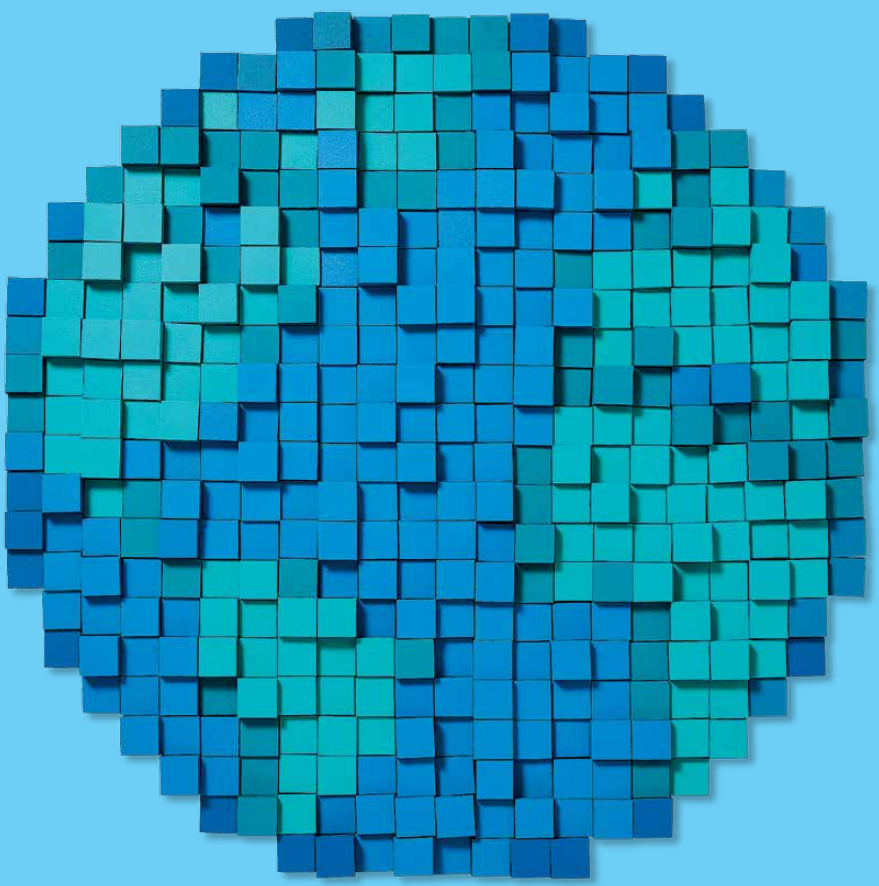
2017 Number 2

McKinsey Quarterly



Global forces

Shifting growth, accelerating disruption, and societal tensions are reshaping your strategic context

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THIS QUARTER

Last summer, the leaders of McKinsey's Strategy and Corporate Finance Practice invited me to a provocative event. It was a two-day session with 25 diverse thinkers from inside and outside the firm, aimed at stimulating debate on where the world was headed. My colleagues put us to work: A week or so before the workshop, we were asked to download an app that enabled us to learn about 75 major trends at work in the global economy, and were assigned a few to explore in depth. When we arrived, McKinsey senior partner Erik Roth, who helps lead the firm's global innovation work and who coauthored the 2015 blockbuster *McKinsey Quarterly* article "The eight essentials of innovation," broke us into small groups and put us through a fast-paced process of "colliding" these 75 trends to produce creative syntheses of market-shaping forces. We combined and recombined ideas well into the second day, producing, in the end, several extremely rough strategic maps for navigating the world of tomorrow.

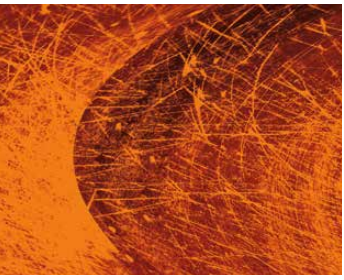
One of those maps ultimately became a foundation for this issue's cover story, "The global forces inspiring a new narrative of progress." The authors, Ezra Greenberg, Martin Hirt, and Sven Smit, have tried to connect the dots among trends big and small and to distill some larger themes—global growth shifts, the acceleration of industry disruption, and the need for a new societal deal—that help make sense of them all. As you will see, the authors believe that today's leaders need to rethink where and how they compete, and also to cooperate in crafting a variety of new arrangements that help individuals cope with disruptive technological change.

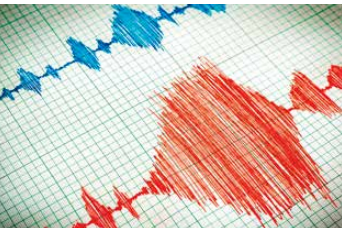
That narrative of intensifying competition, as well as the growing need for cooperation, goes hand in hand with taking a long-term perspective, which you will find covered in another article in this issue, "Measuring the economic impact of short-termism." McKinsey research suggests that companies able to resist the forces of short-termism will invest more, exhibit better financial performance, and create more jobs. This finding—like Ezra, Martin, and Sven's view that today's uncertainty could give rise to new forms of progress—is encouraging.

