1900 to found the Amos Tuck School in honor of his father. In 1908, Harvard invented the master of business administration degree and created the Harvard Graduate School of Business Administration with a faculty of 15, attracting 80 students.

Frederick W. Taylor, the father of scientific management, played a role at both Tuck and Harvard in their early years. Born to a wealthy Quaker family, Taylor decided to forgo a planned path from Phillips Exeter Academy to Harvard in 1874 and instead started his career as a manufacturing laborer. He advanced through a series of positions while pursuing a degree in mechanical engineering and ultimately became the chief engineer of Midvale Steel, a company with only a single plant, but one known for an analytic management style. Taylor applied his own analytic skills to define the "one right way" to do each and every task, which led to a doubling of worker productivity. In 1890, he began consulting to show other companies how to drive such worker productivity. And by 1911, he had codified his philosophy in *The Principles of Scientific Management.* During his time as a consultant, Taylor also conducted research at Dartmouth and served as a professor at the new Tuck School. In addition, the dean of the new Harvard Business School recruited Taylor to create a foundational course in manufacturing and industrial organization, further establishing the importance of the analytic approach to management.

This focus on quantification provided needed control to the new empires that had exceeded the managerial capacity of their entrepreneurial founders. While successful entrepreneurs like Carnegie turned their attention to philanthropy, legions of less talented but professionally trained managers amassed data and depended on analysis to make up for their lack of creative insight. Their numbers-based, yet simplistic, search for "best practices" (to use the modern jargon) squeezed out creativity and ignored the disruptive effects that this impersonal mind-set had on laborers. Perhaps the transition from owner–entrepreneurs to professional managers was inevitable in an era driven by physical labor and scale economies. However, returning to modern times and looking ahead, a focus on "the numbers" means management will increasingly be subsumed by computers. Future managers will need to use their creativity to challenge the constraints to both commercial success and social welfare.

> **Future managers will need to use their creativity to challenge the constraints to both commercial success and social welfare.**

Creating the Future

Taylor misused the term *scientific*, and frankly so do many scientists today. They tend to equate *science* with *math*, employing a reductionist mind-set that seeks to quantify everything. However, a truly scientific method applies a hypothesis-driven approach designed to eliminate flawed theories. No theory can ever be *proved* through the scientific method—only tested and disproved or corroborated. As scientific philosopher Karl Popper famously put it, "No matter how many instances of white swans we may have observed, this does not justify the conclusion that all swans are white."

Scientists tend to develop theories that explain how things came to be. For example, they use Darwin's theory of evolution to explain how people came to cooperate with one another, and the big bang theory to explain why stars formed in the universe. Science also depends on controlled experiments to test theories. For example, a number of experiments over the past 50 years have provided evidence confirming Albert Einstein's general theory of relativity, and recent experiments at the $9 billion Large Hadron Collider in Switzerland have uncovered evidence of the existence of the Higgs boson, a fundamental particle implied by the standard model of quantum physics.

Management, on the other-hand, doesn't spend a lot of time worrying about how things came to be and doesn't have the luxury of performing controlled experiments. A business strategy offers the managerial equivalent of a scientific theory. Managers need to develop hypotheses of what will work in the future in order to set the company's current strategic direction. Instead of simply testing hypotheses, management must create the future. The future can't be created (or even uncovered) by simply examining the past, even with the massive computer power employed in "big data" analyses. The strategic answer can't be found in the numbers, not even in that central tool of the MBA: the net present value calculation. At the same time, managers can't run a company based on a set of untested hypotheses: The right business strategy requires creativity and analysis.

The best managers use their intuition to form hypotheses based on a belief about why something occurs, not just based on data demonstrating correlation. We uncover novel patterns by hypothesizing root causes, effectively tapping strategic models to explain why a particular pattern might emerge. Those strategies need to be explicitly articulated and tested before pursuing action. As social psychologist Kurt Lewin proclaimed, "There's nothing so practical as a good theory." Computers can analyze massive quantities of data and discover patterns by drawing on inferential statistics. But even big data computers don't form the hypotheses needed to develop new strategies designed to break existing constraints and create new business models. Accordingly, managers who seek to break constraints and embrace a hypothesis-driven approach will not face extinction but will instead create the future.

Breaking Constraints

Consider the case of Taiichi Ohno, the father of the Toyota production system. He didn't infer his new paradigm from a big data analysis of historical patterns. He drew upon an analogy—the U.S. supermarket—to inform his intuition that the current system of "pushing" automobiles through mass production imposed inefficiencies that could be eliminated through a "pull system" producing cars in lot sizes of one.

In fact, analysis would have suggested his paradigm was impossible. Optimal lot sizes were defined by the changeover time of equipment, making a lot size of one infeasible because the huge presses in automotive manufacturing required 12-hour changeovers.

Undeterred, Ohno sent his top industrial engineer, Shigeo Shingo, to benchmark the best in the world. Shingo learned that Volkswagen set the benchmark at six hours, but by incorporating other observations he managed to reduce Toyota's press changeover time by 67 percent to four hours. Unimpressed, Ohno pushed Shingo to make changeovers in less than 10 minutes, not because he had data to justify such a target but because the approach he envisioned, which would become lean manufacturing, demanded it.

That extreme target forced Shingo to fundamentally rethink the production process, and by doing so he broke the key constraint to achieving Ohno's vision. Today, manufacturing managers routinely dismiss the simplistic notions of "mass production," and the world benefits from higher quality at lower cost, thanks to the creativity of Ohno and Shingo.

More recently, Blake Mycoskie of Toms Shoes sought to break the traditional constraint of Carnegie's gospel of wealth. Rather than turning to philanthropy only after achieving financial success, Mycoskie integrated it into his entrepreneurial business model. During a vacation in Argentina in 2006, he noticed a local style of canvas slip-ons called *alpargatas*, which he began to wear. During that same trip, he spent time with a nonprofit organization helping poor children in the outskirts of Buenos Aires who often went barefoot. Integrating the two ideas, he formed Toms Shoes as a for-profit social enterprise designed to both make money and do good. Marketing the Argentine-inspired shoes to U.S. consumers on a "one-for-one" basis, he sold 10,000 pairs in six months and then distributed 10,000 free pairs to Argentine children in need. In 2011, Toms expanded its one-for-one business model to eyeglasses. And it

Management doesn't spend a lot of time worrying about how things came to be and doesn't have the luxury of performing experiments.

recently announced plans to launch a coffee business that will donate clean water to the poor in coffee-growing regions in South America and Africa. Though not yet 40 years old, Mycoskie has reportedly amassed a multimillion-dollar level of personal wealth while his company has given away more than 1 million pairs of shoes.

Lean Startups

I won't attempt to predict the future, but I have little doubt that the future will bring dramatic change.

New models aren't discovered through big data but are invented through a process of management that starts with hypotheses.

Change is the only constant. The millennials, who are now reaching adulthood, grew up in the digital age and are already suffering some of its effects. Despite being well educated, this group faces high unemployment, massive student debt, and a less rosy economic future than either of the previous two generations. Yet according to a recent Pew survey, although millennials are less trusting of other people in general, they have great confidence that the future will be better than the past.

I see positive signs that this new generation is embracing the hypothesis-driven approach in order to break constraints and build new business models. The "lean startup" movement, spawned from the entrepreneurial culture of Silicon Valley, argues that initially, all an entrepreneur has is a set of untested hypotheses. The entrepreneur's goal should be to produce the minimum viable product to test those hypotheses with real customers. The business models change on the basis of customer feedback. The company pivots to a different strategy if customer feedback proves that the current strategy is fundamentally flawed, or if better ones present themselves. For example, PayPal started out as a way to process payments between Palm Pilot users. But cofounder Peter Thiel saw a bigger opportunity in partnering with eBay (which acquired PayPal for $1.5 billion). While still supporting eBay transactions, PayPal positioned itself as a broader payment processing business with major growth in mobile, a technology not imagined at the company's founding.

The lean startup movement has also taken root among social enterprises seeking young management talent. Consider the annual competition for the Hult Prize, initiated in 2010 by the Hult International Business School, which has campuses in Boston, Dubai, London, San Francisco, and Shanghai. The first competition challenged more than 300 business school students to develop business models in support of the "One Laptop per Child" nonprofit. The 2014 Hult Prize sought business plans for social enterprises to reduce chronic illnesses among the urban poor worldwide. It attracted more than 10,000 applicants who competed in teams for six regional prizes of $50,000, and a $1 million grand prize of seed funding for the winning proposed social enterprise.

The millennials have grown up in the earliest days of the second machine age. Although they are aware of the massive quantity of information now available, they understand that new business models aren't discovered through a historical pool of big data but are instead invented through a process of management that starts with hypotheses, which are tested with data. Big data will allow them to test far more hypotheses, far more cheaply. But data—or the machines that collect it—won't in itself create the innovative business models of the future, especially those that seek to balance commercial and social goals.

Most of my students possess a broad world view and exude both creativity and passion. Having taught these bright minds over the past decade, I have developed both hope for and faith in their future as managers. And I believe they will embrace this sentiment: "The best way to predict the future is to create it." +

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Tim Laseter
lasetert@darden.virginia.edu
is a senior executive advisor for Strategy& and a professor of practice at the University of Virginia's Darden School. The author or coauthor of four books, including *The Portable MBA* (Wiley, 2010) and *Strategic Product Creation* (McGraw-Hill, 2007), he draws upon decades of experience in business strategy and academia to serve as a contributing editor of *strategy+business*.

For more on the evolution of management, see "The Lives and Times of the CEO," page 48.

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JOHN JULLENS

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AMIKA PORWAL

IGOR BELOKRINITSKY

Illustration by Lars Leetaru

The Trust Agenda

CEOs are increasingly seeking "good growth," aligned with business ethics and sustainability.

by Dennis Nally

As the global economic recovery gathers momentum, optimism among CEOs is increasing. The postrecession period challenged many companies, and their chief executives focused their attention on survival. But they are now switching into growth mode. This drive for growth is shaped by fundamental external forces that are transforming business and society.

The world in which we live and work is being redefined by five global trends: technological advances, demographic changes, global economic shifts, urbanization, and resource scarcity and climate change. These trends have far-reaching and often interrelated effects on society. For example, the migration of spending power to emerging markets, along with explosive population growth in some countries, will result in a billion people being better off than they are now. The same developments, however, could exacerbate unemployment, social unrest, and resource shortages.

The impact of these trends is radically changing society's expectations of business. And the extent to which a business behaves in line with these expectations determines how trustworthy it is perceived to be. Trust is pivotal because it is the basis of every human relationship, every transaction, and every market. Trustworthiness is the foundation of a business's "license to operate" in any region or industry.

All of this is causing chief executives to think strategically about international business ethics—specifically, how trustworthy their companies need to be. To generate that trust, CEOs are not just interested in growth for their enterprises. They want to attain "good growth": real, inclusive, responsible, and lasting growth. And they want their companies to contribute to good growth in every country where they operate.

"Short-termism, despite how tempting it might be to certain industries, doesn't work," said Badr Jafar, managing director of the Crescent Group, an oil and gas producer based in the United Arab Emirates. "To stand a chance of ensuring prosperity for their companies, business leaders today have to think more broadly, beyond profits and the bottom line. They have to move toward triple-bottom-line thinking: how their business is affecting not just profits, but also the people (the social impact) and the planet."

At PwC, we have found that one of the ways businesses can generate trust is by focusing on behaviors that reflect a socially centered corporate purpose. This is becoming a priority for an increasing number of CEOs. That is evidenced in the findings from PwC's 17th Annual Global CEO Survey. Published in January 2014, the survey consolidates the views of more than 1,300 chief executives in 68 countries across a range of industries. We asked these top business leaders to share their views on the global economy, their opinions of the trends that are reshaping business, and their plans for their companies' future.

The problems that businesses have with trust today can be traced back a few decades. Lapses in corporate behavior since the 1980s have damaged the way people feel about business, to the point where it affects the choices customers make. A number of corporate leaders have been working to address this "trust gap."

At one level, their efforts appear to be bearing fruit. The CEO survey found that more chief executives believe trust levels have improved during the last five years, at least within their own industry, than believe they have deteriorated. These perceptions are borne out by public opinion. Findings from the 2014 Edelman Trust Barometer, a survey of the general public in 27 countries conducted by the public relations firm, also show a steady rise in trust. Fifty-eight percent of respondents expressed their trust in business, compared with 50 percent in 2009.

Despite this improvement, however, the lack of trust in business is still a major concern for CEOs. Half of the PwC survey respondents identified this lack of trust as a threat to their growth prospects. This number is up sharply from the 37 percent who cited concerns about trust in the 2013 survey.

How, then, can trust in business be built? Results from the study suggest that there are three key strategic priorities for many CEOs today. First, they recognize the role that the "right" corporate behaviors play in creating value for a wider range of stakeholders—and they are measuring the impact of these behaviors on the world around them. Second, they are developing and articulating a corporate purpose that takes their total contribution to society into account. Finally, they are collaborating with governments to drive growth that benefits citizens.

Generating Trust from Within

CEOs and boards often think about trust as something that is created through long-term value. Indeed, companies can tap into a virtuous circle whereby increasing trust leads to larger markets and more economic value creation, which then generates more trust, and so on. That cycle begins only when business is trusted. The emphasis therefore needs to be on values rather than value. The route to trust lies in seeing value creation not as an activity in itself, but as an outcome of behaviors that authentically reflect a company's core values.

"Building trust among customers and other stakeholders depends on the business practices and ethics you follow while dealing with them. These can range from how you conduct your business every day, to what role you play as a good corporate citizen, to being a good employer," said Chanda Kochhar, managing director and CEO of ICICI Bank Ltd., based in India. "Today we are in a rapidly changing and evolving business environment; indeed, society itself is evolving and changing continuously. This means that stakeholder expectations are also dynamic, and increasing over time. Organizations need to be able to adapt quickly to these changes and understand the evolving stakeholder expectations, in order to maintain and enhance trust."

Gaining trust from society at large also requires understanding what value means to a wider range of stakeholders than many companies are used to—including not just shareholders, but customers, employees, local community members, government officials, and others. Each of these stakeholder groups expects a great deal from businesses, and their expectations continually change. Each region and industry is different, and different groups can have different expectations. In the Internet- and social media–enabled goldfish bowl where companies now operate, these stakeholders make their voices heard, and the CEOs we surveyed are listening to them. They are also looking to put what they hear into effect, in concrete and measurable terms.

One way to do this is by profiling trust. This is a way of evaluating how trustworthy the organization is considered to be by each stakeholder group. A company can determine its own unique trust profile, taking into consideration its purpose, vision, mission, and values. Specific trust drivers, such as reporting practices, sustainability efforts, and governance structures, can be identified and analyzed according to the effects they have on the trust profile. The company can use this information to shape its behaviors and culture to achieve its goals.

CEOs are also looking to measure and report on the impact of their actions on different stakeholders. They no longer want to delegate their corporate social responsibility efforts to a dedicated silo; rather, they want to embed responsible business practices into the heart of their strategy. This involves quantitatively measuring (and reporting on) a company's total impact across social, environmental, fiscal, and economic dimensions. There is rarely a clear-cut choice between "good" and "bad" actions when it comes to sustainable business practices, and a total impact measurement and management (TIMM) approach allows company leaders to weigh the consequences of business decisions for all stakeholder groups and analyze trade-offs more robustly.

"Our annual reporting is no longer limited to just financial reporting," said Brian Molefe, group chief executive of Transnet SOC Ltd., based in South Africa, "but also extends to the triple bottom line for our impact on the environment, our impact on society, and our impact on the economy."

Consider, for example, how TIMM data can affect real-world decisions for a beer company with a brewery in Africa that must choose between importing barley and growing the crop locally. By quantifying the social, environmental, and financial effects for each option, the company can see that importing uses less water but produces higher emissions, while growing locally uses more water but produces lower emissions and benefits communities in areas such as jobs and health. When the options are compared across different dimensions so the trade-offs are easy to see, management is more likely to have conversations with the right people and reach an optimal decision. (To further explore the trade-offs faced by the brewer, see the PwC TIMM interactive framework at pwc.com/TIMMinteractive.)

The regular use of metrics like the TIMM system requires a significant shift in data-gathering practices and in the mind-set of the leaders using that data. Companies that track their activity this way, using both financial and nonfinancial information to drive their strategic decisions, are already gaining benefits.

For example, the German athletic shoe and apparel manufacturer Puma SE adopted an environmental profit and loss account in 2011. Incorporating such measures as carbon emissions, materials density, and energy use, the company found that only 6 percent of its environmental impact was related to the head office, and 94 percent was driven by its supply chain. This knowledge, once applied to particular products, enabled Puma to create its InCycle shoe, with an environmental impact rating about 30 percent lower than that of its conventional footgear.

PwC's CEO survey showed that CEOs are aware of the need for values-based behavior and the need to assess value in all its forms, financial and nonfinancial. For example, more than 70 percent of respondents agreed with the idea that "satisfying social needs beyond those of investors, customers, and employees" was "important to [their] business." Similar percentages supported improving workforce diversity and inclusion, reducing their environmental footprint, and "paying [their] fair share of tax."

But awareness of the correct thing to do does not always translate into concrete action. For example, although almost 80 percent of the CEOs agreed that it's important to meet the needs of today's and tomorrow's society, just 21 percent cited reducing poverty and inequality as a key organizational priority over the next three years. Similarly, only 26 percent cited addressing environmental risks and just 33 percent cited creating jobs for young people as priorities.

The gap between awareness and action is understandable. The multiplicity of practices in many companies and the intangible nature of social and environmental progress are significant barriers. Solutions that address this gap are complex and multifaceted, and the initial step is for CEOs to go back to first principles by asking, "What is my organization's reason for existing?"

A Socially Centered Purpose

A central pillar for building trust is a corporate purpose that is defined by a genuine commitment to the social good. Such a purpose is highly compatible with profitable growth. It helps to make a company distinctive, grants it a license to operate, and helps drive customer growth and retention. At the same time, a socially relevant purpose transcends profit as an end goal of company activity. Being a "good" business is not seen just as a route for increasing shareholder value. It is seen as an intrinsic good.

The most successful businesses are unwavering in embedding their purpose within the organization, including explicitly aligning the interests and priorities of management, boards, and shareholders with that identity. This allows them to align corporate behaviors visibly and consistently with their purpose at every level of the organization.

When a culture is built on an ethical framework of principles, convictions, and norms, rather than rules, the right tone can be set not only from the top, but also from the middle and bottom. Employees are empowered to make decisions about trade-offs at critical moments.

This core company identity is stable, because it is grounded in what the company does every day. But it is also flexible enough to adapt to shifts in social values. "Society is changing rapidly," commented Joseph Jimenez, CEO of Novartis, headquartered in Switzerland. "What used to be acceptable is no longer acceptable. And some things that are legal are no longer accepted socially."

To enable this flexibility, organizations must be able to plan not just for the short term but also for the medium and long term, taking into account how global trends are shaping the world. This is difficult, particularly for publicly traded companies under pressure to report quarterly.

"As a responsible CEO, you have to have a strategic plan with a three- to five-year outlook," said Sergio Pietro Ermotti, group chief executive officer of Switzerland-based UBS AG. "But economic, political, and market conditions can be so volatile today that you also have to be flexible enough to manage through the inevitable short-term issues. [Because we are] the largest global wealth manager, almost any event has implications for our clients and our business. The big challenge is to keep your eyes firmly fixed on the long-term goals, while navigating through the immediate turbulence."

Collaborating with Government

A third pillar of trust creation is for companies to work closely with government—as well as universities, NGOs, and the public—to achieve the best national outcomes. That doesn't mean replacing government; CEOs recognize its importance in providing an environment with the certainty and stability that encourage business investment and job creation. The CEOs we surveyed believed government should play a large role in (1) ensuring financial sector stability and access to affordable capital (cited by 53 percent as a top-tier priority); (2) improving the country's infrastructure, such as transportation and broadband access (50 percent); and (3) creating an internationally competitive and efficient tax system (50 percent).

However, businesses see shortfalls in government's ability to fulfill this role. And the public agrees: The Edelman Trust Barometer shows lower levels of public trust in government than in business—and the levels of trust in government are decreasing. A number of businesses are taking a more active role in fostering sustainable growth at a national level. This does not, however, go far enough. With the increase in trust from the public, businesses now have an opportunity to lead the charge in creating socially desirable outcomes.

"[One challenge] is working with communities on environmental and social issues," noted Emilio Lozoya, CEO of Petroleos Mexicanos (Pemex). "To this extent, we are about to launch a separate foundation that will help Pemex to work much more closely and in a more proactive way with communities that offer us the opportunity to work with them. And this is important, since we believe that Pemex needs to work with all stakeholders, including environmentalists, local governments, regional governments, civil society, and public opinion leaders."

Before either business or government can earn greater public trust, however, they must seek to restore trust in each other. Businesses see shortfalls in government effectiveness, and nearly one-third (31 percent) of CEOs we surveyed perceive a deterioration over the last five years in the level of trust that government and regulators have in their industries. Now, when both the public and private sectors have struggled with stakeholder mistrust, is the right time to build a commitment to partnership. The major obstacle is attitude: If participants believe that either the private or the public sector is inherently better than the other, it will be more difficult to collaborate.

With the increase in trust from the public, businesses now have an opportunity to lead in creating socially desirable outcomes.

Trust and Identity

By focusing on building trust, companies can develop a compelling identity, one that sets them apart from competitors—assuming that they have the intent to deliver and the capabilities to do so. Values-based behavior can drive value creation that takes into account the expectations of a wider range of stakeholders. A socially relevant purpose that is defined, communicated, and embedded throughout the organization will provide employees with the context they need. And symbiotic collaboration with government can drive good growth at a national level.

CEOs who follow this agenda will create trustworthy organizations that enjoy far-reaching benefits. Their business will grow in a way that is fully engaged with society, now and into the future. Increased organizational resilience and improved performance will flow from engaged employees, loyal customers, and better relationships with business partners and regulators. Overcoming stakeholder skepticism will not only improve investor sentiment, but also create opportunities to lead the trust debate in the business's industry and beyond. +

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Dennis Nally
dennis.m.nally@us.pwc.com
is the chairman of PricewaterhouseCoopers International.

THE LIVES AND TIMES OF THE CEO

FROM 100 YEARS BACK TO A QUARTER CENTURY AHEAD, THE EVOLUTION OF THE CHIEF EXECUTIVE OFFICER

BY KEN FAVARO, PER-OLA KARLSSON, AND GARY L. NEILSON

IMAGINE A CHILLY mid-November afternoon in 1914, shortly following the outbreak of World War I. The place: a sumptuous fifth-floor salon in the new Beaux Arts Renaissance Hotel in Chicago. The salon's electric lamps have just been turned on. The room is decorated with red velvet couches, a long mahogany table, and deep Persian carpets. A fire crackles in the marble fireplace.

Illustrations by Miguel Montaner

Ken Favaro
ken.favaro@strategyand.pwc.com
is a senior partner with Strategy& based in New York. He leads the firm's work in enterprise strategy and finance.

Per-Ola Karlsson
per-ola.karlsson@strategyand.pwc.com
is a senior partner with Strategy& based in Dubai. He serves clients across Europe and the Middle East on issues related to organization, change, and leadership.

Gary L. Neilson
gary.neilson@strategyand.pwc.com
is a senior partner with Strategy& based in Chicago. He focuses on operating models and organizational transformation.

Also contributing to this article were senior manager Josselyn Simpson and senior analyst Jennifer Ding.

Imagine, too, that the early captains of industry have gathered in this room for cigars, bourbon, and a discussion of the most pressing issues facing their companies: the establishment of the first central bank in the United States, the need to transport goods more quickly via the Pennsylvania and Union Pacific Railroads, the desire to bring more of Edison's electricity into their plants, the implications of the war for manufacturing opportunities, and the whisperings about new government regulations that would limit the hiring of children under 14.

But rather than focusing immediately on these things, the men in the room are arguing with slim, pale-eyed, 51-year-old Henry Ford, who stands with his back turned to them as he squints out the window at the setting sun.

"You're paying your assembly-line workers a minimum—a minimum!—of $5 a day!" raves John Rockefeller, waving his arms. "That's more than twice what the average assembly-line workers make. And you're sending them home after only eight hours!"

"You're mad, Henry," mutters Julius Rosenwald, the head of Sears, Roebuck & Company. "You'll drive Ford Motor Company straight out of business with this decision."

"John's right, Henry," says Firestone Tire and Rubber Company founder Harvey Firestone, as he lights his cigar. "We cannot begin to fathom how you—you, of all people, who have single-handedly opened new frontiers of this country with your mass production of automobiles—can believe it wise to share half of your $25 million in profits with your workers."

"Especially when the unemployment rate is 15 percent!" huffs Gillette's Frank J. Fahey, with a swallow of his bourbon. "Droves of people are immigrating to the United States each day. All of us are faced with an ample supply of able-bodied men all willing to take whatever jobs and at whatever pay they can find in our companies."

Ford has so far listened politely without reply. He slips his hand inside his coat pocket and pulls out his gold pocket watch. Flicking the cover open with his thumb, he notes that they have been dressing him down for nearly an hour. He slides his watch back into place, takes a deep breath, and spins on his heel to face his fellow moguls.

"Answer me honestly, Frank," Ford says, fixing him with a stare. "How do you expect men to be able to purchase your Gillette razors if they don't have money to afford them? Or you, John—how do you think Standard Oil will make a profit if only a handful of people can afford to drive Model T cars?"

Ford walks slowly to the roaring fireplace. "Gentlemen, the way I see it, we all want the same thing. We all want to sell more of our goods, services, and products to the public, so that our companies can make more money. Correct?"

Everyone nods reluctantly.

"Then logic demands that if we are to achieve this goal, we must first produce more products faster. But then we must also have many more people who can afford to buy those products."

To Be a CEO

Henry Ford's decision to increase his workers' wages while reducing their workday shocked the business community—and for good reason. Back then, the founder/owner of a company was like an absolute monarch, and Ford's decree appeared to pass power to the

> THE C-SUITE WAS TINY, LIMITED TO THE IMPERIAL CEO, A COUPLE OF OTHER BOARD MEMBERS, A FINANCIAL EXPERT, AND A CLERK.

people. But his actions proved to be correct. His workers repaid him in productivity and loyalty, and his decision turned him into a national hero.

The men in our imaginary salon built vast fortunes and empires, largely because they had inordinate faith in the correctness of their visions as the inventors and builders of previously unknown industries. Before they came along, there was no way to become a CEO except by starting a company of one's own. The C-suite was tiny, limited to the imperial CEO, a couple of other board members, a financial expert, and a clerk. By 1914, however, when Ford's $5/day wage shocked the business world, Taylorism (the scientific management system created by Frederick Taylor) had brought management science to the factory floor—and owners had become obsessed with raising productivity. As pioneers and experimenters, this first generation invented the role of CEO. Indeed, the term *chief executive officer* is thought to have first come into being around 1917, roughly the time when the modern managerial form of corporate business was established, with people hired to run functions and business units.

Having conducted a study of CEO succession for 14 years, and having collectively worked with CEOs for 100 years, we decided to step back and consider how—and why—the role of the CEO has transformed over time, and how it will continue to evolve. In this article, we examine CEOs at four specific points in time: 1914, 1964, 2014, and, finally, 2040, when the generation entering today's workforce will be taking the reins. Though we don't have a crystal ball, we can offer our educated prognostication about what the business world and, thus, the CEO's role will look like 25 years from now. But before we do so, let's take another look back in time.

The CEO's World: 1964

If a grand meeting of CEOs had taken place 50 years after the one in 1914, it might well have occurred in the swanky Pan Am lounge at the Los Angeles International Airport, the sparkling new hub of international travel, particularly for those bound for Asia. The group would have included the captains of new industries such as advanced technology, credit cards, airlines, entertainment, and convenience foods.

Men like Bill Allen (Boeing), Ray Kroc (McDonald's), Howard Clark (American Express), Henry Singleton (Teledyne), Walt Disney (Walt Disney Company), Juan Trippe (Pan Am), Akio Morita (Sony), Thomas Watson Jr. (IBM), Konosuke Matsushita (Panasonic), Frits Philips (Philips), and Harold Geneen (ITT) would have had much to talk about. They would have discussed the Soviet threat and the race to land a man on the moon. They would have marveled over amazing new technologies, such as the ATM and the fax machine. They might also have chatted about emigration from Latin America and Asia; the oil boom in Saudi Arabia and Africa; the effects of new wars, revolutions, and civil unrest beginning to break out in all regions of the world; and the increasing number of women in their offices, most of whom worked as secretaries and typists.

And they would all have complained about new pressures from the government. In the U.S., the 1960s marked the beginning of monumental legislative bills on issues such as affirmative action; consumer rights that addressed product safety, product labeling, and advertising; worker safety; and environmental regulations on air, water, and land pollution. Government regulation brought in its wake an ever-increasing mountain of red tape, taxation, and the need for CEO involvement. As

THE CEO OF THE 1960s WAS A TOP MANAGER, MORE LIKE A PRIME MINISTER THAN HIS PREDECESSORS.

Donald Siebert, CEO of J.C. Penney, remarked in *The New CEO,* by George A. Steiner (Macmillan, 1983), "I find myself out of the office more. I spend a great deal of time in Washington." CEOs in other countries could see the same issues looming.

But the bulk of the conversation would have centered on the thriving consumer economy across the developed world. In the U.S., the postwar baby boom had led to rapid suburban expansion. As these trends continued, so did consumers' ravenous appetite for ease and comfort; for help with everyday responsibilities, such as cooking and cleaning; and for leisure and entertainment in the form of tourism, television, amusement parks, and more. The move toward a service-based economy, and away from agriculture and manufacturing, also opened new horizons for companies.

In some ways, the 1960s could also be characterized as the beginning of globalization as we understand it today, as borders for exports and imports loosened and opportunities to satisfy hungry consumers invited competition from around the world. U.S. residents wanted low-cost products, and if U.S. companies wouldn't or couldn't provide them, foreign entities were ready and willing to step in.

By the late 1960s, Japan and Europe had largely recovered from the ravages of war. Electronics, technology, and automobile manufacturers from Japan, including such companies as Sony and Toyota, were able to position themselves to capture significant shares of the U.S. markets; firms such as L'Oréal and Braun vied for consumer dollars. All these companies had sharpened their skills in their growing home markets, and U.S. CEOs keenly felt the competition. In a 1965 *Fortune* profile, John Dickson Harper of Aluminum Company of America (Alcoa), the world's largest producer of aluminum, observed, "A company is like a person. It can't stand still. A person either moves ahead or he drops back. If you're not competitive, you either get competitive—or you get out. It's as simple as that."

The Organization Man

By 1964, an entirely new, large, and professional management class had begun moving into corner offices. The executive suite was now filled with a variety of top leaders—in finance, planning (aka strategy), operations, manufacturing, and sales, all associated with their own (sometimes huge) support staffs. Management science was thoroughly ensconced in the boardroom, and the modern organization as we now know it—with its processes, decision rights, metrics, analyses, endless meetings, and bureaucracy—was flourishing.

No longer a monarch, the CEO of the 1960s was a top manager, more like a prime minister than his predecessors (whether or not he was an owner). The CEO selected the leading executives, supervised the allocation of resources to achieve his goals, and monitored the performance of the organization to ensure that it continued to turn profits and expand its market.

The 1960s "organization man" was a pragmatic, tough-nosed, and driven leader, more focused on managing a career (as we think of it now) than the entrepreneurs of 1914, who had concentrated on developing their own new institutions. In order to manage an increasingly complex and growing enterprise, he needed solid management skills, which he learned in what might be called "traditional academies." After a stint in the military, then engineering or business school, a typical CEO of a large company might have gone to work for a company like Procter & Gamble, HSBC, or Toyota. Alternatively, he might have joined his company right out of high school or, more likely, college and remained there, working his way up through the organization until he reached the corner office and eventually retired.

The CEO's most important external goal was to maximize investor returns. In the early part of the century, CEOs had sought to please the one or select few individuals who held all the wealth and capital (often the CEO was one of those individuals); in the 1960s, however, CEOs focused their attention on raising earnings per share. By expanding and growing their companies through mergers and acquisitions, and forming their companies into conglomerates, some CEOs found they could increase the earnings per share and stock prices further than their peers—even if doing so meant assuming high levels of debt. To that end, many became master deal makers. Meanwhile, technological advances created new opportunities for CEOs to shift employee responsibilities, reduce expenses, and raise productivity—all to drive up investor returns.

CEOs of the 1960s were keenly conscious of their cultural position as well. For example, men like Walt Disney, Sam Walton, and Ray Kroc understood the massive imprint that they, and their companies, were making on the national culture. The CEO of 1964 often supported the Boy Scouts and other civic organizations, such as museums or hospitals; he felt duty-bound to uphold civil society. "It makes sense to participate—with corporate money, talent, and energy—in a community project to improve conditions in the slums," Alcoa's Harper told the Dallas Management Association. "In the long run, such participation will prove to be beneficial to your own business. Because, if you reduce delinquency, crime, and illiteracy, you reduce your own corporate tax load, and you convert welfare cases into productive workers."

Perhaps it's our own hindsight, but there seemed to be a kind of stability in the CEO's view of his role in 1964. Yet it would not last. In the coming decades, the organization man would be watching the sunset fall on his world. And by 2014, the world would be very different indeed.

The CEO Today

Now, we invite you to imagine a private meeting in Davos, Switzerland, in January 2014. A group of CEOs from around the world and every major industry convene for an off-the-record discussion. Influential leaders from Europe, China, and India have sway that is equal to or greater than that of the U.S. attendees. Women are present too, although their numbers are modest.

In general, the corporate leaders at Davos feel relatively upbeat, at least in comparison to their meetings during the previous few years, following the debilitating Great Recession of 2008–09. Though their businesses are growing again, they have plenty of new concerns—about global financial imbalances between developed and developing economies, new trade agreements, and finding people with the right skills in an increasingly global labor pool. They also worry about the ability of debt-laden governments to deal with their problems, and the environmental costs of doing business.

Today's CEOs run companies with considerably flatter hierarchies than those of the 1960s. And they come armed with experiences ("passport stamps") that are more likely than ever to include an MBA—sometimes an executive MBA earned on the job—and a variety of work roles at several different kinds of companies (perhaps including consulting firms). Indeed, in 2013, three in four incoming chief executives had worked for multiple organizations, and 35 percent had worked in regions other than where their companies were headquartered—although just one in five hailed from a country other than their organization's home base. (For more details on the latest incoming CEO class, see "CEO Turnover in 2013," page 54.)

Yet as competent and skilled as they may be, today's CEOs face challenges that their predecessors never dreamed of. For current leaders, *agility* is the watchword du jour. Gone are the days of the reliable five-year strategic plan; in many industries, strategy making is a process marked by continual evaluation and reevaluation. In an

CEO TURNOVER IN 2013

In 2013, CEO turnover at the largest 2,500 public companies in the world was mostly business as usual. Just 14.4 percent of CEOs left office, a small decrease from the 15 percent in 2012 but a slight increase over the five-year average of 13.9 percent. The share of planned turnovers—as opposed to those in which CEOs were forced out or left because of an M&A transaction—reached just more than 70 percent in 2013, similar to the share of planned turnovers since 2010 but nearly 20 percent higher than the share between 2000 and 2009.

To us, the high proportion of planned turnovers is a strong signal that companies are continuing to take an active, considered approach to putting new leadership in place. However, companies continue to consider—and hire—familiar faces, particularly when it comes to nationality and level of international experience, suggesting that the "global CEO" is more mythical than real.

Among regions, the highest turnover rates were in Brazil, Russia, and India, and among industries, the highest was in telecommunications services—both trends that have held for three years now.

Meanwhile, after a dip in 2012, we saw a rise in the share of insider CEOs in 2013. More than three-quarters of the incoming class—76 percent—were promoted from within, compared with 71 percent in 2012. And 26 percent of incoming CEOs had worked at only one company during their career (in line with the 25 percent level in 2012).

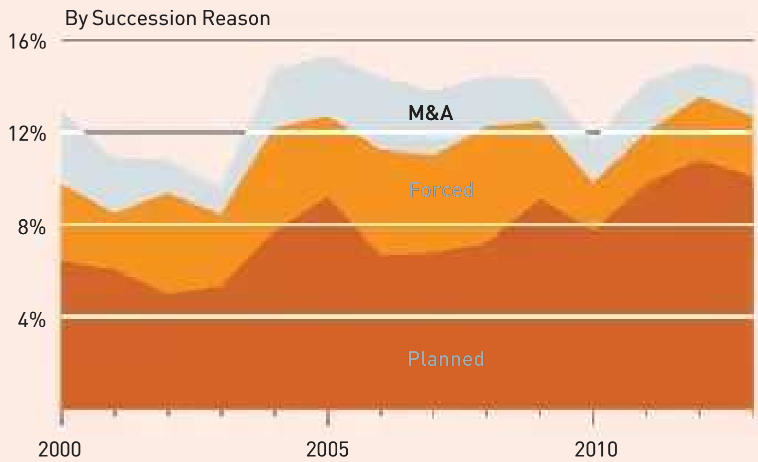
unpredictable world where global market conditions can change in a nanosecond, successful CEOs must be both nimble and sensitive in order to adjust.

Today, new leadership skills are required to manage a more mobile and multigenerational workforce. CEOs—particularly those who run large corporations that have grown through acquisition—are recognizing the importance of a strong corporate culture, and understand the need to attract and retain new talent. Given the high correlation between employee engagement and productivity, CEOs must work hard to ensure that all employees, regardless of age, feel a sense of meaning, purpose, and engagement in their work. They also need to ensure that their employees are just plain happy. With the emergence of highly skilled, educated, and mobile white-collar workers, leaders must offer great places to work featuring career-advancing opportunities, collaborative bosses and colleagues, and sleek physical environments.

The CEOs of the past could play their cards comparatively close to the vest, but today's leaders live in glass houses under continual surveillance. They are also far more beholden to the whims of shareholders than their predecessors were. They have to be, of course. Thanks to 24/7 communications and coverage, nothing remains secret; every little misstep is scrutinized and publicized. A company's market value can be negatively affected in seconds, and its long-term value can easily stagnate. And in contrast to the days when the key shareholders consisted of the CEO and his or her friends, CEOs today must work with active, independent-minded shareholders who no longer rely on boards

Exhibit 1:
Chief Executive Turnover, 2000–13

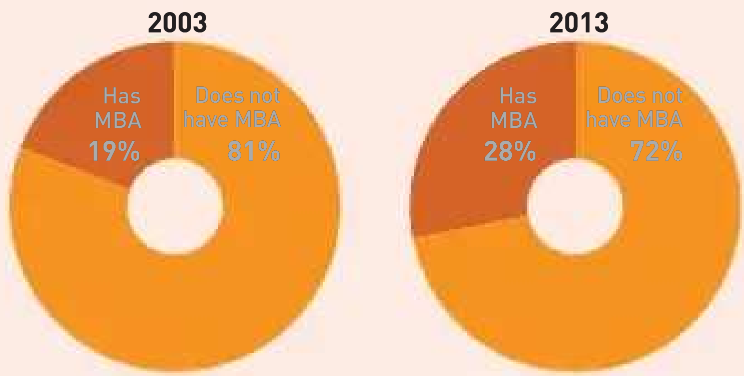
In 2013, 14.4 percent of CEOs at the world's largest 2,500 public companies left office—slightly higher than the five-year average turnover rate of 13.9 percent.



Source: Strategy&

Exhibit 2:
More CEOs Have Earned Business Degrees

The share of incoming CEOs with MBAs has grown by nearly 50 percent since 2003, to 28 percent in 2013.



Source: Strategy&

The share of the incoming class appointed with joint CEO/chairman titles continued its steady decrease and reached an all-time low in 2013, dropping to 9 percent, while the number of CEOs holding an MBA degree continued its rise, now up by nearly 50 percent since 2003.

In 2013, 58 percent of the new CEOs joined their companies from another one in the same industry, up just slightly from 55 percent in 2012. Eighty percent hailed from the same country as the location of company headquarters, slightly lower than the five-year average of 82 percent. Sixty-five percent had no experience working abroad, a 10 percent increase from 2012.

Given what we believe the future holds for the CEO, these final trends give us pause—and they should do the same to current leaders and boards. With each passing year, a diversity of experience and an ability to take a global view of talent development become more critical in leaders. Yet many companies appear slow to appreciate these qualities—at least at the top of their organization. The data suggests to us that companies that want to get and keep a competitive edge should be thinking harder about developing their leaders and about their chief executive choices.

to represent their interests.

It's all a very tall order. And many of these challenges are just a preview of greater challenges to come.

The CEO of 2040

As of this writing, 60 percent of U.S. college students, and some 40 percent of MBA students, are women. Those are high percentages, and we expect them to hold, if not rise. Based on several data trends and the continued falling of barriers, we estimate that by 2040—a quarter century from now, when today's college and business school graduates will be taking the CEO reins—women will represent some 30 percent of the incoming class of the top 2,500 global CEOs (see "Women CEOs: A Slow but Steady Upward Trend," page 56). And that proportion will only increase over time.

To punctuate the rise of women leaders and to help personify the challenges CEOs will encounter by the middle of this century, we have envisioned a prototypical chief executive of 2040. We call her Melissa. She was born in the 1980s or '90s; in 2014, she is likely in graduate school or the early stages of her career. By the time Melissa becomes a CEO, she will be operating in a competitive environment very different from that of 2014.

We anticipate the acceleration of a major shift in the competitive landscape already emerging today: the clustering of companies into two primary competitive categories, which we call "integrators" and "specialists." Most firms will fall into one of these two camps.

Generally speaking, integrators will be large-scale organizations focused on providing distinct, solutions-

(continued on page 58)

WOMEN CEOs: A SLOW BUT STEADY UPWARD TREND

When Mary Barra was named CEO of General Motors effective January 2014, the news shook the business world. After all, she was about to become the first female chief executive of a major auto manufacturer—a male-dominated industry if ever there was one. It was a feat that Henry Ford would never have dreamed of.

We've studied CEO successions and new CEOs at the world's largest 2,500 public companies for the past 14 years. This year, for the first time, we're performing an in-depth analysis of our data on the women who have either taken up or left the top office during those years. There aren't too many—only 118 out of more than 6,000 incoming and outgoing CEOs—but we believe that looking at who's coming and who's going helps us understand what boards are looking for in CEOs.

Today, women have claimed the corner office in many industries. In technology, Meg Whitman (HP), Marissa Mayer (Yahoo), and Virginia Rometty (IBM) have climbed to the pinnacle; women are also running energy companies (such as Duke, Graybar Electric, and Sempra Energy), agriculture and food companies (such as Archer Daniels Midland, PepsiCo, and Campbell Soup), aerospace and defense companies (such as Lockheed Martin and General Dynamics), and others. Companies in the information technology, consumer staples, and consumer discretionary industries have had the highest percentages of female CEOs (3.1 percent, 2.6 percent, and 2.6 percent, respectively); those in the materials industry have had the lowest share of female CEOs (0.8 percent). Women are also leading companies in every region. Companies in the United States and Canada have had the highest percentage of female CEOs (3.2 percent); those in Japan have had the lowest (0.8 percent).

Despite some high-profile gains, just a small percentage of all major-company CEOs are women. They represent 3.6 percent of 2013's incoming class of CEOs at the largest 2,500 public companies—a 1.3 percentage point drop from 2012. Nevertheless, that percentage is considerably higher than the average of 2.1 percent between 2004 and 2008. And in eight of the last 10 years, the proportion of women in the incoming class of CEOs has been larger than the proportion in the outgoing class. Indeed, since 2004, there have been 68 percent more incoming women CEOs than outgoing. All in all, this means that female CEOs are becoming considerably more prevalent, a trend we expect will accelerate in the coming decades.

How, we wondered, does the professional experience of female CEOs compare with that of their male counterparts? Our research revealed that in many ways, it is very similar. Between 2004 and 2013, about the same shares have had experience working internationally (some 40 percent), have been granted a joint CEO/chairman title (about 11 percent), and have come from the same region as the location of company headquarters (about 88 percent). There are small differences in the actual percentages, but those differences are not statistically significant. We did find that incoming female CEOs have been just slightly younger—the median age of women is 52, as opposed to 53 for men.

In terms of more statistically significant differences, women have more often had experience working at more than one company (77 percent of incoming female CEOs, versus 60 percent of incoming male CEOs over the past five years). We also found that women are more often outsiders than men (35 percent of women compared with 22 percent of men). This is likely because individual companies have not consistently been able to develop and promote enough female executives in-house. So when boards look for new CEOs, they necessarily find a larger pool of female candidates outside their own organizations. Our data also indicates that new female CEOs more often come from staff roles—HR, marketing, and others—than from line roles with P&L responsibility. This particular difference isn't statistically significant; we'll be watching to see what happens in future years.

Meanwhile, here is a finding that is both statistically significant and indicative of the challenges still faced by female leaders: We found that women are more often forced out of office (38 percent of women leaving the CEO position are forced out, as opposed to 27 percent of men) and that women also have shorter tenures (not quite four years in office, on average, compared with five years for men). On this last finding, we note that chief executive officers of either gender who are outsiders or who are forced out tend to have shorter tenures. Because women are likelier to be both, their tenures are that much more likely to be curtailed.

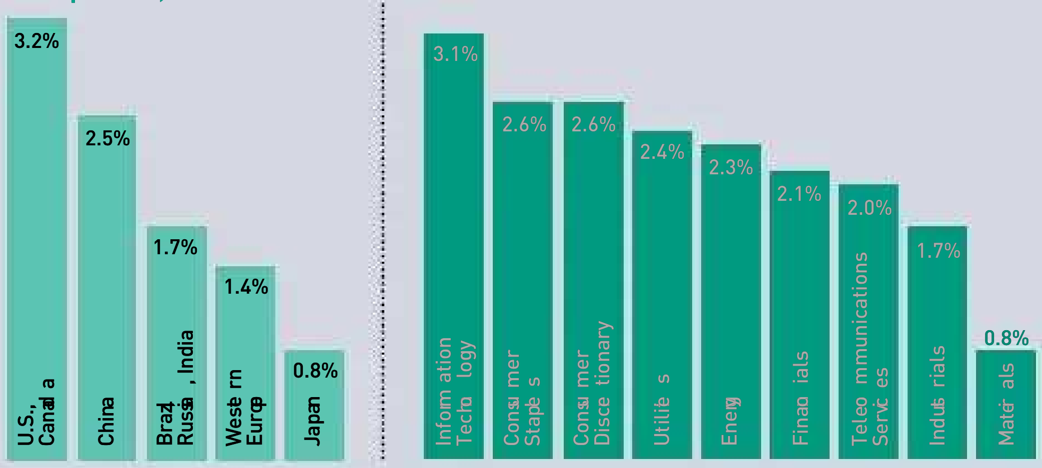
But things are slowly changing for the better for women in the C-suite, if for no other reason than that the numbers are with them. The number of female MBAs, for example, is on the rise. In the United States alone, according to Catalyst, a firm that conducts research into women and business, 37 percent of MBA graduates in the 2010–11 academic year were female. Worldwide, women represent more than half of university students and 40 percent of the workforce. Combine these numbers with the trends we are seeing in our data and the continual lowering of social barriers, and we anticipate that by 2040, as much as a third of the incoming CEO class around the world will be female. And we believe that number will continue to increase beyond 2040. Even today, appointing a woman CEO is becoming *less* of an extraordinary event.

Exhibit 3: **Where Women Lead**

By region, the highest share of incoming and outgoing female CEOs combined has been at companies headquartered in the U.S. and Canada. By industry, the lowest share has been at materials companies. And across all regions and industries, the share of women CEOs has been 2.2 percent, between 2004 and 2013.

By Region of Company Headquarters, 2004–13

By Industry, 2004–13

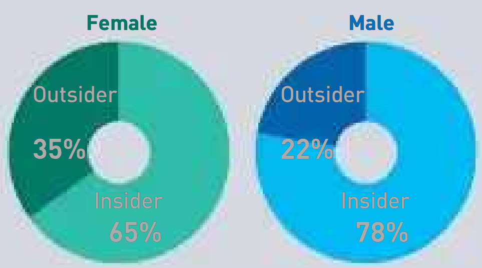


Source: Strategy&

Exhibit 4: **Women CEOs Are More Often Outsiders**

Although the majority of all incoming and outgoing CEOs are hired from inside their company, women have more often come from the outside.

By Insider versus Outsider Status, 2004–13

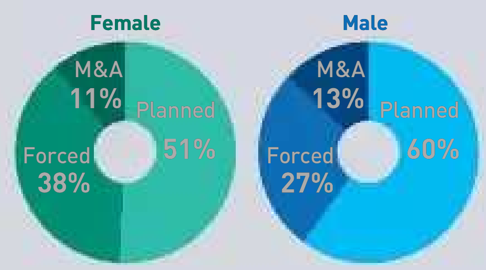


Source: Strategy&

Exhibit 5: **How Women Leave Office**

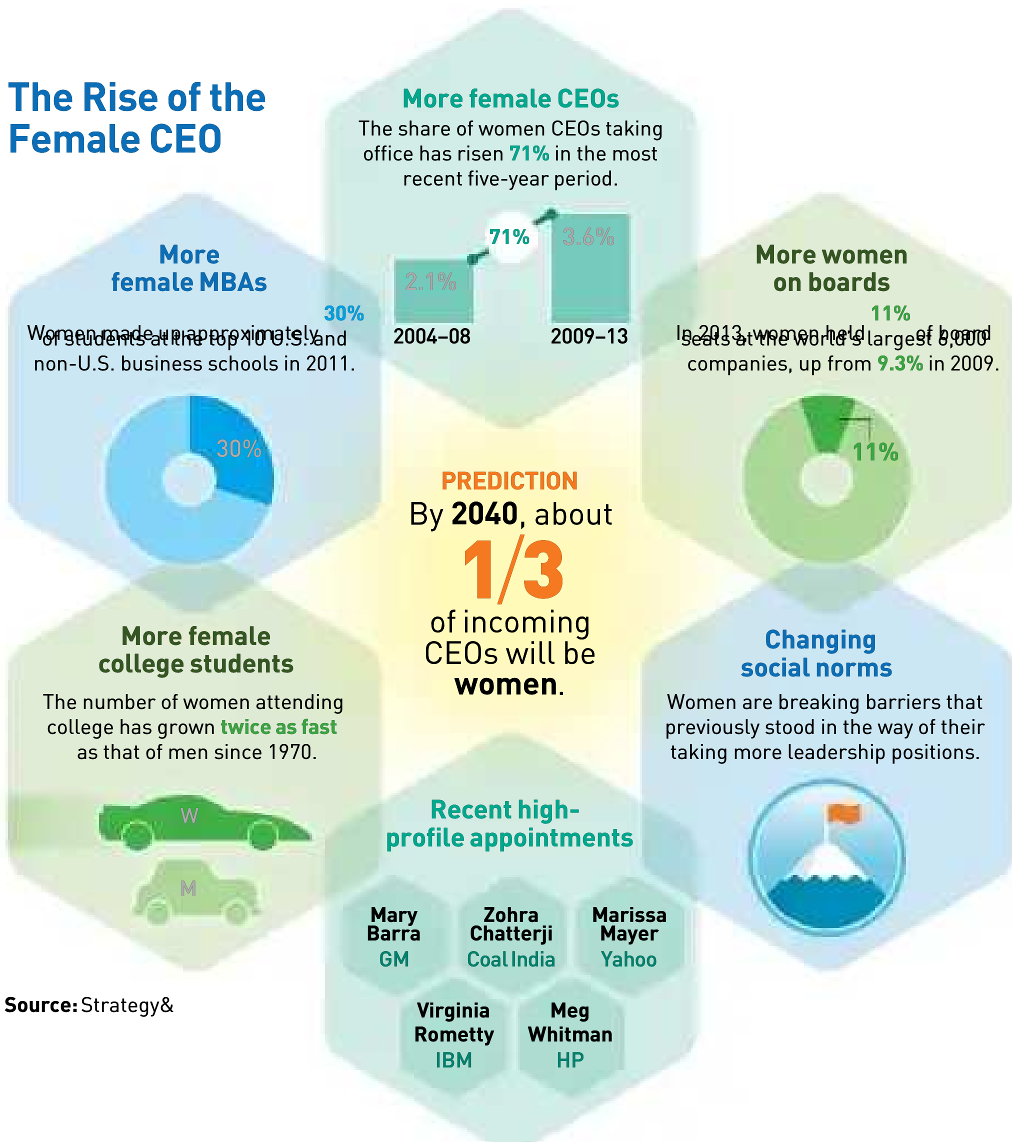
Among exiting CEOs, women have more often been forced out than men.

By Succession Reason, 2004–13



Source: Strategy&

THE SPECIALTY CEO OF 2040 WILL NEED TO BE ABLE TO QUICKLY DIVEST A BUSINESS WHEN IT'S NO LONGER VIABLE AND ASSEMBLE A NEW ONE JUST AS RAPIDLY.



Source: Strategy&

based value propositions to their customers. These solutions will be built on a unique set of complementary capabilities, in the same way that Amazon, by virtue of its superior logistics and distribution system, is able to sell a broad array of products to consumers of all stripes,
or Cisco is able to offer platforms that address a range of customer needs through extended relationships.

Specialists, by contrast, are the complementary players that provide the products and services the integrators sell. Just as there are thousands of small retailers supplying one Amazon or eBay, there will be many more specialists than there are integrators. Specialists are the next-generation accessory makers, parts suppliers, and
inventors who excel at one particular, often narrow, thing. Like integrators, specialists will compete with distinct market propositions based on a core set of unique, advantageous capabilities whose outputs align with the integrators' strategies. But whereas successful integrators will dominate their markets for decades, many specialist firms will have short life spans—say, seven to 15 years, depending on the industry they occupy. If they survive longer, they
will pivot frequently as the demand for their specific products and services changes, depending on how the integrators' strategies evolve in the face of potential market disruption.

For companies of either kind, a mastery of technology across the value chain will be key. Technology will enable any company to enter new markets and leave shrinking ones with vastly increased dexterity. The company of 2040 will require relatively minimal scale to take advantage of technological advances. For example, consider the effect
that 3D printing is already beginning to have on manufacturing: With such technology, upstart firms will be able to compete in new businesses seemingly overnight and grow their operations at lightning speed.

Taken together, these trends will lead to the emergence of a highly entrepreneurial, highly focused CEO. Unlike the industry builders of 1914, this CEO will likely direct her energy into one of two career trajectories. She may run an integrator company like Amazon, or she may choose to run a specialty firm—more likely, a series of them over time. The career path of tomorrow's CEO will depend on the kind of company for which she is best suited; it's unlikely that she will be equally adept in the two environments.

If she wants to be the CEO of an integrator, she will need to follow the model of Jeff Bezos (or an earlier model, Michael Dell), and develop the skills to lead a company that excels in assembling the best components from specialty firm partners into a complete solution for end consumers or business customers. Dependable, reliable execution; superb supply chain management; deep understanding of customers; and the ability to shape, reshape, and customize products and services to customers' unspoken needs will be key to her company's fortunes. This means that as CEO, she will need to spend a lot of time understanding how her company, its vendors, and its customers work in a holistic, deeply integrated system.

By contrast, the CEO of a specialty firm is an even more sprightly, shape-shifting entrepreneur. If she finds that her company is being outpaced by new competitors or is no longer relevant to the market—and she may well encounter both of these challenges—she may be forced to shift strategies or exit the business rapidly. Indeed, forward-looking "specialty" CEOs will expect their companies to be in existence for relatively short periods, knowing that they may be bought out by another firm, or that their company's specialty, or their ability to compete, has a limited shelf life.

The specialty CEO of 2040 will therefore need to be able to quickly divest a business when it's no longer viable and assemble a new one just as rapidly. That's why her tenure may well be shorter than the tenure of those at the helm of integrators. A small handful of executives in places such as Silicon Valley are engaging in a prototype of this career model already. They are known as "serial CEOs," and their ranks will swell as the specialty model takes hold in the coming decades.

Another interesting facet of the specialty firm model is the built-in opportunity for on-ramps and off-ramps, given the prospect that many firms and their leaders will be in place for such short durations. It may well be possible for executives to more easily come in and out of industry—something that bodes well for leaders with families.

A Diversity of Experiences and a New Norm

What else does this evolving competitive landscape mean for Melissa and her path to the C-suite? Quite a bit indeed, beginning with those passport stamps she acquires throughout her education and early career.

In aggregate, Melissa's education and early-career experiences are laying the groundwork for a view of the world and of work that is quite distinct from that of those occupying the corner office in 2014. She is likely to have had several high school and college experiences that developed her leadership, entrepreneurial, and collaborative skills. She has probably had experiences leading teams—serving as the head of her chess or environmental club, captaining her volleyball team, or working on academic or community projects, for instance. Perhaps more significantly, she has also been involved in working with virtual teams, and she has spent time volunteering, traveling, or working in at least one place that is dramatically different from her home region.

Because Melissa is curious and innovative, she may have invented something—an app or a drip-drainage system. Or she might have developed a passion for nanotechnology, advanced robotics, or new energy and transportation ideas—and turned her interest into a bona fide business. She may well be fluent in more than one foreign language, and perhaps conversant in a programming language or two.

More than likely, Melissa will be a graduate of one of the many MBA programs that have adapted their pedagogy to appreciate, emphasize, and develop women's typically more empathetic style of leadership. In addition to early-career international corporate assign-

Methodology

Strategy&'s 2013 Chief Executive Study identified the world's 2,500 largest public companies, defined by their market capitalization (from Bloomberg) on January 1, 2013. Our research team members then identified the companies among the top 2,500 that had experienced a chief executive succession event and cross-checked data using a wide variety of printed and electronic sources in many languages. For a listing of companies that had been acquired or merged in 2013, we also used Bloomberg.

Each company that appeared to have changed its CEO was investigated for confirmation that a change occurred in 2013, and additional details—title, tenure, gender, chairmanship, nationality, professional experience, and so on—were sought on both the outgoing and incoming chief executives (as well as any interim chief executives).

Company-provided information was acceptable for most data elements except the reason for the succession. Outside press reports and other independent sources were used to confirm the reason for an executive's departure. Finally, Strategy& consultants worldwide separately validated each succession event as part of the effort to learn the reason for specific CEO changes in their region.

To distinguish between mature and emerging economies, Strategy& followed the United Nations Development Programme 2013 ranking.

Total shareholder return data for a CEO's tenure was sourced from Bloomberg and includes reinvestment of dividends (if any). Total shareholder return data was then regionally market-adjusted (measured as the difference between the company's return and the return of the main regional index over the same time period) and annualized.

ments, she might spend time working for a mission-driven service organization such as Teach for America or an international NGO, or launching a new venture in an emerging market. In doing so, Melissa will be developing a worldliness and respect for the power of diversity that far outpaces what today's CEOs had at her age, and likely possess even now. A continued focus on learning and seeking experiences in unfamiliar settings will be critical throughout her career.

By the time more women like Melissa reach the CEO's office—and assume an increasing number of influential organizational positions generally—we can expect her employees to follow the behavior she models. In addition to the wide array of experiences female leaders will bring to bear on their position, a wealth of evidence suggests that they manage people differently than their grandfathers did. Given this, the office of tomorrow may well be less authoritarian, and more collaborative and balanced, than the office of today.

The Systems Approach

Melissa's empathy and emotional intelligence will come in handy, because her ability to work in teams will be crucial. If she was steeped in teamwork as a student, she will need to embrace it even more once she's in the top spot, given the importance of building distinctive, cross-functional capabilities. The CEO's role will be to integrate these capabilities, to ensure that everyone helps build and sustain them, and to keep everything working in a highly refined system.

It will behoove Melissa to have a broad understanding of systems, both human and technological. She'll be a master in her understanding of the way information flows. She will operate in complex and open environments where relationships between organizational elements and between companies, their partners, and a range of stakeholders will be more dynamic than ever.

Steeped in technology use from her early years, Melissa will be more comfortable with the fact that IT is deeply integrated into every experience than most present-day CEOs are, and she will be keenly interested in potential disruptions brought on by sudden changes in technology. She will understand how technology enables a reduction of scale and lowers barriers to entry—for both her own company's entry into new markets and competitors' entry into markets her firm dominates. Similarly, she will be expert in highly flexible digital business models. Human-centered design

WE ANTICIPATE AN IMPORTANT NEW ADDITION TO THE C-SUITE: THE CHIEF RESOURCE OFFICER.

will be a likely interest, and she will be on top of the latest waves of consumer technology and how they are shaping the way she engages with her customers. And she will learn how to pull insights from information in a more rapid and cohesive way than is possible today—even for those on the front lines of "big data."

A Changed Executive Suite

Melissa will lead an organization that is yet another significant grade flatter than anything we see today, because governance, regulatory compliance, and quality processes will become more automated and built into the everyday workings of the firm. Better decision-support systems, and a greater focus on company-wide capabilities, will make it much easier for information to reach Melissa than is the case for most of her peers today. It will also allow the team member closest to a given situation to deal with it directly. Employees at all levels will be more likely to know what to do, even in unanticipated situations.

To help run her company, Melissa will rely on a small but diverse group of people who share chemistry and understanding, like a well-tuned musical group. Members of this team will remain in close communication as advisors to the CEO in ways that go beyond their functional roles. If she has a particularly cohesive and high-functioning C-suite, several of its leaders may follow Melissa when she moves to a different company, perhaps even to several different companies if they are leaders in specialty firms.

Of course, a form of hierarchy will still have its place in 2040. Indeed, we anticipate an important new addition to the C-suite: the chief resource officer (CRO), whose role will be very different from anything existing now. The CRO will be responsible not only for human resources, but for all nonfinancial resources.

A combination of factors—the rising number of women in executive ranks, the high level of education and training among global employees, and the ability for people to work anywhere—may reduce the urgency of the war for talent. But the war for resources will be well under way as the effects of climate change shrink the availability of some crucial natural resources such as water, fossil fuels, clean air, and minerals, forcing companies to be more thoughtful about their strategies and approaches. (Over time, the price of resources will reflect their scarcity; the best companies will develop products and processes in a more sustainable way.) For this reason, measuring and counterbalancing the environmental costs of a company's footprint will become a regular practice. As the boss of the chief resource officer, Melissa will need to take more than a passing interest in these issues as well.

And just as we welcome the CRO, we will likely bid goodbye to the chief strategy officer by the time Melissa takes the corporate reins. No one but the CEO will be entrusted with ensuring ongoing alignment between the company's strategy and the unique capabilities that allow it to win in the marketplace. We will see something similar play out in business units. There will no longer be one group of people planning strategy and another group focused on execution. The same individuals will be responsible for both, and both will be driven by the company's few differentiating capabilities as defined and built by the company's leaders. And everything will roll up to the CEO, who, compared with today's top leaders, will be attuned to strategy in ways much more refined and specific.

(CFOs), whose role will be very different from anything — much more refined and specific.

We may also see the emergence of corporate capabilities officers who oversee those few crucial things that the company does uniquely well—its particular strength in innovation, customer insight, or supply chain—that provide the foundation for its successful strategy. These roles will vary by organization, depending on the firm's specific competitive strengths.

The Great Connector

With greater access to education throughout their careers and by being drawn from a richer talent pool, employees at all levels will be more skilled than today's employees. They will have earned specialized degrees and multiple certifications. (We are already seeing these trends today.) Melissa will have to relate to this workforce on a completely different level than CEOs of the past; she will be as apt to seek out a frontline employee's expertise as she is to provide clear direction herself.

For her company to be successful, Melissa will need to be more entrepreneurial, financially astute, and risk savvy than her predecessors. She will need to manage institutional and retail shareholders more actively and more carefully than most current CEOs do, because investors will be more impatient—not necessarily for short-term financial results, but because they want their voices to be heard. Having grown fully attuned to the age of transparency, investors will be even less forgiving of missteps and excuses than their increasingly exacting brethren today, and even more tuned in to the company's challenges. Investors will pay very close attention to Melissa's words and actions. Every eye and ear will be focused on her accountability and performance.

Responsibility to all stakeholders will be an ever more important part of the corporate profile. Regardless of whether existing regulations attempt to prevent her company from doing the wrong thing, Melissa will understand that it's too expensive to risk running afoul of employees, customers, suppliers, investors, NGOs, and social and environmental groups. Future employees, customers, and stockholders will not have patience with companies that merely pretend to have a social and environmental conscience.

Melissa will be managing all these relationships without the benefit of a chairman or a board—at least not as we know them today. Given the direct nature of her relationship with investors, in particular, and the high levels of accountability they will demand, the traditional governance structures of the corporation will have outlived their usefulness. Future governance models will be more diverse: Although the C-corporation will still exist in some form, other forms of governance will emerge that could obviate the need for a chairman, especially given the necessity for agility and transparency.

For all these reasons, Melissa's communication skills will be paramount. It's hard to imagine anyone reaching the corner office in 2040 who does not possess extraordinary listening, speaking, writing, and engagement abilities. The latest forms of social media, which will be the immediate tool of all constituencies regardless of age, will put Melissa in direct connection not just with investors but with the range of other stakeholders who want to hold management accountable—whether she likes it or not. With all these interests to manage, Melissa will need to act a lot less like the titans of 1914 or the modern men of 1964, and a lot more like the chancellor of a university, appealing to the hearts and minds of a broad array of constituencies both inside and outside the organization.

Preparing for the CEO's Future

In the preceding pages, we've attempted to paint a picture of the CEO's role through the decades—much of it admittedly speculative, but based on our long and deep understanding of the position and the underlying fundamentals driving change. Leadership has experienced an amazing evolution, and the road ahead is going to be less and less predictable. It will require every ounce of flexibility, emotional intelligence, and creative thinking that executives possess.

For today's leaders who are thinking about finding and grooming the bright young people who will one day succeed them, we recommend focusing on taking the broadest view of talent development. Look far and wide; support schools and programs that offer the best, most applicable experiences to tomorrow's leaders; offer the widest and deepest possible array of experiences to promising young people; encourage women; and focus on deepening bench strength in the special skills that the future leadership of your company requires.

If you are a young person in graduate school today, or just starting out on your career path, we hope that our vision of the near future serves as a useful starting guide. But beyond this, consider the picture we paint of 2040 as a source of inspiration for great challenges ahead. We encourage you to broaden and deepen your base of knowledge as much as possible, expand your networks, develop both hard and soft skills, and call on superiors and veteran colleagues for mentorship and guidance. Even though your world will be different from theirs—as it is for each generation—don't discount the wisdom of experience.

By the time you are ready to take on top leadership roles, the world may look something like what we've portrayed here, or it may be quite different. Our best advice is to prepare for the unknown. And the best way to do that is to get out of your comfort zone early and often. Embrace new experiences, both on the job and off; get yourself into as many foreign circumstances as you can—especially if they require new skills or foreign languages—and go meet your future.

And returning once more to the leaders of today: We hope you consider it your responsibility to help make this future happen. +

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Resources

Strategy&'s 2013 Chief Executive Study (strategyand.pwc.com/chiefexecutivestudy): The full report and data analysis of this year's study.

PwC's 17th Annual Global CEO Survey: Fit for the Future (PwC.com, Jan. 2014): The latest PwC Annual Global CEO Survey shows that the changes CEOs are making within their organizations now have less to do with sheltering from economic headwinds and more to do with preparing for the future.

Ken Favaro, Per-Ola Karlsson, and Gary L. Neilson, "Captains in Disruption," *s+b*, Summer 2013: How CEOs can anticipate the worst, plan a response, and navigate to advantage.

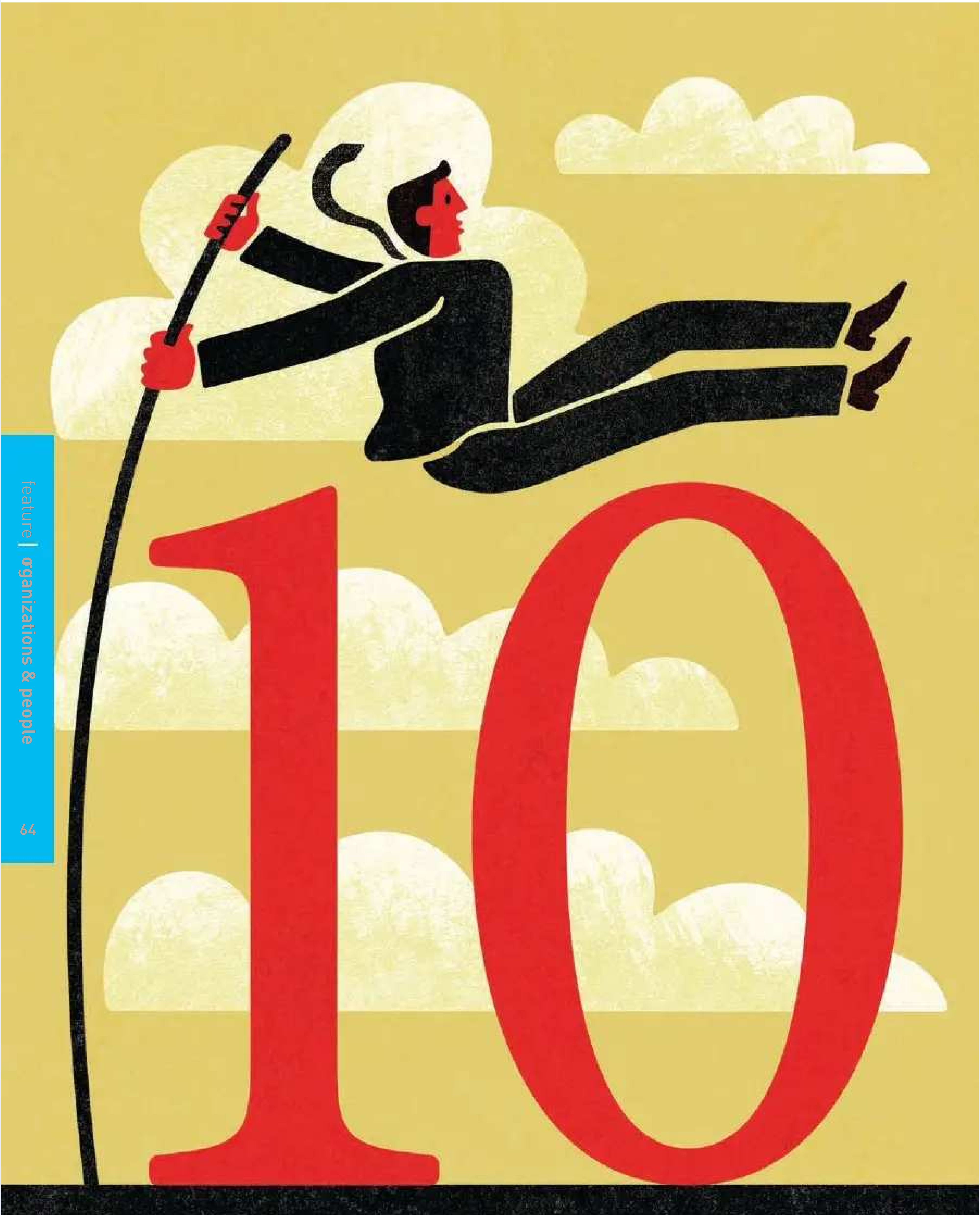
Jon Katzenbach and DeAnne Aguirre, "Culture and the Chief Executive," *s+b*, Summer 2013: CEOs are stepping up to a new role, as leaders of their company's thinking and behavior.

Theodore Kinni, "Rita Gunther McGrath on the End of Competitive Advantage," *s+b*, Spring 2014: The Columbia Business School professor says the era of sustainable competitive advantage is being replaced by an age of flexibility.

"The Right Time to Separate the CEO and Chairman Roles," *s+b*, Apr. 12, 2013: When performance is flagging, splitting the top jobs could well make sense—otherwise, don't rock the boat.

For more thought leadership on this topic, see the *s+b* website at: strategy-business.com/strategy_and_leadership.

roles, the world may look something like what we've



These time-honored tools and techniques can help companies transform quickly.

10 PRINCIPLES OF LEADING CHANGE MANAGEMENT

by DeAnne Aguirre and Micah Alpern

Since the mid-2000s, organizational change management and transformation have become permanent features of the business landscape. Vast new markets and labor pools have opened up, innovative technologies have put once-powerful business models on the chopping block, and capital flows and investor demand have become less predictable. To meet these challenges, firms have become more sophisticated in the best practices for organizational change management. They are far more sensitive to and more keenly aware of the role that culture plays. They've also had to get much better on their follow-through.

llustration by L o Cole

better on their follow-through.

DeAnne Aguirre
deanne.aguirre@strategyand.pwc.com
is a senior partner with Strategy& based in San Francisco. She is the co-leader of the firm's global Katzenbach Center and an expert in culture, leadership, talent effectiveness, and organizational change management. She advises senior executives globally on organizational topics.

Micah Alpern
micah.alpern@strategyand.pwc.com
is a senior associate with Strategy& based in Chicago and a member of the Katzenbach Center's operating team. He is an expert in culture transformation and organizational change management.

This article is a revision and update of "10 Principles of Change Management," by John Jones, DeAnne Aguirre, and Matthew Calderone, *s+b*, Summer 2004.

Also contributing to this article was *s+b* contributing editor Sally Helgesen.

Yet according to a 2013 Strategy&/Katzenbach Center survey of global senior executives on culture and change management, the success rate of major change initiatives is only 54 percent. This is far too low. The costs are high when change efforts go wrong—not only financially but in confusion, lost opportunity, wasted resources, and diminished morale. When employees who have endured real upheaval and put in significant extra hours for an initiative that was announced with great fanfare see it simply fizzle out, cynicism sets in.

Our experience with organizational change management suggests that there are three major hurdles to overcome. The first—no surprise—is "change fatigue," the exhaustion that sets in when people feel pressured to make too many transitions at once. A full 65 percent of respondents to the Katzenbach Center survey reported this as a problem. The change initiatives they suffered through may have been poorly thought through, rolled out too fast, or put in place without sufficient preparation. Fatigue is a familiar problem in organizational change management, especially when splashy "whole new day" initiatives are driven from the top.

Change initiatives also flounder, according to 48 percent of the respondents, because companies lack the skills to ensure that change can be sustained over time. Leaders might set out eagerly to raise product quality, but when production schedules slow and the pipeline starts looking sparse, they lose heart. Lacking an effective way to deal with production line problems, they decide their targets were unrealistic, they blame the production technology, or they accuse their frontline people of not being up to the task. A much better way to solve the problem is to invest in operational improvements, such as process design and training, to instill new practical approaches and give people the knowledge and cultural support they need.

The third major obstacle is that transformation efforts are typically decided upon, planned, and implemented in the C-suite, with little input from those at lower levels. This filters out information that could be helpful in designing the initiative while also limiting opportunities to get frontline ownership of the change. In the Katzenbach Center survey, 44 percent of participants reported not understanding the changes they were expected to make, and 38 percent said they didn't agree with the changes.

The following list of 10 guiding principles for change can help executives navigate the treacherous shoals of transformation in a systematic way.

1.

Lead with the culture. Lou Gerstner, who as chief executive of IBM led one of the most successful business transformations in history, said the most important lesson he learned from the experience was that "culture is everything." Businesspeople today understand this. In the Katzenbach Center survey, 84 percent said that the organization's culture was critical to the success of change management, and 64 percent saw it as more critical than strategy or operating model. Yet change leaders often fail to address culture—in terms of either overcoming cultural resistance or making the most of cultural support. Among respondents whose companies were unable to sustain change over time, a startling 76 percent reported that executives failed to operational improvements, such as process design and take account of the existing culture when designing the

ALTHOUGH IT'S IMPORTANT TO ENGAGE EMPLOYEES AT EVERY LEVEL EARLY ON, ALL SUCCESSFUL CHANGE MANAGEMENT INITIATIVES START AT THE TOP.

transformation effort.

Why would this be true, given the widespread recognition of culture's importance? Perhaps it's because change management designers view their company's culture as the legacy of a past from which they want to move on. Or they get so focused on structural details—reporting lines, decision rights, and formal processes—that they forget that human beings with strong emotional connections to the culture will be enacting these changes. Or they assume that culture, because it is "soft" and informal, will be malleable enough to adapt without requiring explicit attention.

Yet skilled change managers, conscious of organizational change management best practices, always make the most of their company's existing culture. Instead of trying to change the culture itself, they draw emotional energy from it. They tap into the way people already think, behave, work, and feel to provide a boost to the change initiative. To use this emotional energy, leaders must look for the elements of the culture that are aligned to the change, bring them to the foreground, and attract the attention of the people who will be affected by the change.

In two healthcare companies undergoing a merger, culture led the post-deal integration. Using a culture-related diagnostic questionnaire, the change management team asked people to describe each company's operating style—and mapped the responses from the two legacy companies to get a sense of their combined strengths and challenges. It quickly became clear that where one company had a culture attuned to bottom-line results, the other tended to focus on process. Optimally, the new company would need to skillfully use processes to deliver clear results. By first taking the time to recognize and acknowledge each company's underlying culture, leaders of the merged firm harnessed deeply ingrained strengths to energize the change and avoided the incoherence that could have resulted from a less intentional and sensitive redesign.

2.

Start at the top. Although it's important to engage employees at every level early on, all successful change management initiatives start at the top, with a committed and well-aligned group of executives strongly supported by the CEO. This alignment can't be taken for granted. Rather, work must be done in advance to ensure that everyone agrees about the case for the change and the particulars for implementing it.

A clinical research firm was committed to tripling its size over the next decade to achieve a more competitive position. Because the company was still pretty much operating as a startup after 25 years, this required a far-reaching organizational redesign. Before starting the design phase, finance leaders gathered at an off-site meeting to begin a rigorous exercise in alignment. The exercise included a leadership team effectiveness survey, which revealed that though these leaders called themselves a team, they didn't really see themselves that way. Instead, they mostly operated as lone rangers, in characteristic startup style.

Each of the executives in the group made a thoughtful individual presentation about the case for change. Most of them agreed on the general direction the company needed to take to achieve rapid growth. But their processes to deliver clear results. By first taking the time

descriptions of how to move in that direction—for ex-

FRONTLINE PEOPLE TEND TO BE RICH REPOSITORIES OF KNOWLEDGE ABOUT WHERE POTENTIAL GLITCHES MAY OCCUR.

ample, what the first concrete steps should be—were all over the map. They were then tasked to work together to develop a case for change that every one of them could support.

To hammer out these agreements, these top executives had to listen closely to their colleagues and weigh conflicting points of view. The exercise was demanding, but they began to coalesce around a coherent vision for what the company should look like in 10 years. Most importantly, the experience of working together so intensely led the executives, for once, to act as a collaborative and committed team. By the end of the offsite meeting, they found that they were all using the same language to describe what the company needed to do. As one participant noted, the experience had transformed *him*, which in turn gave him confidence that together they could cascade the plan to other groups at other levels of the hierarchy.

3.

Involve every layer. Strategic planners often fail to take into account the extent to which midlevel and frontline people can make or break a change initiative. The path of rolling out change is immeasurably smoother if these people are tapped early for input on issues that will affect their jobs. Frontline people tend to be rich repositories of knowledge about where potential glitches may occur, what technical and logistical issues need to be addressed, and how customers may react to changes. In addition, their full-hearted engagement can smooth the way for complex change initiatives, whereas their resis-

Planners who resist early engagement at multiple levels of the hierarchy often do so because they believe that the process will be more efficient if fewer people are involved in planning. But although it may take longer in the beginning, ensuring broad involvement saves untold headaches later on. Not only does more information surface, but people are more invested when they've had a hand in developing a plan. One common aphorism in change management is "you have to go slow to go fast."

IBM recognized the need for such an approach in 2003, when rolling out a new initiative on culture. The leadership team had met intensively to develop clear definitions of the cultural traits the organization would require going forward. They then declared a "values jam," a website set up for a 72-hour period, where anyone in the company could post comments, responses, suggestions, and concerns. Leaders then made key changes based on the feedback they received and communicated clearly how the input they'd received was being incorporated.

4.

Make the rational and emotional case together. Leaders will often make the case for major change on the sole basis of strategic business objectives such as "we will enter new markets" or "we will grow 20 percent a year for the next three years." Such objectives are fine as far as they go, but they rarely reach people emotionally in a way that ensures genuine commitment to the cause. Human beings respond to calls to action that engage tance will make implementation an ongoing challenge. their hearts as well as their minds, making them feel as

if they're part of something consequential.

Hewlett-Packard CEO Meg Whitman and her senior executive team appear to be following this principle in their transformation efforts. They have sought to activate a strong personal connection between HP and its employees, by drawing directly on the company's cultural history and traditions. For example, through symbolic gestures such as tearing down the fences that surrounded the executive parking lot and moving top executives into cubicles, the company has reinforced the original "HP Way" ethic in which the intrinsic quality of the work is as important as one's position in the hierarchy. (Whitman tells this story in an April 2013 LinkedIn blog post, "The Power of Transparent Communication.") This strategy contrasts with that of Whitman's immediate predecessors, who had declared it was time for the company to abandon its core identity. In any organization facing a challenging environment, the emotional connection fostered by moves like these is likely to make a major difference.

5.

Act your way into new thinking. Many change initiatives seem to assume that people will begin to shift their behaviors once formal elements like directives and incentives have been put in place. People who work together on cross-functional teams will start collaborating because the lines on the chart show they are supposed to do so. Managers will become clear communicators because they have a mandate to deliver a message about the new strategy.

Yet lines on a chart and bold statements of intent have only so much impact. Far more critical to the success of any change initiative is ensuring that people's daily behaviors reflect the imperative of change. Start by defining a critical few behaviors that will be essential to the success of the initiative. Then conduct everyday business with those behaviors front and center. Senior leaders must visibly model these new behaviors themselves, right from the start, because employees will believe real change is occurring only when they see it happening at the top of the company.

Leaders of a major global manufacturer seeking to escape bankruptcy believed the company had lost touch with customers because of entrenched problems in its culture. Managers operated in an overly layered sys-

ous, risk averse, insular, and prone to spending time on approvals and office politics. Instead of implementing a dramatic, full-scale turnaround, the change team demanded that leaders adopt three specific behaviors:

- Make major, visible decisions in days instead of weeks or months.
- Spend time with people at the frontline leadership (supervisory) level, asking for their input and engaging them in frank discussions.
- Ensure the middle and lower ranks have direct contact with real-life customers.

Because these behavioral shifts were both limited and clearly spelled out, they were implemented quickly. Leaders were asked to act "as if" the organization did things this way, rather than trying to think their way out of old ways of being. These behaviors accelerated the company's passage out of bankruptcy, which occurred ahead of schedule.

6.

Engage, engage, engage. Leaders often make the mistake of imagining that if they convey a strong message of change at the start of an initiative, people will understand what to do. Nothing could be further from the truth. Powerful and sustained change requires constant communication, not only throughout the rollout but after the major elements of the plan are in place. The more kinds of communication employed, the more effective they are, which is why HP's tearing down that fence was so important: Symbols reinforce the impact of words.

A global publisher undertook a major initiative to become more digital, putting in place far-reaching structural changes. The top leaders decided to engage people throughout the company at a variety of levels. First, they convened a series of town halls where large groups were given the news and invited to ask how the company-wide shift would affect them. Executives followed this with function-wide meetings where people tem without much accountability. They were ponder- could learn, for example, about the prospective impact

PERSUADING PEOPLE TO CHANGE THEIR BEHAVIOR WON'T SUFFICE FOR TRANSFORMATION UNLESS FORMAL ELEMENTS ARE REDESIGNED TO SUPPORT THEM.

on finance or human resources. The company also offered a version of fireside conversations they called "PIE chats" (PIE stood for performance, innovation, and execution). Finally, an internal trade fair was planned to showcase what various teams were doing to make the company more digital. This multifaceted and ongoing communications effort kept the message alive, giving every employee an understanding of the change and a stake in the outcome.

7.

Lead outside the lines. Change has the best chance of cascading through an organization when everyone with authority and influence is involved. In addition to those who hold formal positions of power—the company's recognized leaders—this group includes people whose power is more informal and is related to their expertise, to the breadth of their network, or to personal qualities that engender trust.

We call these informal leaders "special forces." They can be found throughout any organization. They might include a well-respected field supervisor, an innovative project manager, or a receptionist who's been at the firm for 25 years. Companies that succeed at implementing major change identify these people early and find ways to involve them as participants and guides. There are three distinct kinds of informal leaders:

- **Pride builders** are great at motivating others and inspiring them to take pride in their work. People influenced by them feel good about working for the organization and have a desire to go above and beyond.

tories of the organization's culture. They are the ones approached by people who want to know what's really happening in the organization—for example, when they're trying to figure out if those leading a change initiative are actually going to follow through.

- **Change or culture ambassadors** know, as if by instinct, how to *live* the change the organization is making. They serve as both exemplars and communicators, spreading the word about why change is important.

Informal leaders must be identified before they can be engaged. The best way to do this in a large organization is to run a network analysis. By mapping out connections and seeing who people talk to, you can complement the formal org chart with one that enables you to lead outside the lines.

8.

Leverage formal solutions. Persuading people to change their behavior won't suffice for transformation unless formal elements—such as structure, reward systems, ways of operating, training, and development—are redesigned to support them. Many companies fall short in this area.

A law firm tried to professionalize its clubby culture, which clients perceived as inwardly focused. The lead partner group recognized that associates needed more formal mentoring and development. The existing system, in which partners who headed the practice groups conducted all the training, had led to uneven results. So the transformation team created a development committee and put out a call for

• **Trusted nodes** are go-to people. They are reposi- experienced staff members willing to work with new

hires. The team was delighted when a strong group of contributors volunteered and put in the time required to design a robust development program and start engaging associates.

After a strong start, however, the effort faltered; people who had been enthusiastic fell away. Debriefing those involved, leadership identified the problem: No formal mechanisms were in place to support or reward this participation. Calculations for bonuses left development work out of the equation, and although senior partners paid lip service to the "wonderful work" the development committee was doing, they seemed to regard its members as internal volunteers. Once they recognized this problem, the firm's leaders enacted substantial policy changes, starting with a mechanism the compensation committee could use to take into account the contributions made by those who trained others.

9.

Leverage informal solutions. Even when the formal elements needed for change are present, the established culture can undermine them if people revert to long-held but unconscious ways of behaving. This is why formal and informal solutions must work together.

A top-tier technology company was trying to inculcate a more customer-centric mind-set after a decade focused on relentlessly cutting costs. Survey diagnostics revealed significant customer dissatisfaction with the quality of the company's products, which were too often released into the marketplace with significant flaws. A set of new procedures was put in place along with metrics to identify gaps in product development, process quality controls, and cross-teaming at the front lines.

But one of the most powerful solutions was purely cultural and informal—changing the informal motto that governed frontline decision making. The slogan of the cost-cutting era, "Ship by any means," was replaced by a new aphorism: "If it's not right, don't ship it." Pride builders were enlisted to instill the message that everyone needed to prevent flawed products from going out, even if that meant pulling products apart to check them or slowing down production. By asking people at every level to be responsible for quality—and by celebrating and rewarding improvements—change leaders were able to create an ethic of ownership in the product and

10.

Assess and adapt. The Strategy&/Katzenbach Center survey revealed that many organizations involved in transformation efforts fail to measure their success before moving on. Leaders are so eager to claim victory that they don't take the time to find out what's working and what's not, and to adjust their next steps accordingly. This failure to follow through results in inconsistency and deprives the organization of needed information about how to support the process of change throughout its life cycle.

A global consumer products company had made a far-ranging commitment to lowering costs. Leaders designed a robust change template and implemented it widely; the metrics indicated that they were succeeding. But the company wanted to be sure that people understood the ongoing nature of this commitment. So they rolled out a series of pulse surveys and convened focus groups to describe the case for change and the new behaviors required of everyone.

The first round of surveys found that only 60 percent of respondents understood the message. The company then called on informal leaders to play a bigger role in evangelizing for the initiative. They continued to run these surveys and focus groups to measure the result until a more sizable majority of the staff had shown they were prepared.

These 10 guiding principles offer a powerful template for leaders committed to effecting sustained transformational change. The work required can be arduous and exacting. But the need for major change initiatives is only going to become more urgent. It behooves us all to get it right. +

Reprint No. 00255

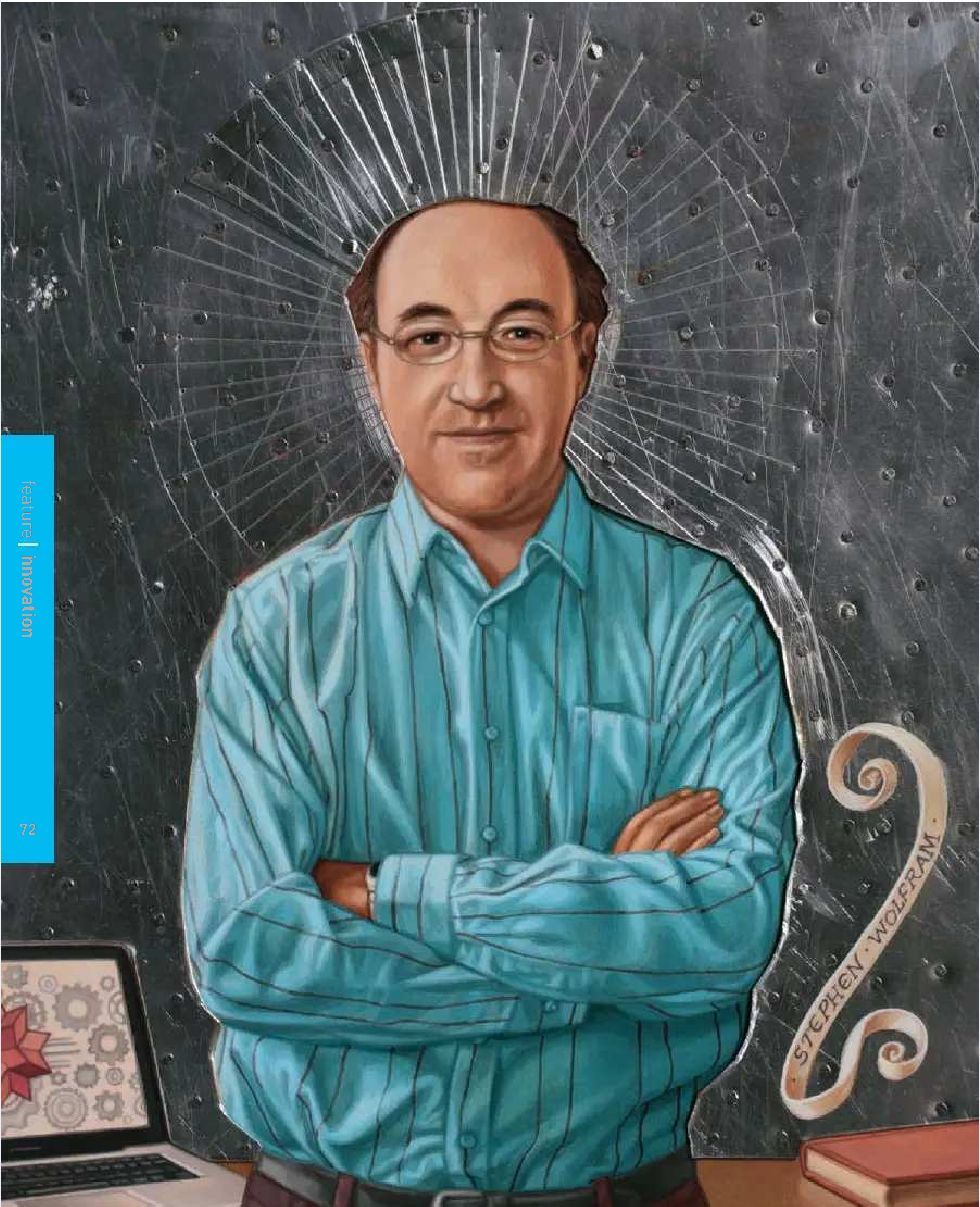
Resources

Jon R. Katzenbach, Rutger von Post, and James Thomas, "The Critical Few: Components of a Truly Effective Culture," *s+b*, Spring 2014: Putting the best elements of your culture to work in favor of change.

Don't Blame Your Culture (strategy-business.com/digital-mobile-products): This app includes groundbreaking articles on organizational culture, redesigned exclusively for tablet and e-book reading.

For more thought leadership on this topic, see the *s+b* website at: strategy-business.com/organizations_and_people.

vanquish the old ethic: "We just do what we're told."



by Jimmy Guterman

The physicist, author, and software entrepreneur has high expectations of pretty much everything and everyone.

STEPHEN WOLFRAM'S WORLD-CHANGING PLANS

Stephen Wolfram doesn't blog much, but when he does he makes it count. On November 13, 2013, Wolfram sat down at his Mac and promised that the new computer language he created would be his "most important technology project yet."

All bloggers are in the business of self-promotion. But those were particularly strong words coming from a man who has already invented many of the underpinnings of today's revolution in technical computing. Indeed, in his lengthy blog post announcing the "Wolfram Language," Wolfram produced what Paul Kedrosky of the Kauffman Foundation called "one of the most entertainingly hubristic product semi-announcements ever." But Wolfram doesn't do small. As an inventor and businessman, he has a history of making big bets—and covering them. His announcement may have been a boast, but it was not an empty one.

Illustration by Marco Ventura

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Jimmy Guterman
jimmy@guterman.com
is editorial director of Collective Next. Previously he was senior editor of *Harvard Business Review* and executive editor of *MIT Sloan Management Review*. He's @jimmyguterman on Twitter.

The 55-year-old Wolfram is best known for his technical achievements. He's the founder, president, and CEO of the privately held Wolfram Research. The company publishes his computational software program Mathematica, which has become the standard for technical computing and is broadly deployed across scientific, engineering, mathematical, and computing fields. Mathematica, the program that made Stephen Wolfram's fortune, is the VisiCalc of math programs. It changed the way scientists and mathematicians use math on their computers in many of the same ways that spreadsheets helped expand how people could manage businesses—making mathematical work on PCs both more powerful and easier. But, significantly, unlike VisiCalc, Mathematica has not been rendered redundant by its descendants. More than 25 years after its introduction, it continues to be a standard, particularly in academia. It remains a rich, open-ended environment in which a vibrant ecosystem of add-ons and consultants flourishes.

Wolfram Research also publishes Wolfram|Alpha, a computational knowledge engine that directly addresses factual inquiries by computing the answer from a range of external resources, rather than providing a list of links that *might* contain the answer, as you would expect from a standard search engine. Wolfram|Alpha serves as the "factual" back end to Apple's Siri (as well as part of Microsoft's Bing and the independent search engine DuckDuckGo). It powers a personal analytics engine for Facebook and is embedded in The Elements, one of the first apps that showed what an iPad could do. It includes manifold sources, such as the CIA's World Factbook and the CrunchBase database of technology 10,000 CPUs. Some of the data sets are automatically generated, while others are curated and corrected by humans. The end result, written in more than 15 million lines of Mathematica code, helps people find unexpected, and sometimes powerful, connections across multiple databases.

Wolfram Research, which today has about 400 employees, has thrived for 26 years (Mathematica and its extensions remain the core business of the company), even when Wolfram himself went on a nearly decade-long semi-sabbatical to research and write a 1,192-page book not-so-humbly titled *A New Kind of Science* (Wolfram Media, 2002). (He characterized himself as an engaged but emphatically part-time CEO during that time.) The book, which has spawned many high-profile and energetic advocates—and no small number of critics—argues that the simplest of programs underlie our most complex universes. When Wolfram was looking for luminaries to write blurbs for *A New Kind of Science*, his longtime friend Steve Jobs advised him against that approach, in typical Jobsian terms. "Isaac Newton didn't have back-cover quotes," Jobs told Wolfram. "Why do you want them?"

The arguments in *A New Kind of Science* are profoundly iconoclastic and aim to change the world at an Isaac Newton level. The basic premise is that simple rules that work like basic computer programs can lead very quickly to surprising complexity. If our traditional understanding of science comes primarily from engineering and mathematics, Wolfram's argument revolves around the idea that computing can explain more about the complexity of our world than those two disciplines alone. Indeed, he seems to believe that think-companies, and is so large that it runs across more than ing of everything as a computer program is the path str

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to understanding. He questions some basics of modern science, arguing, for example, that natural selection is not the primary cause of complexity in biology, and that the second law of thermodynamics might have an exception. From Wolfram's vantage point, computing isn't just a way to learn more about engineering and mathematics; it's a fundamental and new way of looking at how science works—and how our world works. The initial work Wolfram did on the topic has certainly entered into the scientific mainstream—his research in the 1980s in cellular automata, a once-obscure branch of physics, has been cited in more than 10,000 academic papers—but it's as yet unclear whether those mostly accepted notions can be extrapolated to explain what Douglas Adams once called "life, the universe, and everything." Everything, *A New Kind of Science* argues, from the cellular level to the whole universe, runs like a computer program, deriving increasing complexity from the simplest of rules. By looking at the universe that way, he says, we can comprehend it as it really is.

Regardless of how Wolfram's arguments are or aren't integrated into the scientific canon over the decades to come, what many outside the academy find most impressive about *A New Kind of Science* is its audacity. Wolfram performed his work more or less independently, outside the mainstream of scientific research; he published the volume himself; and his work has been covered by the general press with an intensity that many serious scientists might have trouble imagining. Yet the tone of the book can be off-putting; Chris Lavers, in the *Guardian*, characterized *A New Kind of Science* as "the most arrogant piece of science writing I have ever read." Indeed, Wolfram's book starts off at small thinking: "Three centuries ago science was transformed by the dramatic new idea that rules based on mathematical equations could be used to describe the natural world. My purpose in this book is to initiate another such transformation, and to introduce a new kind of science that is based on the much more general types of rules that can be embodied in simple computer programs."

Many critiques of *A New Kind of Science* have focused on Wolfram's extrapolations from his work (he believes his findings are relevant not only for hard sciences but also for social sciences) and the unusual interest it has engendered outside the academy. It's not just Wolfram's conclusions that are unexpected; it's also his methods. And such can be said for Stephen Wolfram himself, as a scientist and as a manager.

Indeed, the practices Wolfram the man uses to lead Wolfram the company are anything but conventional. He's best known for his technical discoveries, but his most ingenious invention may turn out to be a successful company that he built around his own idiosyncrasies: his decisions about where to work, when to work, how to work—in a nutshell, his insistence on building a corporate culture that behaves a lot like he does.

Managing Smart

Conventional wisdom about leadership says that you shouldn't act like you're the smartest guy in the room. But how can you do this successfully if you *are* consistently the smartest guy in the room? Wolfram received his Ph.D. in theoretical physics from the California Institute of Technology when he was 20, two years before he became, at the time, the youngest-ever recipient of a full speed, aiming to crash through any accusations of MacArthur Fellowship (in 1981).

Actually, working with Wolfram doesn't so much entail dealing with someone who's the smartest guy in the *room* as it does dealing with someone who's the smartest guy on the *phone*. Wolfram Research is based in Champaign, Ill., but its staff members are distributed around the globe, and Wolfram runs the company from his home north of Boston, with only infrequent visits to the headquarters.

Wolfram is a fascinating presence on the conference calls he uses many times a day to supervise the business of Wolfram Research. The five such calls that I sat in on included some low-key project kickoff calls in which Wolfram indulged his curiosity, speculated on what was possible, and paused to see who could add to his insights. There were also middle-of-the-project calls in which the messiness of software development was apparent and Wolfram wasn't shy about creating a sense of urgency to get past it. During one call, he dismissed a key feature of a program ("That's amusing, but that's not top of mind"); in another, he dismissed someone who advocated an approach he wasn't sold on ("No, let me explain what's relevant here"). That blunt delivery can cut both ways: A subordinate had no trouble asking his boss, quite directly, "Do you understand what I just said?" But it's always clear who gets to decide. And it wasn't surprising to hear that the more Wolfram talks, the more technical the conversation gets, even if the call is ostensibly about marketing.

"Listening to those calls must have been a curious spectator sport," Wolfram said a few weeks later during an early-evening meeting in a conference room at his home. "I've spent more than a quarter of a century finding people who I think are really smart. Maybe I have more experience than they have overall, but in particular areas I certainly hope that they're smarter than me. The only thing that goes wrong sometimes is when there's somebody who isn't really getting it and they're wasting a bunch of time for the 10 other people who are in the meeting."

"Getting what the boss wants is crucial for success at Wolfram Research, a company where Wolfram is the founder, namesake, and primary inventor. "My approach is very straightforward. I just tell people what I think, good or bad. I think people ultimately appreciate that because sometimes they've done something that wasn't very good and I tell them that it's not very good. Then they redo it or whatever, and it's actually good."

It's not just his technical expertise that makes Wolfram the smartest guy on the phone, according to Samer Diab, the chief operating officer of Wolfram Solutions, the company's consulting operation. "Someone like me is capable of managing 20 to 25 people," he says. "The great executives I've worked with in the past max out around 150 people [about whom] they know to a detailed level what is happening. More than that and they need a management structure to keep up. Stephen is different. He has reached the ability to manage 600 people reasonably closely even if they're not direct reports, and we haven't found his maximum capacity yet. In five to 15 minutes, Stephen can ingest what's happening with a group and then rapidly move to conclusions and offer advice and direction."

Diab thinks his working relationship with Wolfram is different from the relationships Wolfram has with those in technology-oriented roles. "He does not inject himself into my operation like he does technology and development," Diab says. "I talk with him to get the advantage of his brainpower. I tell him the problems our customers are facing and we discuss what groundbreaking ideas can we offer them. I absorb like a sponge while his brain does what his brain does. Then I go off and run my organization."

Building on a Founder's Vision

Not everyone can excel in an environment where an idiosyncratic leader is playing a short and a long game simultaneously. Wolfram has a portfolio of R&D projects that range from one (Wolfram|Alpha) that refreshes weekly to one that won't have an impact, if it ever does, for a generation—as the theory of *A New Kind of Science* succeeds, fails, or is amended in the marketplace of science ideas.

And yet all those projects are meant to be complementary. Wolfram said that he started Wolfram proach, which maybe not everybody agrees with, is that Research in 1986 to "build tools I knew I would need."

When you look at his three major public achievements prior to the just-announced Wolfram Language—Mathematica, *A New Kind of Science*, and Wolfram|Alpha—you can see how the different products are enabled by, and improve, one another:

• Wolfram created Mathematica to build a foundation for *A New Kind of Science* research. It became a successful business on its own, to be sure, but Wolfram had a different motive for constructing the program. And one of his primary means of evangelizing for his *New Kind of Science* ideas is a summer school in which students test and expand the theory using Mathematica.

• Wolfram|Alpha is a product that its creator sees as having been made possible by *A New Kind of Science* theory, employing that system's ideas about combining and retrieving information to create the only search engine rich enough to complement Google's (although Wolfram detests it when someone refers to Wolfram|Alpha as a mere "search engine").

• Recent versions of Mathematica integrate Wolfram|Alpha so people can run real-time Alpha searches from inside Mathematica-created programs. It works the other way around as well—snippets of Mathematica code can be used as input in Alpha.

Each success is built on and adds value to previous ones, such that each now feels like a building block in Wolfram's larger and still-evolving vision. And building blocks, of course, are made to be combined. Little more than a week after he announced the Wolfram Language, Wolfram returned to his blog to reveal that the language, as well as Mathematica, would be bundled with the system software for the Raspberry Pi—the device du jour for young hardware hackers. (He hopes this will get his ideas into the hands of the next generation of tech geniuses.) It's still unclear the specific ways in which the new Wolfram Language differs from the existing Mathematica language; we'll see when it's released and inspected.

Most recently, Wolfram has launched a connected devices project with the aim not only of collecting knowledge about a plethora of smartphones and tablets, but also of serving as the platform on which the data in those devices can be shared and analyzed—by programs like Alpha.

Since Wolfram's various initiatives are so closely linked, it's important for the company to find and develop people who can hold the different parts of the founder's vision in their head simultaneously. "Getting

"But, sadly, these days I don't do that much frontline interviewing. When I did more of that, we'd talk to the person for a while about all kinds of things and we could tell whether they were capable of expressing themselves, or whether they were bullshitting. We've found that as long as people can say what they think and be straightforward and so on, it usually works."

Perhaps as the company continues to grow, Samer Diab's depiction of Wolfram as an all-knowing leader intimately connected to all his people and their work will get more complicated, especially since Wolfram is no longer an active part of every hire at his company. And these days, a new Wolfram employee's development may take a while, regardless of who shepherds that person through the hiring process. "Sometimes, managers tell me that a person is good but not ready to be in a meeting with me yet," Wolfram says. "Many times, in a meeting, I'll ask who knows about something. If the person who's supposed to know about it doesn't actually know anything about it, it usually turns out badly."

What kind of person *can* thrive in such an environment? Cliff Hastings started at Wolfram Research 16 years ago, doing tech support and driving something called the MathMobile, which he brought to universities and colleges so he could demo Mathematica. He's now the company's director of sales and strategic initiatives. Hastings identifies the shared characteristics of people who have succeeded there for a long time: They're unequivocally Type A. They know Wolfram's products and technology backward and sideways. And when hiring, he says, "we look for a person more than someone who can fill a role. A special person will move beyond the job they were hired for, and a passion for the company turns into passion for a job you helped create. Many of the people we bring in [are hired] because they've expressed enthusiasm for one part of what we do. Then they come in and get even more excited about something else. It's all connected, though. You'd figure that someone excited about Mathematica would also be excited about Alpha."

Wolfram agrees that hiring the right people can lead to good surprises—even if it sometimes takes a long time for those surprises to materialize. "One of the more bizarre things that's happened in the history of our company is this thing where I'll hire talented people and then I'll realize I'm not really quite sure what this person's going to do for us. Sometimes they'll be floating around for several years. Well, there are a few things the right talent is important," Wolfram acknowledges. they can do here and there, but there's no really strate-

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gic thing they can do. Then I'll suddenly realize, gosh, there's this new project we're doing, and this person is the ideal person to be a key figure in that. There are two dynamics. First, you have talented people; then you figure out, as part of the role of management, how to connect these talented people with a project that actually needs to be done."

Identifying connections is clearly a theme with Wolfram—between products, between people and products, and between people, products, and the whole of the company. "The number one thing I probably contribute is making connections to other things," he says. "As a CEO, I get different people in different parts of our company to learn about what's happening in other parts of the company. It's somewhat successful, but ultimately I'm usually the one who has to tell people to make this or that connection."

Staying Connected Remotely

Wolfram Research would be a different company if its leader worked regularly at the main office in Champaign. (Wolfram was formerly a professor at the University of Illinois.) "I did live there for the first few years of the company," he says. "But I like the concept of people being able to live wherever they want. The whole company is very distributed. I think it's rather healthy that people are not all on top of each other all the time."

Wolfram travels from the Boston area to Champaign at least three times a year and some random additional times, but not for very long. "I was there last week and I was only there for two days. I was going nuts, because I said there isn't enough for me to do here. I can sit in my office and do the same readings I

20-something years ago, there were a couple of issues. One was that people would just wander in and say, 'Oh, by the way, can I talk to you about this?' And it turned out they didn't need to *talk* to me about that. It would have been much better if it was in an email. Then I can process it in an organized way. If they want to have a meeting, they schedule a meeting. I feel vastly more efficient when I'm working remotely than I do when I'm on site."

What does feel efficient to Wolfram is his rather unusual working regimen. "I have a pretty precise schedule," he says. He works from 11 a.m. to 6 p.m., breaks until 8:30 p.m., and then works until 2:30 a.m. It's a 13-hour workday, and he says it rarely varies. (Our two-hour meeting at his home took place during his usual break time.)

That long day with a break in the middle makes it easier for Wolfram to communicate with executives across many different time zones. Luc Barthelet is executive director of Wolfram|Alpha, and he is based in California. "Stephen and I spend several hours a week on the phone," he says. "We have a one-to-one every Monday evening. Well, it's evening for me. It's the middle of the night for him. When I'm going to talk to him, I have to tighten my seat belt. Stephen spends 80 percent of his awake time in conversations. That's how he thinks. He needs to speak to someone to get ideas. He needs to speak. We don't have meetings where he just listens. He doesn't just absorb."

The remote nature of work for many in Wolfram Research suits Barthelet fine. "I feel like I have an extra day of the week because I'm not commuting," he says. "I don't know why [working from home is] not more would do anywhere else. When I lived there more than widely used. It offers dramatically higher productivity.”

Optimizing for Eureka

Wolfram’s audacity is both one of his greatest selling points and one of the most commented-upon aspects of his public image. In an 8,000-word review of *A New Kind of Science*, Ray Kurzweil, no stranger to hubristic enterprises himself (he’s working on ways to live forever), notes, “I find Wolfram’s enthusiasm for his own ideas refreshing,” even if he concludes that “Wolfram’s sweeping and ambitious treatise paints a compelling but ultimately overstated and incomplete picture.” For his part, Wolfram has been refining his theory and encouraging research into its ramifications. Indeed, Wolfram considers the controversy over his theory a leading indicator of eventual success. He says, “The best predictor of a paradigm shift’s success [over the] long term is how upset it makes people.”

Although projects like *A New Kind of Science* and creating a new kind of computer language may seem like swing-for-the-fences projects, Wolfram says he doesn’t view them that way. “I don’t see myself as particularly ambitious. I’ve been lucky enough to be able to do some things that have been reasonably successful. Once you’ve done that, you realize, ‘This is fun, I might as well do more of this.’ For me, with my particular psychology, I’m thinking, ‘I’m doing something that nobody else is going to do.’”

Wolfram may seem disingenuous, declining to characterize himself as ambitious, trying to seem cordially modest to an interviewer. Yes, he’s enormously confident of what he’s accomplished and he’s delighted by the work he gets to do, but he sees himself as only “reasonably successful.” In his mind, he’s just getting started. He’s still hungry. And, perhaps more than anything else, Wolfram wants to be right: about his business, about what his products can do, about the new kind of science he believes he has discovered. Chris Anderson, who curates the TED conference and has hosted Wolfram as a speaker, gets close to the core of how Wolfram’s advocates see him when he says, “Just because Wolfram has an ego doesn’t mean he’s wrong.”

Wolfram says that keeping Wolfram Research as a privately held firm is the best decision he ever made as Wolfram graded his company this way: “I’d give us an A+ in technology and R&D, but maybe a B or C in business.” When reminded of this, Wolfram says, “It’s a question of what one is trying to optimize. For me, I would say that probably since that time we have improved the business side of the company. Because we’re not public, we don’t make as much money as we might, but I’m the one who loses the most [because of that], and it’s my decision. I do feel an obligation to my employees to give them an environment where enough money is being made that they can do well. But you can optimize things to maximize the amount of money that the company makes, and we definitely have not done that.”

What Wolfram has done, though, is build a company focused on identifying big problems and going at them without restraint. “It’s been a very positive thing here, being able to motivate people to work on what seemed like impossible projects. In many situations, you get in some meeting and somebody will say, ‘There’s 30 years’ worth of literature about this and it’s still an unsolved problem.’ At that point, the group might say, ‘Forget it, that’s just hopeless.’ At least we’ve managed to develop a culture where people say, ‘Great, let’s try and solve this.’ The thing that’s really interesting is how often one can.” +

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Resources

John Koetsier, “Sentient Code: An Inside Look at Stephen Wolfram’s Utterly New, Insanely Ambitious Computational Paradigm,” VentureBeat, Nov. 29, 2013: What’s behind the “amazing” Wolfram Language.

Carly Page, “Wolfram Alpha Will Soon Be Able to Read Your Mind,” *The Inquirer*, Mar. 11, 2013: A report on Wolfram’s 2013 South by Southwest presentation in which he predicts that the company’s analytics engine will soon work preemptively, meaning it will be able to predict what its users are looking for.

Stephen Wolfram, “Computing a Theory of Everything” (video), TED.com, Apr. 2010: Wolfram discusses “the single biggest idea that’s emerged in the past century”: computation.

Stephen Wolfram, “The Personal Analytics of My Life,” *Wired*, Mar. 8, 2012: “One day I’m sure everyone will routinely collect all sorts of data about themselves,” Wolfram writes. “But because I’ve been interested in data for a very long time, I started doing this long ago.”

For more thought leadership on this topic, see the *s+b* website at: strategy-business.com/innovation.

CEO. At a technology conference in Boston in 2010,

strategy-business.com/innovation.

MAKING BETTER DECISIONS OVER TIME

by Phil Rosenzweig

The technique of deliberate practice can dramatically improve performance, but knowing its limits is as important as understanding its value.

Managers make a wide range of decisions, from routine calls they face on a recurring basis, to large-scale strategic decisions they may encounter just once in their careers. For issues that are often repeated, the technique of *deliberate practice*—which involves action, feedback, modification, and action again—is a powerful way to boost performance. The technique works when a decision is part of a sequence, in which feedback from one part can improve the next. Not all decisions work in this manner, however. Knowing the difference is crucial.

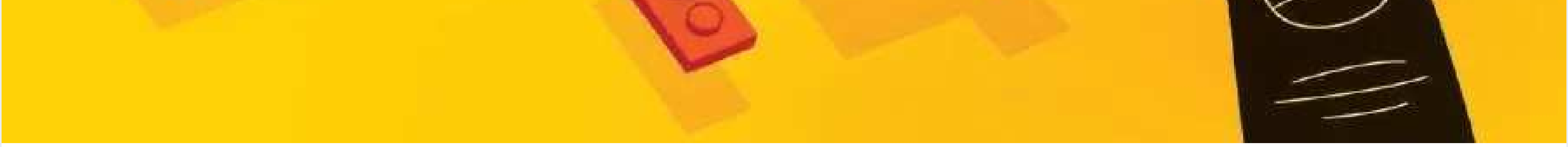
To see how deliberate practice works, let's start by looking at an activity that takes just a few seconds: good test of pure shooting skill. The task is the same for everyone: tossing a ball, nine and a half inches in diameter, through a hoop 18 inches wide, placed 10 feet off the ground, from a distance of 15 feet. That's not exactly threading a needle, but it's close. There isn't a lot of margin for error. Furthermore, as with striking a golf ball, performance is entirely up to you. You're not predicting what someone else will do; it's up to you to throw the ball through the hoop.

During the 2011–12 season, National Basketball Association teams attempted an average of 22.5 free throws per game. The Oklahoma City Thunder made

stration by Harry Campbell

shooting a free throw in basketball. Free throws are a

80.6 percent of their free throws. The Orlando Magic



Phil Rosenzweig
phil.rosenzweig@imd.ch
is a professor at IMD in Lausanne, Switzerland, where he works with leading companies on strategy and organization issues. He is the author of *The Halo Effect… and the Eight Other Business Delusions That Deceive Managers* (Free Press, 2007).

Adapted from *Left Brain, Right Stuff: How Leaders Make Winning Decisions* (PublicAffairs, 2014).

made just 66 percent of theirs. That's a massive difference between the top team and the bottom, but of course the variance among individual players is even greater. Jamal Crawford of the Portland Trailblazers led the league, sinking 92.7 percent of his free throws, far more than the season's most valuable player, LeBron James, at 77.1 percent, let alone the Magic's Dwight Howard, who made only 49.1 percent.

It makes you wonder: What's the secret to a good free throw?

To find out, a California-based venture capitalist and inventor (as well as former college basketball player and coach) named Alan Marty worked with Jerry Krause, head of research for the National Association of Basketball Coaches, and Tom Edwards, director of aeronautics at the NASA Ames Research Center. After months of research, they determined that the best free throw has three features. First, it's straight—neither to the left nor to the right, but dead center. No surprise there. Second, the best shot doesn't aim for the exact center of the basket. The perfect spot to aim for is 11 inches past the front rim, about two inches beyond the midpoint. Third, and very important, is the arc. The best shots are neither too high nor too flat, but leave the hands at an angle of 45 degrees.

Finding the best arc was the result of three methods. First, the researchers observed some of the best free-throw shooters and mapped their trajectories, which revealed a consistent 45-degree arc. At the same time, Edwards, the NASA scientist, modeled the physics of the free throw and determined the best shot had an arc in the mid-40 degrees. Finally, the team built an automated shooting machine and programmed it to throw tried various arcs, from relatively flat shots to high looping shots, and found the best was 45 degrees. Three methods, all of which converged on a single answer.

So far, so good. Of course, it's one thing to calculate the perfect arc, but something else to toss a basketball with exactly that arc, time after time. How do you consistently shoot the ball with a 45-degree arc and a depth of 11 inches past the front rim?

The key is to receive immediate feedback, so players can adjust their shots and try again, over and over, until they reach a level of accuracy and consistency. With this in mind, Marty and his team developed a system called Noah, which links a computer with a camera and an automated voice. When a player releases a shot, the camera records the trajectory and the speaker immediately calls out the angle. Players can take a shot, make an adjustment, and take another, several times a minute. It doesn't take long for the player to get a good feel for a 45-degree arc.

For both individuals and entire teams, Noah has yielded impressive results. One high school coach credited Noah with raising his team's free-throw percentage from 58 to 74. He explained, "This generation wants immediate feedback. They also want visual feedback, and this system does both. It's the video-game age now, so having a system available that generates immediate statistics is great."

Deliberate Practice and High Performance

The principle behind Noah is deliberate practice. Not just lots of time spent practicing, but practice that conforms to a clear process of action, feedback, adjustment, and action again. Not simply experience, but expertise.

over and over again in precise and replicable ways. They

The original insight about deliberate practice goes back nearly three decades to a study conducted by Benjamin Bloom, president of the American Educational Research Association. At the time, it was widely thought that high performers in many fields were blessed with native talent, which was sometimes called genius. But as he studied the childhoods of 120 elite performers in fields such as music and mathematics, Bloom found otherwise. Success was mostly due to intensive practice, guided by committed teachers and supported by family members.

Since then a great deal of research has tried to uncover the drivers of high performance. Some of the most important work has been conducted by K. Anders Ericsson, professor of psychology at Florida State University. Ericsson is described by Steven D. Levitt and Stephen J. Dubner, authors of *Freakonomics: A Rogue Economist Explores the Hidden Side of Everything* (William Morrow, 2005), as the leading figure of the expert performance movement, “a loose coalition of scholars trying to answer an important and seemingly primordial question: When someone is very good at a given thing, what is it that actually makes him good?” In one of his first experiments, Ericsson asked people to listen to a series of random numbers, then repeat them. At first most people could repeat only a half-dozen numbers, but with training they improved significantly. “With the first subject, after about 20 hours of training, his digit span had risen from seven to 20,” Ericsson recalled. “He kept improving, and after about 200 hours of training he had risen to over 80 numbers.” Repeated practice led to a remarkable 10-fold improvement.

The technique that worked for a seemingly meaningless task turned out to be effective for many useful ones as well. Ericsson studied activities as varied as playing musical instruments, solving puzzles, and performing surgery. With great consistency, subjects improved significantly when they received immediate and explicit feedback, then made adjustments before trying again.

The game of golf lends itself to deliberate practice. Ericsson describes how a novice golfer, with steady practice, can fairly rapidly reach a level of competence. But after a while, improvement tapers off. Additional a simple reason: In a game setting, every shot is a bit different. A golfer makes one shot and moves on to the next, without the benefit of feedback and with no chance for repetition. However, Ericsson observes, “If you were allowed to take five or 10 shots from the exact location on the course, you would get more feedback on your technique and start to adjust your playing style to improve your control.” This is exactly what the pros do. In addition to hours on the driving range and the putting green, they play practice rounds in which they take multiple shots from the same location. That way, they can watch the flight of the ball, make adjustments, and try again. The best golfers don’t just practice a lot; they practice deliberately.

The Power—and Constraints—of Positive Thinking

In many situations, positive thinking has been demonstrated to boost performance. The concept of deliberate practice lets us refine that notion. Positive thinking is most effective when it’s bracketed by objective feedback and adjustment.

The result is not simply optimism, but what psychologist Martin Seligman calls learned optimism. The key is to replace a static view, which assumes a single mind-set at all times, with a dynamic view, which allows for the ability to shift between mind-sets. Before an activity, it’s important to be objective about our abilities and about the task at hand. After the activity, whether we have been successful or not, it’s once again important to be objective about our performance and to learn from feedback. Yet in the moment of action, a high degree of optimism is essential.

A related idea comes from Peter Gollwitzer, a psychologist at New York University, who distinguishes between a deliberative mind-set and an implemental mind-set. The deliberative version suggests a detached and impartial attitude. We set aside emotions and focus on the facts. A deliberative attitude is appropriate when we assess the feasibility of a project, plan a strategic initiative, or decide on an appropriate course of action. By contrast, an implemental mind-set concerns getting results. When we’re in an implemental mode, rounds of golf don't lead to further progress, and for we look for ways to be successful. We set aside doubts

There's no reason that optimism or confidence must remain steady over time. It's better to ramp it up and down.

and focus on achieving the desired performance. Here, positive thinking is essential. The deliberative mind-set emphasizes open-mindedness and deciding what should be done; the implemental mind-set emphasizes closed-mindedness and achieving our aims. Most crucial is the ability to shift between them.

To test the impact of mind-sets, Gollwitzer and his colleague Ronald Kinney conducted an experiment. People in one group were asked to list all the reasons they could think of, pro and con, for following a particular course of action. The intention was to instill a deliberative mind-set. People in a second group were asked to list the specific steps they would take to successfully carry out a given course of action. The goal here was to instill an implemental mind-set. Next, all subjects took part in a routine laboratory task. Gollwitzer and Kinney found that subjects with an implemental mind-set showed significantly higher belief in their ability to control the outcome. They concluded, "After the decision to pursue a certain goal has been made, successful goal attainment requires that one focus on implemental issues. Accordingly, negative thoughts concerning the desirability and attainability of the chosen goal should be avoided, because they would only undermine the level of determination and obligation needed to adhere to goal pursuit." An implemental mind-set, focusing on what it takes to get the job done and banishing doubts, improves the likelihood of success.

The question of how much optimism or confidence is good, and how much is too much, turns out to be incomplete. There's no reason to imagine that optimism or confidence must remain steady over time. It's better to ramp it up and down, emphasizing a high level setting it aside to learn from feedback and find ways to do better.

Shifting Mind-Sets on the Flight Deck

Apart from basketball and golf, many other recurring actions, including very consequential ones such as landing an airplane, lend themselves to deliberate practice. In addition, they call for the ability to shift mind-set from deliberation to implementation. A memorable example comes from US Airways Flight 1549, which landed safely on the Hudson River in January 2009, sparing the lives of all 155 people aboard.

In the moments after the Airbus A320 took off from LaGuardia Airport and struck a flock of geese, causing both engines to fail, Captain Chesley Sullenberger kept a deliberative mind-set. He coolly and systematically considered his options, including a return to LaGuardia and an emergency landing at Teterboro Airport in New Jersey. Neither was possible. The aircraft had lost all power and wouldn't be able to reach either destination. At this time, sober deliberation was required.

Once Sullenberger determined that the best course of action was to ditch in the Hudson, his focus shifted to implementation. All that mattered now was a successful landing. For that, he needed to muster a positive mind-set so that this landing—this one, right now—would be executed to perfection. In an interview with Katie Couric on *60 Minutes*, Sullenberger described his attitude as the plane descended. "The water was coming up at us fast," he recalled. Couric asked if during those moments he thought about the passengers on board. Sullenberger replied, "Not specifically.... I knew I had of confidence during moments of implementation, but to solve this problem…to find a way out of this box I

found myself in." He knew exactly what was required: "I needed to touch down with the wings exactly level. I needed to touch down with the nose slightly up. I needed to touch down at a descent rate that was survivable. And I needed to touch down just above our minimum flying speed but not below it. And I needed to make all these things happen simultaneously."

The time for deliberation had passed; now, success depended on implementation. Sullenberger stayed focused and kept his cool. At all times, he said, "I was sure I could do it." His story is a prime example of shifting from one mind-set to another, gaining the benefits of deliberate thinking, but then shifting completely to implementation.

The Limits of Deliberate Practice

It's tempting to conclude that a combination of deliberate practice and mind-set adjustments can lead anyone to superior performance. As Ericsson has observed, "Outstanding performance is the product of years of deliberate practice and coaching, not of any innate talent or skill." Others have made much the same argument. In recent years, deliberate practice has been invoked as the key to high performance in books including *Talent Is Overrated: What Really Separates World-Class Performers from Everybody Else*, by Geoff Colvin (Portfolio, 2008), and *Outliers: The Story of Success*, by Malcolm Gladwell (Little, Brown, 2008). No question, the message of deliberate practice is very encouraging. It appeals to our can-do spirit. We like to think that genius isn't born. We like to believe that even Mozart had to practice long hours, and that Einstein's success was the result of good teachers and hard work. It makes us feel good to imagine that Bobby Fischer wasn't a creature from a different world, but got an early start and persisted. It makes us think there may be hope for us too.

Yet we should be careful. Deliberate practice is hardly the cure-all that some would like to suggest.

First, there's a growing body of evidence that talent matters—and matters a great deal. Researchers at Vanderbilt University found that children who performed very well on intelligence tests at a young age had a significant edge over others in later accomplishment. Very high intellectual ability really does confer an enormous real-world advantage for many demanding activities. Second, if we're not careful, we can always pick examples after the fact, then look back and claim that extensive practice led to success. Among Gladwell's examples is the value of long hours of practice, whether playing music late into the night at clubs in Hamburg and Liverpool or programming computers for hours on end while growing up in Seattle. Missing, however, are the legions of people who also practiced diligently but didn't find the same success.

Most of all, it's important to understand that deliberate practice is very well suited to some activities but much less to others. Look again at the examples we have seen: shooting a basket, hitting a golf ball. Each action has a short duration and produces immediate and tangible feedback. We can see right away whether the basketball went through the hoop or the shot landed on the green. We can make modifications and then try again. Furthermore, each action is a matter of absolute performance. Even if a golf shot was made with an eye toward the competition, the shot itself—swinging a club to drive a ball onto the green and then into the hole—was a matter of absolute performance. Executing the task didn't depend on anyone else.

These sorts of tasks are described in the first column of the exhibit. Duration is short, feedback is immediate and clear, the order of actions is sequential, and performance is absolute. When these conditions hold, deliberate practice can be hugely powerful. As we relax each of them—when duration is longer, feedback is slow or incomplete, tasks are undertaken concurrently, and performance is relative—the value of deliberate practice diminishes. We have to know when it's useful and when it's not.

To see how these differences can matter, consider the job of a sales representative. Imagine you're a cosmetics salesperson, going door to door in your neighborhood. This sort of task is in the left column. The entire transaction is quick, taking maybe a few minutes. Feedback is immediate; you know right away if you made a sale or not. You finish one visit before going on

Exhibit: **When to Use Deliberate Practice**

	WELL SUITED	LESS WELL SUITED
DURATION	Short	Long
FEEDBACK	Immediate	Slow
ORDER OF TASKS	Sequential	Concurrent
PERFORMANCE	Absolute	Relative

examples were the Beatles and Bill Gates, both chosen

to the next. Performance is absolute in the sense that you're not directly competing with another offer. The logic of deliberate practice applies nicely. How you describe the products, how you present the options, the words you use and jokes you tell, and the way you try to close the sale—all of these can be practiced and refined, and feedback from one encounter can be applied to the next. The best salespeople approach each encounter as a new opportunity and do their best to project confidence and self-assurance. They can't afford to be discouraged by the last rejection or worried about rejections to come. They have to believe that this customer, this call, this time can be successful—and muster positive thinking to help make it so. After each call, they can stand back and reflect. *What did I do well, and what can I improve for next time?* They shift rapidly from deliberation to implementation and back again.

For other kinds of sales representatives, the story is entirely different. Consider the sale of a complex enterprise software system. The sales process—it's a sales process, not a sales call—demands a deep understanding of the client's needs and takes place over weeks and months. During that time, feedback is either uncertain or nonexistent. You might not know for several months whether your efforts will bear fruit. Furthermore, because you're working on many potential sales in parallel, you can't easily take the lessons from one client and apply them to the next. Your efforts are concurrent, not consecutive. And finally, for something like enterprise software, performance is better thought of as relative, not absolute, because the client is very likely talking with multiple vendors but will buy from only one. If nothing comes of your efforts, you may never know if it was because your sales presentation was poor, a rival's products and services were better, or another sales rep was more effective. In this setting, immediate feedback that can be applied right away is not possible.

Rapidly occurring and routine activities, including not only operations but many customer-facing encounters, conform very well to the rigor of deliberate practice. That's the essence of *kaizen*, the system of

facturing techniques. There's a disciplined sequence—plan, do, act, check. The cycle time is short and repeated over and over. Feedback is rapid and specific and can be applied to the next effort. Performance, whether gauged in quality or number of defects or some other operational measure, is absolute. It depends on you and no one else.

Examples of the limits of deliberate practice go well beyond software sales. Consider the introduction of a new product. The entire process may take months or even years. By the time results are known, additional products will have been introduced. Furthermore, performance is at least partly relative. If a new product was unsuccessful, is that because the company did a poor job, or did a rival introduce a better one? Or consider setting up a foreign subsidiary. Years may elapse before leaders can assess whether they have been successful. Many factors are out of their control, including the actions of competitors and global economic forces. Was entry to a new market successful because of superior insights about customer needs, or mainly because of favorable economic conditions?

Making strategic decisions is fundamentally different from shooting baskets or landing an airplane. Decisions take longer to carry out. Feedback may be slow and incomplete. There is often little ability to assess the results of one decision before undertaking the next one. Strategic decisions often involve competition, meaning that performance is not absolute but has a relative dimension. The aim isn't just to do well, but to do better than rivals—who are also trying to outdo us. Decisions are also hard to reverse. The hallmark of a strategic decision is precisely that it cannot be easily reversed, meaning it is important to get it right the first time.

When to Practice, When to Ponder

The complex reality of real-world decisions forces us to rethink implications for learning and improvement. Anders Ericsson, as a proponent of deliberate practice, recommends that managers and other professionals set aside two hours each day to reflect on their actions and continuous improvement at the heart of so many manu-

draw lessons. Of course, reflection and evaluation are

The hallmark of a strategic decision is precisely that it cannot be easily reversed, meaning it is important to get it right the first time.

useful. Stepping back to ponder one's actions and trying to draw lessons from experience is a very good idea. Yet when feedback is slow and imprecise, when performance is relative rather than absolute, and when particular circumstances rarely recur, we should not imagine that an emphasis on repetition will lead to the same benefits as when, say, learning to play the piano.

Which brings us to the question of coaching in business. The past decade has seen a sharp rise in coaching for executives. Like coaches in other domains, executive coaches aim to equip their clients with tools and knowledge to become more effective. The process relies heavily on providing feedback on behaviors and skills. But if decision making at this level does not improve through routine, is such coaching a waste of time? Not entirely.

Executives handle a number of routine activities that lend themselves well to deliberate feedback and practice. Presentations to employees. Interaction with key managers. Meetings. Presentations to a board. Negotiations with counterparties. Briefings with investors. Each of these involves a relatively short action for which we can usefully get feedback and try again, incorporating suggestions for improvement. It can be very useful to seek feedback from a thoughtful observer and strive to improve. Executives can indeed improve elements of their performance through deliberate practice.

But for the most consequential decisions that executives face, for which feedback cycles are longer and results less precise, coaching is a much less apt metaphor. A good executive coach can be a blend of confidant, advisor, goad, and Lear's Fool, able to tell the truth when others may not. But we shouldn't imagine that coaching that works for activities that lend themselves to rapid and tangible feedback can be sufficient for far-reaching strategic decisions. There's no second chance for Edgar Bronfman selling Seagram to Vivendi. We do ourselves a disservice by implying that we can practice our way to success in all circumstances. We divert attention from asking the more important questions that are the stuff of judgment for managers and repetition is less effective for strategic decisions than thorough preparation and analysis.

Managers face a series of decisions every day. Some are routine and lend themselves to the power of deliberate practice, in which feedback is rapid and tangible, and adjustments can be made to boost performance. The ability to shift mind-sets, from deliberation to implementation and back again, is vital. Other decisions are unique, and their results take longer to play out, making the use of feedback for subsequent adjustment less likely. For these, a different approach is needed. Above all, decision makers must develop the ability to recognize how decisions differ, and apply the appropriate tools to each. ✚

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Resources

K. Anders Ericsson, Michael J. Prietula, and Edward T. Cokely, "The Making of an Expert," *Harvard Business Review*, July 2007: The authors argue that ordinary practice is not enough. To reach elite levels of performance, you need to push yourself beyond your abilities and comfort level.

Phil Rosenzweig, *The Halo Effect...and the Eight Other Business Delusions That Deceive Managers* (Free Press, 2007): The book exposes many of the errors and mistaken ideas that pervade the business world and suggests a more accurate way to think about company performance.

Phil Rosenzweig, "What Makes Strategic Decisions Different," *Harvard Business Review*, Nov. 2013: The bulk of decision-making research applies to one type of decision, and it's not the type that's most challenging for managers.

For more thought leadership on this topic, see the *s+b* website at:

questions that are the stuff of judgment for managers and leaders. The logic of action, correction, adjustment,

strategy-business.com/organizations_and_people.

The Thought Leader Interview: Thomas Malone

The head of MIT's Center for Collective Intelligence explains how to build smarter and more successful teams.

BY ART KLEINER

What if you could measure the intelligence of a group? What if you could predict which committees, assigned to design a horse, would end up with a camel, versus which would develop a thoroughbred—or a racecar? The MIT Sloan School of Management's Center for Collective Intelligence (CCI) was set up to accomplish just that sort of evaluation. Under the leadership of its founding director, Thomas W. Malone, the center's ambition is to put forth a bringing together insights from social psychology, computer science, group dynamics, social media, crowdsourcing, and the center's own experiments in group behavior. The results could help business teams produce more thoroughbreds and fewer camels.

Malone is the Patrick J. McGovern Professor of Management at the MIT Sloan School and a key figure in organizational learning and design studies. Formerly a research scientist at Xerox Palo Alto Research largely in user interface design and the representation of complex processes in software. Like other technologists (one thinks of the late computer interface pioneer Douglas Engelbart), Malone grew interested in the ways that organizational design and computer systems design could augment each other. His book *The Future of Work: How the New Order of Business Will Shape Your Organization, Your Management Style, and Your Life* (Harvard Business School Press, 2004) proposed that in an increasingly networked world, strict hierarchies would be less viable. The book also foreshadowed the decentralized "bottom-up" management model that has influenced companies like Zappos.

Malone set up CCI in 2006, drawing together a group of management scholars, neuroscientists, and computer scientists (some of whom, including Alex "Sandy" Pentland, Erik Brynjolfsson, and Pattie Maes, have been featured in our pages). Tim Berners-Lee, Jimmy Wales, and Alpheus Bingham—the progenitors of the World Wide Web, Wikipedia, and the crowdsourcing platform InnoCentive, respectively—make up the center's

ograph by Bryce Vickmark

center's ambition is to put forth a new theory of group performance, scientist at Xerox Palo Alto Research Center (PARC), he holds 11 patents, spectively—make up the center's advisory board.

Phot

CCI's most provocative finding so far is that, by and large, the higher the proportion of women on a team, the more likely it is to exhibit collective intelligence (and thus achieve its goals). This research was originally published in *Science* ("Evidence for a Collective Intelligence Factor in the Performance of Human Groups," by Malone and Carnegie Mellon assistant professor Anita Williams Woolley et al., Oct. 2010) and highlighted in April 2013 in a *Harvard Business Review* interview with Malone and Woolley. The critical factor appears to be social perception. Women are, on average, more perceptive than men about their colleagues. Social perceptiveness is a kind of social intelligence; it's the ability to discern what someone is thinking, either by looking at their facial expression or through some other means of human observation. When it comes to the effectiveness of groups, we are what we see in each other. And if this kind of acumen can be learned, Malone's research suggests that the performance of teams (and companies) can be dramatically improved.

In December 2013, Malone met with *strategy+business* at MIT's Sloan School in Cambridge, Mass. He talked about the origins of his research, the comprehensive study he conducted with about 150 groups, and the implications for individuals

S+B: How did your work on measuring collective intelligence get its start?

MALONE: As codirector of the MIT project "Inventing the Organizations of the 21st Century," I did a lot of thinking about how new technologies would change the ways work is organized. In *The Future of Work*, I suggested that cheap communications would lead to much more human freedom and decentralized decision making in business. After that, I considered following up with another book about how to implement these ideas, and what companies were actually making them work. But the more I thought about it, the more I became convinced that I should look instead at what was coming next: the evolution of management beyond decentralization.

"How can people and computers be connected so that—collectively—they act more intelligently than any person, group, or computer?"

Around that time, I had dinner with the venture capitalist and writer Esther Dyson and the mathematician and science fiction writer Vernor Vinge. Vernor was working on his book *Rainbows End*, which describes what he calls "superhuman intelligence" that combines the intelligence of people and computers. Of course, Douglas Engelbart and others had talked about possibilities like this for a long time, and it was certainly something I had thought about, too. By the end of that conversation, I was convinced that I should work on this concept next, not as an idea or an inspiration; I was finally taking a path that, at some level, I had known for a long time was the right path to take.

I began to imagine what it would be like to have very intelligent organizations. From there came the question, which would ultimately be the core research question of the Center for Collective Intelligence: How can people and computers be connected so that—collectively—they act more intelligently than any person, group, or computer has ever done before? When you take that question seriously, it leads to a view of organizational effectiveness that is very different from the prevailing wisdom of the past.

S+B: Why are computers part of the definition of collective intelligence?

MALONE: Actually, they're not part of the definition. I define *collective intelligence* as groups of individuals acting together in ways that seem intelligent. In other words, intelligence is not just something that happens inside individual brains. It also arises in groups of individuals. Those groups don't require computers. In fact, by this broad definition, collective intelligence has existed for thousands of years. For instance, armies, companies, countries, and families are all examples of groups of people who work together in ways that—at least sometimes—seem intelligent.

But the most rapidly evolving kinds of collective intelligence today are those enabled by the Internet. Think of Google. Millions of people around the world create Web pages, linked to one another. Then all that knowledge is harvested by the Google algorithms, so that when you type a question in the Google search bar, the answers you get often and the implications for individuals, teams, and large-scale enterprises.

should work on this concept next. It didn't so much feel like a new idea

search bar, the answers you get often seem amazingly intelligent. Or look

Art Kleiner
*kleiner_art@
strategy-business.com*
is editor-in-chief of
strategy+business.

at Wikipedia, where people all over the world have collectively created a very large and extremely high-quality intellectual product, with almost no centralized control. They do it in most cases without even being paid. I think these early examples of Internet-enabled collective intelligence are not the end of the story, but just the beginning.

To anticipate what's going to happen in the future, and to take advantage of those possibilities, we need to understand collective intelligence at a much deeper level than people do so far.

Tests of Versatility

S+B: You define *collective intelligence* as groups "seeming intelligent." But how do you know intelligence when you see it?

MALONE: Intelligence is difficult to define objectively, even though many people have tried. There still isn't a single definition that most experts in the field would agree to. The way you just put it—"How do you know it when you see it?"—is actually a useful definition of intelligence. We can't define it precisely

This subjectivity is also unavoidable, in part, because intelligence is linked to the goals of the person or group whose intelligence you're trying to assess. And as an observer, you can't always be sure what the subject's goals are. For instance, if I give you an IQ test scored on a machine-readable multiple-choice form, and you color in the dots so that they make a nice artistic pattern on the answer sheet, you'll probably get a low intelligence score. But that's because you weren't trying to achieve the goal I thought you were. To evaluate your intelligence, I have to make assumptions about what your goals are, and that, of necessity, involves some subjectivity.

S+B: So my assessment of someone else's intelligence depends on how well they achieve the goals I think they're trying to achieve?

MALONE: That's right. There are, of course, other ways to define intelligence. One way that we found particularly useful for looking at the intelligence of groups is the psychometric definition, used by psychologists who measure people's capabilities. Their definition of being

the ability to be good at many things, not just one thing.

For example, many people believe that math and verbal skills are negatively correlated—that people who are good at math are worse than average at verbal tasks and vice versa. But in fact, when you test people on a group of mental tasks and apply a statistical technique called factor analysis, you find that people who are good at one mental task are, on average, good at lots of other mental tasks as well. In fact, it's that generalized ability at many kinds of tasks that intelligence tests, at the individual level, are designed to measure.

S+B: They're measuring the versatility of your thinking.

MALONE: Yes. People who are the most intelligent, as measured by intelligence tests, are not necessarily the top performers at any single mental task, but they're good at learning new tasks and adapting quickly to lots of different tasks. This general ability is called the *g* factor, or general factor, and it is a measure of general cognitive ability that's associated with things like gence. We can't define it precisely, but we often know it when we see it. bilities. Their definition of being intelligent, at the individual level, is that's associated with things like logical reasoning, verbal and math

skills, and learning. It was first recognized by the 20th-century British psychometric pioneer Charles Spearman, who developed statistical factor analysis as part of his intelligence research.

The *g* factor has often been criticized as incomplete. For example, as Harvard developmental psychologist Howard Gardner has pointed out, there are other important kinds of abilities that don't get measured by IQ tests. But basic cognitive ability is important, because it is consistently correlated with success in many endeavors. With an intelligence test, you can measure in less than an hour something that helps you predict many things that are important to a person's life—their grades in school, their performance in many occupations, and even their life expectancy—that would otherwise take months or years to observe.

Measuring Group Intelligence

S+B: How did you make the leap from individual to collective intelligence in your own research?

MALONE: We started with our basic definition: an intelligent group of individuals is one that acts together in ways that seem intelligent to an observer. As with individual intelligence, the observer has to pick some set of goals with respect to which to evaluate the group's intelligence. But notice that in this case, the goals the observer uses may not be the same as those of any individuals in the group. For example, you might evaluate the "intelligence" of a group of pedestrians on a busy New York City sidewalk on the basis of how evenly they distribute themselves over the sidewalk, even though each individual is just trying to get to a destination without colliding with someone else.

Or if you were an economist, you might evaluate the "intelligence" of the buyers and sellers in a region on the basis of how efficiently they allocated the society's resources, even though most of the individuals in that economy were just trying to maximize their own welfare.

As an observer of collective intelligence, you also need to select the group of individuals that you want to analyze. For instance, you might evaluate the collective intelligence of a small work team, the staff of a department, a whole company, or the American public. Sometimes, you might even want to evaluate the "collective intelligence" of a single person by analyzing how the different neurons in that person's brain act collectively to produce the person's intelligent behavior.

Whatever the size of group we analyze, we always need to be able to identify a set of separate individuals acting together, with some interdependence among them.

S+B: How do you measure and compare the collective intelligence of that group to others?

MALONE: Well, we started with the psychometric definition of intelligence—essentially, the versatility ... same statistical techniques that are used to measure intelligence at the individual level, but we used these techniques to measure the intelligence of groups. What we really wanted to know was whether there is an equivalent of the *g* factor for groups. As far as we could tell, no one had ever asked this question before.

So to answer the question ourselves, we brought about 700 people into our laboratories, in groups that ranged from two to five people each. We gave each group a set of tasks to perform together, ranging from brainstorming uses for a brick, to solving IQ test problems as a group, to planning a shopping trip with a number of constraints, to typing long text passages into Google Docs. Each group spent about three hours working together on these tasks.

When we analyzed the results, we found that the answer to the original question was yes. There is a single statistical factor for any group—just as there is for an individual—that predicts how well the group will perform on a wide range of different tasks. This factor accounts for about 30 to 50 percent of the variance in the group's performance on different tasks, just as the *g* factor did for individual intelligence. We sometimes call it the *c* factor, in homage to Spearman's *g* factor.

S+B: What does that *c* factor represent?

MALONE: It's a statistical indicator in the same way that your score on as those of any individuals in the group. For instance, you might eval-

ligence—essentially the versatility of thinking. Then we employed the

in the same way that your score on an IQ test is a statistical indicator.

Like an IQ score, it's predictive of a group's performance on many other tasks not included in the test itself.

Now that we had a measure of collective intelligence, we also wanted to know what other factors might predict this collective intelligence. And we found four factors that were correlated—four things that might account for the degree of collective intelligence in a team.

The first was the most obvious: the intelligence of the individual team members. We had expected that the group intelligence would correlate with the average or maximum intelligence of individual group members. But we were surprised to find that the correlation was not very strong. In other words, just having a bunch of smart people in a group doesn't necessarily make a smart group.

S+B: Are you more likely to have mediocre people become a smart group, or are you more likely to have smart people become a mediocre group?

MALONE: Statistically, either could happen. Of course, we all know from our own experience that you can have very ineffective groups made up of very smart people. Now we have a precise, scientific demonstration of that.

Many other factors that we thought would be significant predictors weren't. These included things like psychological safety and group cohesiveness. But we did find three additional factors that were significantly correlated with the group's collective intelligence. The first was the average social perceptiveness of the group members, the second had to do with the equality of contribu-

> **"If there were more women, the group performed better. In general, the higher the ratio of women to men, the better the performance."**

The Mind in the Eyes

S+B: What do you mean by social perceptiveness?

MALONE: This is the ability to correctly read the emotions of other people. We measured it using a test developed by the British autism researcher Simon Baron-Cohen. The test is called "Reading the Mind in the Eyes." You show people pictures of other people's eyes, and ask them to guess what emotion the person in the picture is feeling. There is a correct answer, and the test significantly distinguishes autistic from non-autistic people. Even among non-autistic people, there's a significant enough range that it turns out to be useful for a lot of purposes, including this study. We found that a group is more collectively intelligent if the people in it are, on average, more socially perceptive—that is, if they are good at reading emotions from other people's eyes.

One fascinating aspect of this came up when we did the same experiments with two types of groups. The face-to-face groups were sitting around a conference table, answering the questions on a computer but talking directly to one another. The online-only groups could communicate only through the computer, using text chat. They couldn't see

measure of social perceptiveness, the "Reading the Mind in the Eyes" test, was equally predictive of most groups' collective intelligence. We believe this means that the autism test is actually measuring a broad range of interpersonal skills. Psychologists call these broader skills *theory of mind*. The term refers to the ability, which is more developed in some people than others, to create a mental theory about what's inside other people's brains.

S+B: And if the members of a certain group have a high level of this ability, that group is more likely to be more collectively intelligent?

MALONE: Yes, but that's only one factor. The second factor was the equality of contribution: the degree to which the group members participated evenly. When one or two people dominated the conversation, the group on average was less intelligent. Here again was a precise confirmation of what many people have perceived in their own team meetings.

The third factor we found that correlated with the group's collective intelligence was the proportion of women in the group. If there were more women in the group, the group performed better. In general, the higher the ratio of women to men, the better the performance.

tion, and the third was the ratio of men to women in the group.

one another's eyes at all.

But we found that the same

In our results, this third factor was largely explained, at least statis-

tically, by the first result. It was known, before our work, that women on average score higher than men on the test of social perceptiveness. So one interpretation of our results is that what you really need for a group to be intelligent is to have lots of people in the group who are high on this measure of social perceptiveness, regardless of whether the people are men or women.

Notice that this is not a standard diversity result. A standard diversity result would have been that the best-performing groups would have about the same number of men and women. We haven't yet done the research we need to do to explore this finding with more precision. But in our results so far, the groups with half men and half women had some of the lowest scores. And it appears as if the highest scores go to groups composed mostly of women, with just a few men.

Making Teams More Effective

S+B: Do you have a sense of why those three factors are so critical?

MALONE: Although all three factors have roughly equal correlations with collective intelligence, when put into a regression at the same time, the only one that is statistically significant is the first one, social perceptiveness. So, and this is somewhat speculative, one might conclude that the most important factor in collective intelligence is having groups where people are good at perceiving one another's emotions accurately, or, more generally, where they have high social intelligence.

S+B: Is this a learnable or cultivatable skill?

in people appears to have some genetic component. It may also be influenced by hormones; it's been negatively correlated with high levels of testosterone. Those are reasons to believe it's not very changeable.

But there are other reasons to believe it might be possible to affect it. In a study published recently in *Science* ["Reading Literary Fiction Improves Theory of Mind," by David Comer Kidd and Emanuele Castano, Oct. 2013], two psychology researchers found that people who read literary fiction for a few minutes before taking the "Reading the Mind in the Eyes" test got a better score than those who did not.

Having good theory of mind skills is not necessarily the same as having empathy. Of course, they're related. You couldn't be empathetic without some theory of mind skill, because you wouldn't even be aware of other people's feelings. But you could accurately perceive what other people were feeling and thinking, while not caring about them. If you didn't have any actual sympathy for them, you could use that accurate perception to manipulate or take advantage of them.

S+B: So if you were leading an enterprise and you wanted to have more intelligent, productive, effective teams…

MALONE: One thing you could try is to increase your company's overall level of social perceptiveness or social intelligence. You might cultivate this by developing that quality in your existing staff. Or, if it turned out to be hard to teach, you might recruit individuals who had it. Or you could create situations that would bring it out.

tasks, and how you motivate people—also clearly have an effect on how intelligent the organization is. For instance, there are now ways of designing nonhierarchical organizations, like crowd-based organizations, that have the potential to be even more intelligent than the best-designed hierarchies.

S+B: How does this fit with the rest of the work you're doing on collective intelligence?

MALONE: We basically have three types of activity. The first is the scientific studies I've just described. Second, we observe the new organizational design patterns that arise, especially in the business world. We call this work "mapping the genomes of collective intelligence." We looked at more than 200 examples of what we thought were interesting cases of collective intelligence, including Google, Wikipedia, the Linux community, Threadless, and InnoCentive. We started by trying to classify them into discrete categories, as if we were biologists trying to classify new life forms into different species. But the same cases often seemed to belong in more than one category. For example, Wikipedia was both *consensus* and *collaboration*.

One breakthrough for us was realizing that the more appropriate biology analogy was classifying genes, not species. We call these elements *design patterns*, which is a phrase used by the architect and writer Christopher Alexander and his coauthors in their book *A Pattern Language* [Oxford University Press, 1977]. Not all the ways of assembling them make sense or work well, but you can use them in think-

MALONE: Excellent question, and we don't know for sure. This quality

Other elements of organizational design—how you group and link

ing about how to develop an organizational structure that helps you

achieve your goals.

Third, we're creating new examples of collective intelligence. The biggest project in that area is called the Climate CoLab, where we're harnessing the collective intelligence of thousands of people all over the world, to come up with new ideas for solving the problems of climate change. We're essentially crowdsourcing that problem.

With all three of these activities, we're looking to create smarter organizations. We hope eventually to develop a test we can give to real-world groups, and use it to predict, for example, how well a sales team might perform over the coming year, how well a design group could develop a new product, or how productive a top management group or board of directors would be in devising the next strategy.

S+B: Could you also use the test to increase the collective intelligence of a group?

MALONE: Yes, I think so. Individual intelligence is very difficult to change. You can predict people's behavior by measuring their intelligence, but it's usually hard to increase an individual's intelligence. With groups, however, it seems quite possible that we could change their collective intelligence. At the minimum, you could imagine changing the intelligence of a group by changing some or maybe even all of the people in it—replacing them with people with higher levels of social intelligence, for instance.

There might well be other things you could do too: Change the motivation of the group. Change their incentives. Change their structure, how they're grouped into sub-

five people that we looked at, larger groups did better. But some data indicates that when groups get larger than about 10 members, they often become less effective.

S+B: How do these organizational interventions relate to the four factors that you found correlated with collective intelligence?

MALONE: We wouldn't claim that those four are the only four. Those are the only four significant correlations we found in the study we did. But there are clearly other factors

"We hope eventually to develop a test we can give to real-world groups, and use it to predict how well a sales team might perform."

that affect a group's intelligence. For instance, as a group gets larger, the way you organize the group can have a major effect on its collective intelligence.

As a thought experiment, imagine that you have 5,000 people in a football stadium, trying to write an encyclopedia, with no tools other than paper and pencil and the loudspeaker system. If you gave them a few hours to work, they could each scribble some drafts of articles, and they could have people who are editors who approved things. There would be long lines of people waiting to get their articles approved, and in a few hours, they could make some progress.

But now imagine you have the same 5,000 people, and the same

software, in a shared database that they compile together. It seems likely that they could accomplish much more good work in the same amount of time.

One interesting possibility is that with the right kinds of digital electronic collaboration tools, we could greatly increase the size up to which a group can continue to increase its intelligence by adding members. Right now, the optimal size is probably somewhere between five and 10, but with the right collaboration tools, you could imagine having a group that kept getting more intelligent, up to 50, 100, or even 500 or 5,000 people. That's one of the most intriguing long-term research questions we're starting to work on. Now that we have a way of measuring the intelligence of a group, we can use that to find ways to allow the group to scale to a much larger size without being overcome by the "process losses" that inhibit the performance of large groups today. +

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groups. Change their size. We noticed that in the groups from two to

amount of time, but every one of the people has access to the Wikipedia

Books in Brief

A Triple Scoop of Social Responsibility

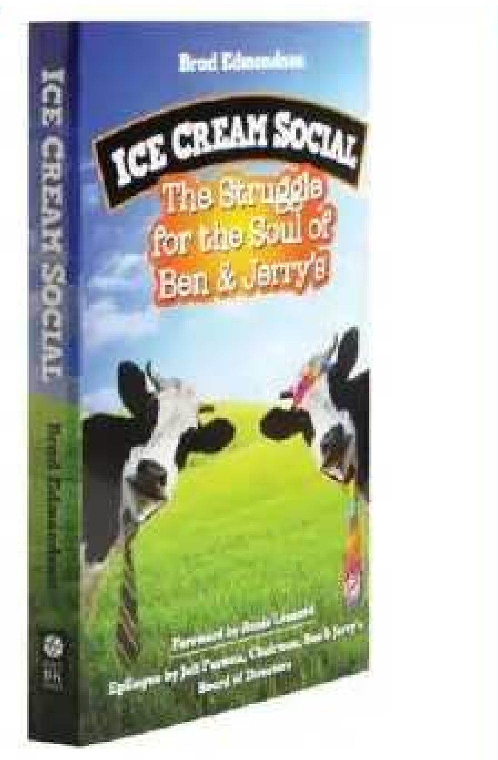
by John Weir Close

Ice Cream Social: The Struggle for the Soul of Ben & Jerry's,
by Brad Edmondson,
Berrett-Koehler, 2014

"Let's not deal with these idiot lawyers," Ben Cohen wrote to Jerry Garcia in the late 1980s, after he received a missive from Garcia's lawyer noting that the Grateful Dead lead guitarist's name was being used without permission. The "idiot lawyer" replied that Garcia would sue unless Ben & Jerry's ceased production of Cherry Garcia ice cream. Cohen dispatched his own attorney, all-purpose fixer Jeff Furman, known as the ampersand in Ben & Jerry's, to sue for peace. The two lawyers found that they had something in common. They both represented what Furman calls "weird people."

Brad Edmondson unearths this episode in *Ice Cream Social: The Struggle for the Soul of Ben & Jerry's*, a recounting of the company's history, with special emphasis on its

No. Furman suggested a royalty fee, Garcia's lawyer agreed, and they shook on it. Commendable certainly, but a less exciting read than an all-out war would have been—a problem that plagues many corporate histories (even, it seems, those of the most idiosyncratic companies).



Ice Cream Social must also rely heavily on Furman, with whom Edmondson shared an office in the 1990s. Neither Ben nor Jerry agreed to speak on the record, still pleading post-sale trauma years later.

Much has already been written

seventh grade and best friends at their Long Island high school. Together, they leased a former gas station in Burlington, Vt., in 1977 and turned it into a multimillion-dollar company that was one of the first to seek to change the world by doing good. It's a classic story of entrepreneurial legerdemain—"a long strange dip," as the company calls it—with moments of hilarity, chaos, triumph, and aching loss.

Edmondson points out how easy it can be to sneer at the company's dedication to social justice, and how quickly one can forget the paucity of corporations that have ever fought for such disparate causes as reasonable CEO pay, same-sex marriage, nuclear disarmament, organic farming, worker democracy, and a constitutional amendment to nullify the U.S. Supreme Court ruling in *Citizens United v. Federal Election Commission*. Still, he does not pretend to be objective. He uses "muckraking journalists" as a pejorative and describes it as "fortunate" that journalists were unaware of such events in the company's history as a construction "disaster" at a new production plant in 1993 that forced

ation byN oma Bar

sale to Unilever in 2000. Were the two hippie empires going to war? about Bennett Cohen and Jerry Greenfield, who were classmates in employees to work in subzero-degree freezers to keep up with orders.

The saga's climax comes when Ben & Jerry's fiscal thrashing attracts predators in the late 1990s. First, Dreyer's, one of the company's major distributors, attempts a takeover, which Ben & Jerry's counters with a poison pill and the help of the Vermont legislature, which passes a law to help the board of directors fend off rapacious buyers. Unilever steps up next, and Ben & Jerry's mounts a desperate effort to take the company private. Ultimately, however, the Unilever deal goes through.

The 2000 sale of Ben & Jerry's to a multinational conglomerate was seen by some diehard fans as a sellout equivalent to Bob Dylan's going electric at the 1965 Newport Folk Festival (an annual event that, coincidentally, the ice cream maker saved from oblivion with a last-minute sponsorship in 1988). But even as it was swallowed up, Ben & Jerry's won the right to its own autonomous board of directors, free of Unilever's control. It took years of corporate guerrilla warfare, from the bowels of the giant that had absorbed it, but the company was able to enforce the terms of its independence and reignite its social mission.

Edmondson makes a strong case for this mission, saying that despite their new riches, Ben and Jerry stayed true to their cause. He also says that Unilever, among a growing number of corporations around the world, has itself taken on the social mission that its target long espoused: "linked prosperity," which requires the company to share its good fortune with workers, its community, and the environment.

The takeover chapters in *Ice Cream Social* do justice to a fascinating episode in business history, almost obscured by an avalanche of mission statements, bullet points, and extended quotes. But even when there are too many chunks in the mix, the book still gets across the full-flavored ebullience of Ben Cohen, Jerry Greenfield, and the company the two created.

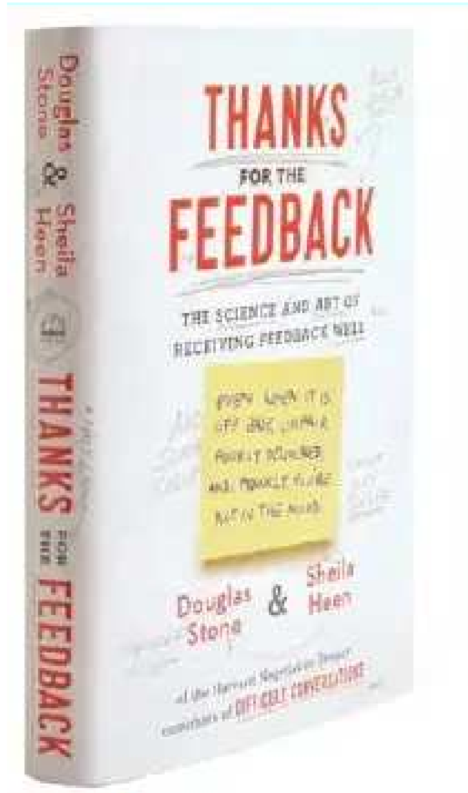
+

John Weir Close
jclose@themandajournal.com
is the editor-in-chief of the *M&A Journal* and author of *A Giant Cow-Tipping by Savages: The Boom, Bust, and Boom Culture of M&A* (Palgrave Macmillan, 2013). He previously served as editor-in-chief of *Corporate Counsel* magazine and as a foreign correspondent for the *Financial Times* and the *Wall Street Journal*.

It's Better to Receive Than to Give

by Sally Helgesen

Thanks for the Feedback: The Science and Art of Receiving Feedback Well (Even When It Is Off Base, Unfair, Poorly Delivered, and Frankly, You're Not in the Mood), by Douglas Stone and Sheila Heen, Viking, 2014



The word *feedback* was coined during the Industrial Revolution to describe how energy, momentum, and signals were returned to their point of origin in a mechanical system. Later, the concept of feedback was instrumental in the development of the electronic circuit. After World War II, *feedback* was adopted by the emerging field of industrial relations to describe what happened when individuals fed corrective information back to its human point of origin.

Feedback quickly became en... morale, and aligning teams. Yet even as its popularity spread, it became an object of mistrust and even dread. In *Thanks for the Feedback*, Douglas Stone and Sheila Heen, lecturers at Harvard Law School and authors (with Bruce Patton) of the influential *Difficult Conversations: How to Discuss What Matters Most* (Viking, 1999), note that more than 50 percent of people perceive their performance review—an undertaking devoted entirely to feedback—as unfair or inaccurate, and more than 60 percent of executives believe their managers lack the courage to offer honest feedback.

In other words, the process of giving feedback often results in a counterproductive mess. That's why many of us mentally tuck and roll when we hear the seemingly innocuous phrase, "Can I give you some feedback?"

It's also why *Thanks for the Feedback* is an extraordinarily useful book. It's full of helpful techniques that can be put to use by anyone seeking to manage an organization, lead a team, engage a business part-though the rest of the book often goes off track and the story line is

shrined as an essential technique for managing performance, improving

ner, or navigate a relationship. Drawing on decades of research

conducted by the Harvard Negotiation Project and its various offshoots, as well as findings from other academics and the "brain labs" that seem to be popping up at every turn, Stone and Heen offer a full-spectrum analysis of how to skillfully receive feedback.

Why focus on receiving feedback rather than giving feedback? Because, as the authors make clear, it is receivers, not givers, who are in control of the feedback process. It is receivers who choose what and how much information to take in. Because of this fundamental dynamic, it's useless to try to teach feedback givers to be more skillful; instead, feedback receivers need to get better at hearing what givers have to say and distinguishing what's useful from what is not.

Stone and Heen proceed to unpack how this can be done by identifying the origins and effects of—and the alternatives to—the three

> "It is receivers, not givers, who are in control of the feedback process. It is receivers who choose what and how much information to take in."

triggers that keep us from fully engaging in feedback conversations that could contain valuable insights and learning experiences. "Truth triggers" are set off by the substance of the feedback itself as well as our natural impulse to deny any observation that we perceive as casting us in the wrong ("I don't do that!"). "Relationship triggers" cause us to quickly shift our focus from the in- ("You have no right to say that to me!"). "Identity triggers" are little daggers to the heart that cause us to interpret simple information as a judgment of our overall worth ("I must be a total loser if that's how you feel!").

One of the notable features of the book is its use of graphic tools—a refreshing break from the recent trend of using illustrations as a visual respite from the text rather than to add value to the content in business books. For instance, to give teeth to the truism "we all have blind spots," the authors use a "Gap Map" that clearly shows how our awareness of the intention and meaning behind our behavior limits our awareness of how others perceive that behavior. The solution: Develop the ability to distinguish between the effects that our behavior produces and the intentions behind it. If we can do that, we can eliminate some of the blind spots that mire us in self-defeating behaviors.

My only quibble with *Thanks for the Feedback* is a small one. It contains too many previews and recaps—too much telling the reader what the authors are going to say and encapsulating what has just been said. That complaint aside, Stone and Heen have done a remarkable job of showing individuals of the most powerful instruments available for human learning. +

Sally Helgesen
sally@sallyhelgesen.com
is a contributing editor of *strategy+business*. She is an author, speaker, and leadership development consultant whose most recent book is *The Female Vision: Women's Real Power at Work* (with Julie Johnson, Berrett-Koehler, 2010).

China's Strategic Challenge

by David K. Hurst

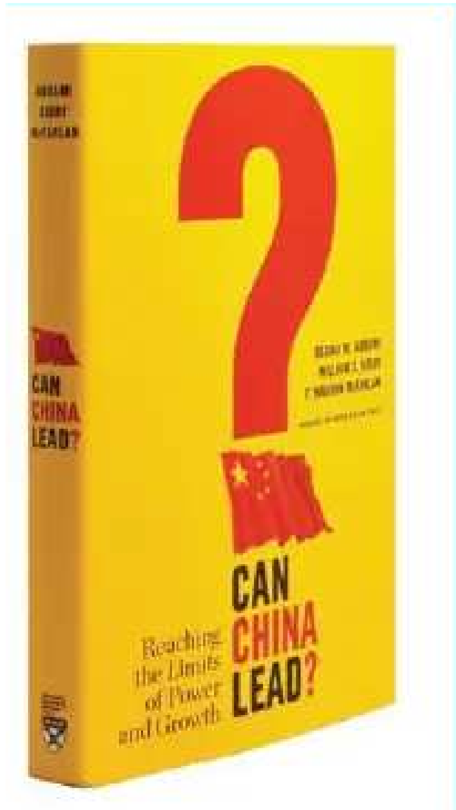
Can China Lead? Reaching the Limits of Power and Growth,
by Regina M. Abrami, William C. Kirby, and F. Warren McFarlan, Harvard Business Review Press, 2014

Can China lead? The provocative question posed by Regina M. Abrami, William C. Kirby, and F. Warren McFarlan in their new book should be of great interest to executives considering how to do business in a country where the ruling party is the primary instrument of economic, state, and social control. The answer offered up by the authors should be of great interest as well: Unless the Chinese Communist Party lays "sustainable foundations for economic growth and social well-being…the China 'miracle' as we have known it is coming to an end."

In explaining their answer, Abrami (a political economist at Wharton) and Kirby and McFarlan (a historian and a management expert, respectively, at Harvard Business School) dispel the myths that formation being offered to how we feel about the person delivering it

and organizations how to leverage the enormous value of feedback, one

cloud the Western view of China to reveal several challenges. "First,



history matters. Chinese civilization may be more than five thousand years old, but China as a country is about a century old, and it is still building the institutions of a modern state." Second, China is made up of many regions and ethnic groups, so "any China strategy must evolve in a nuanced way, dealing with both the local and the central." Third, "the Party-State is omnipresent," and dealing with it requires a long-term commitment. Fourth, the People's Republic is what the authors call a "conquest dynasty," founded on military power and ruled by great families. This means that it is driven, more than any other factor, by the ambition to remain in control of China's destiny.

Against this backdrop, the authors offer a variety of practical pointers and checklists for pursuing business in China. Most of their advice has to do with understanding the influence and interests of the Chinese Communist Party (CCP) at the national, regional, and municipal levels. Government support at one or more of these levels of them will ensure failure. Some advice also harks back to China's deeper roots, such as paying close attention to family connections and networks—a recommendation that casts a new light on the ongoing controversy around Western companies that recruit the children of China's power elite. The task for corporate strategists is something of a tightrope walk: To do business in China, a company must associate itself with the CCP's priorities and interests, but at the same time must hedge its bets against major political upheaval.

What could stop China from attaining a position of geopolitical and economic leadership? The authors argue that the physical infrastructure of a modern state—that is, the relatively easy "hardware" phase of China's current development program, is a maturing effort and sorely needs to be complemented by the matching "software" of social and civil institutions. The problem, as Austrian economist and political scientist Friedrich Hayek pointed out in a different context, is that socialism's "fatal conceit" is the idea that "man is able to shape the world around him according to his wishes." In this sense, socialism is an engineering mind-set par excellence, which may explain why the import of the software of a modern society "dictatorship of engineers." For example, although there may be rule *by* law in China, there is not rule *of* law. And in the authors' view, the CCP will not and cannot accept an independent judiciary. Nor will it accept a free press and a pluralistic political system.

It comes down to trust, say the authors. The CCP does not trust China's citizens enough to install the institutions of a modern society, and China's citizens will never trust the CCP without them. Without mutual trust, the Chinese government cannot exercise moral leadership nationally or globally.

The likely result is foretold in the opening line of the 14th-century Chinese classic *The Romance of the Three Kingdoms*, which describes the turmoil and civil war between the fall of the corrupt Han empire and China's reunification under the Jin Dynasty in AD 280. "Empires wax and wane," wrote Luo Guanzhong, the author of the historical novel, "states cleave asunder and coalesce." The authors of *Can China Lead?* cite it because it "captures the history and challenge of Chinese unity today." ✚

To do business in China, a company must associate itself with the CCP's priorities and interests but hedge against major political upheaval.

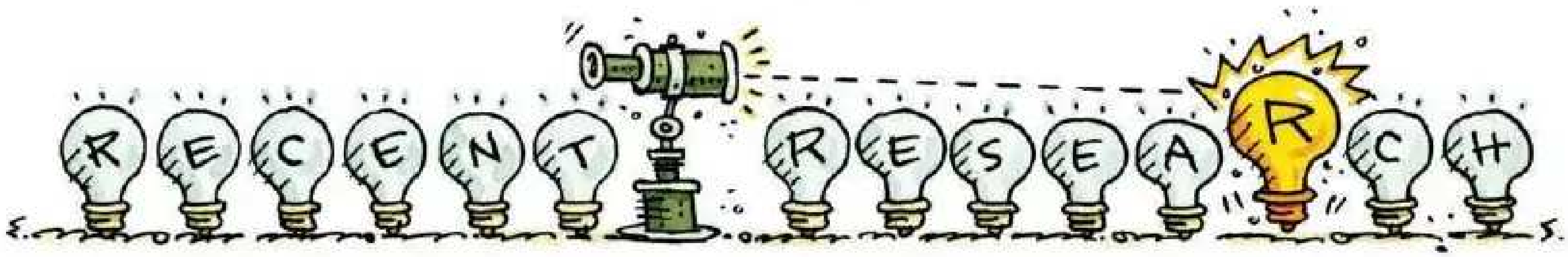
David K. Hurst
david@davidkhurst.com

is a contributing editor of *strategy+business*. His latest book is *The New Ecology of Leadership: Business Mastery in a Chaotic World* (Columbia University Press, 2012). He blogs on

may not guarantee business success, they assert, but hostility at any one

continues to elude the CCP: The authors characterize China as a

University Press, 2012). He blogs on strategy, leadership, and change at davidkhurst.com.



Idea Factories Abroad

To gain influence with the home office, MNC subsidiaries should focus on technology and R&D, rather than marketing or sales.

BY MATT PALMQUIST

The individual business units of sprawling multinational corporations (MNCs) typically struggle to attain real power in corporate decision making. Subsidiaries, among other things, help large firms exploit distant markets through their regional expertise, and can help allay local residents' concerns about foreign ownership. But beyond such fundamental duties, how can small fish make waves in a huge pond?

According to a new study, subsidiaries can attain widespread influence within an MNC in two ways: by concentrating on either (1) technological prowess (in R&D or production) or (2) business acumen (distribution, logistics, marketing, purchasing, or sales). The rare subsidiary that achieves prominence in both domains can exert significant control over the parent company's strategic direction, the authors found. But when a subsidiary can put only one foot forward, focusing on technology rather than business gives it much more sway.

No matter their focus, MNCs need their subsidiaries in order to function effectively. MNCs' head-nology-based capabilities. Subsidiaries are in a better place to know what kinds of marketing will appeal to local cultures, for example, or what kind of IT knowledge will be needed to compensate for the technological quirks of certain regions.

But even though a subsidiary's business-related activities may be valuable to the MNC as a whole, subsidiaries that focused only on activities like sales or marketing generally exerted limited, functional influence along their MNC's value chain, the authors found. They absorbed responsibilities surrendered by other subsidiaries, but they did not affect the MNC's strategic course.

In contrast, subsidiaries that advanced their innovative strengths and technological aptitude saw their stature flourish within the MNC. They were able to provide input on vital strategic initiatives—acquisitions, mergers, and the establishment of footholds in new markets.

The authors surveyed senior executives at more than 2,100 subsidiaries, in various businesses. Interestingly, they found that a subsidiary's record of performing well does not depends on a subsidiary to deliver required resources or skill sets determines the size of the uptick in the smaller unit's status.

Managers seeking to increase their subsidiaries' sway should maintain a considerable level of internal engagement with the MNC's other businesses, the authors write, and at the same time look for new knowledge sources. Snubbing the corporate setup to search for new capabilities, information, and processes can slowly erode a subsidiary's relationships with its sister units and result in less attention from the home office.

Therefore, a subsidiary must strike a balance between looking outward for competencies novel to the MNC and networking internally. +

Source: "How Subsidiaries Gain Power in Multinational Corporations," by Ram Mudambi (Fox School of Business), Torben Pedersen (Copenhagen Business School), and Ulf Andersson (Mälardalen University), *Journal of World Business*, Jan. 2014, vol. 49, no. 1

s+b Recent Research Online

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quarters have difficulty replicating their subsidiaries' business- and tech-

itself lead to increased influence. Instead, the extent to which the MNC

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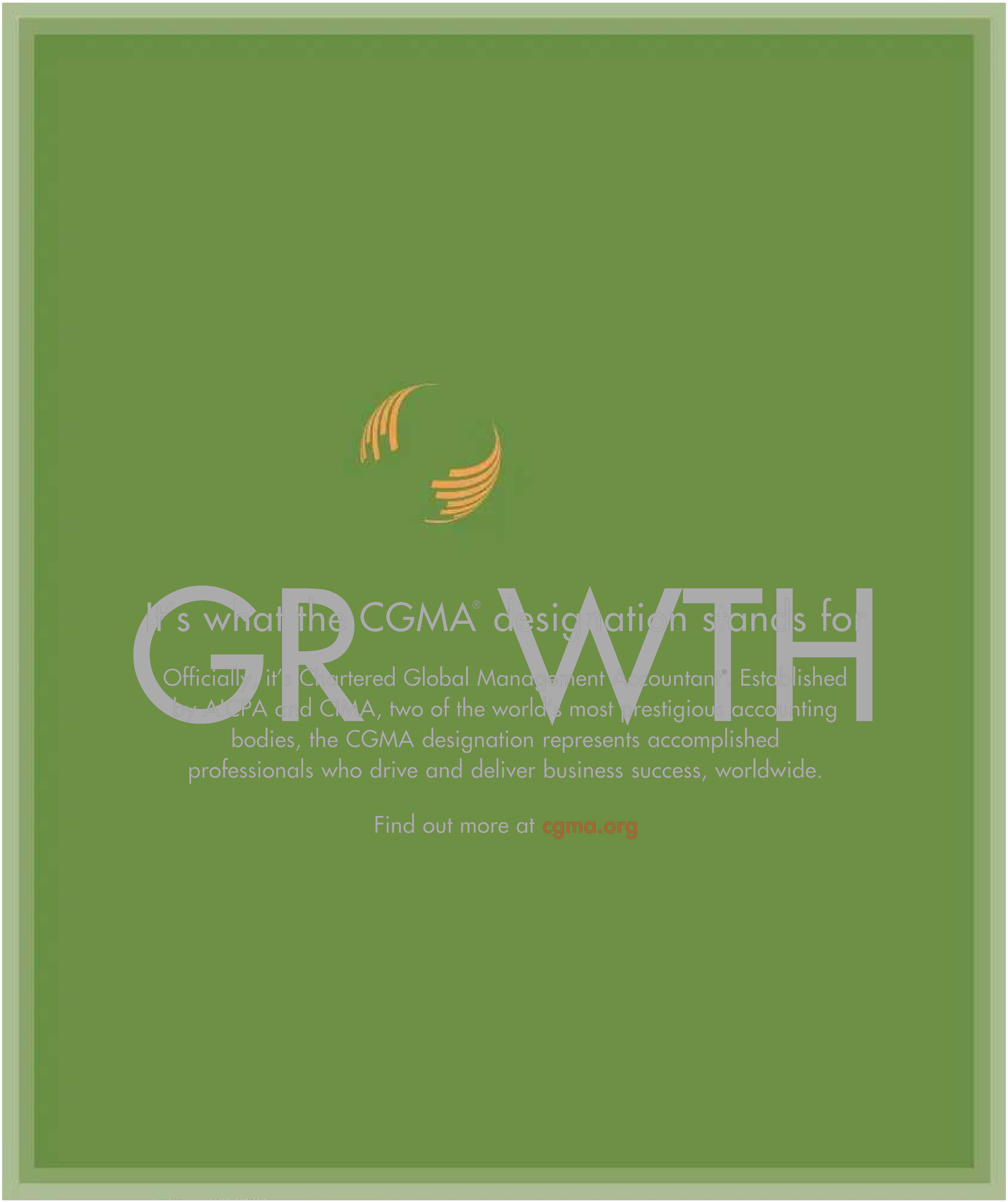
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