Several other articles also speak to the forces reshaping our strategic context. GE vice chairman John Rice describes some of his company's responses to the changing nature of globalization. A package of articles looks at accelerating disruption in the insurance industry, the G&A function, and the banking sector, with Piyush Gupta, the CEO of DBS bank, providing an inside view of his company's digital reinvention. Finally, "Are you prepared for a corporate crisis?" proposes a framework for companies confronting external shocks—expect surprises, say the authors, and you'll be better able to deal with them. That principle holds for the forces reshaping today's business environment, too; we hope this issue helps you prepare for them. Q

Allen P. Webb
Editor in chief,
Seattle office

On the cover





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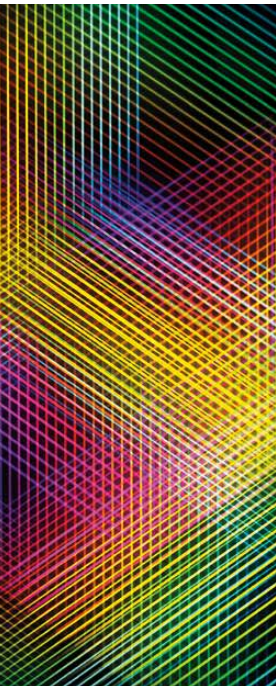
THRIVING IN THE C-SUITE

Features

THRIVING IN THE C-SUITE (CONTINUED)

THREE CASES OF DIGITAL REINVENTION

HOW A BANK, THE INSURANCE INDUSTRY, AND THE G&A FUNCTION ARE RESPONDING TO CHANGE



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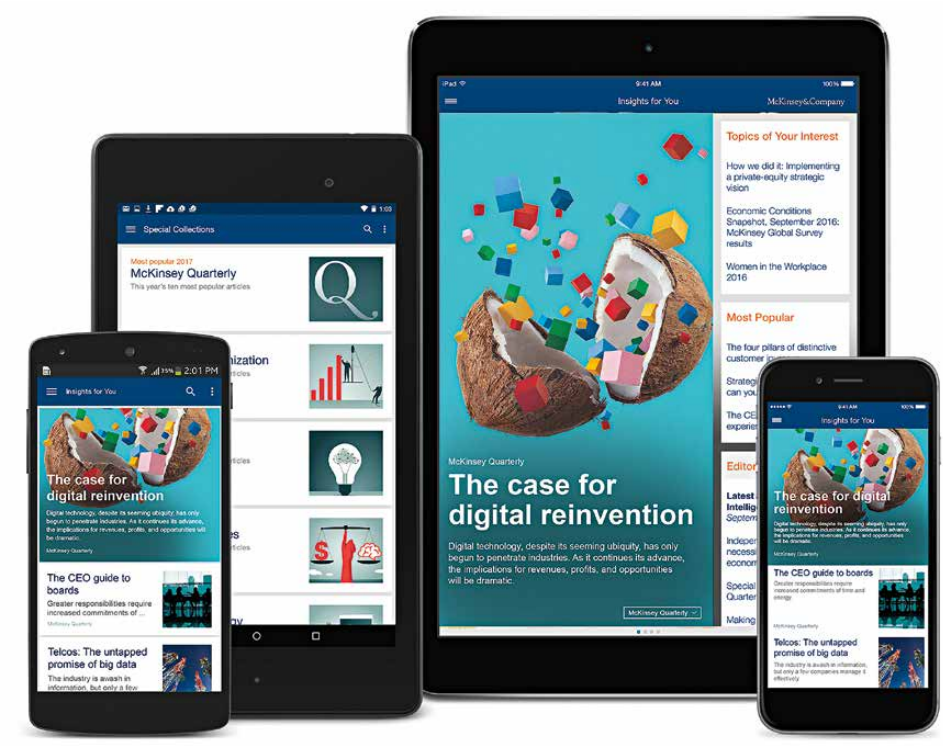

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Leading Edge

Research, trends, and emerging thinking

THREE GAME CHANGERS FOR ENERGY

New sources, mobility, and industry fragmentation are set to disrupt the system.

by Nikhil Patel, Thomas Seitz, and Kassia Yanosek

Change is afoot in the energy system. Soaring demand in emerging markets, new energy sources, and the likely growth of electric vehicles (EVs) are just some of the elements disrupting the status quo. It is hard to discern how the aftershocks will affect the extraordinarily complex network of sectors and stakeholders. New research by McKinsey and the World Economic Forum has identified the game changers for companies and policy makers, as well as their implications.

A proliferation of new energy sources

An array of energy technologies seems poised for a breakthrough. Within two decades, as many as 20 new energy sources could be powering the global economy, including fuel cells; small, modular nuclear-fission reactors; and even nuclear fusion. Fossil fuels will still be part of the mix, but renewables' share is likely to grow owing to environmental concerns, further cost reductions that make renewable energy more competitive, and demand for electricity. Electricity demand is expected nearly to double by the middle of the century, propelled primarily by economic development in China and India (Exhibit 1). By 2050, electric power, which can be generated by low-carbon energy sources such as wind and solar, could account for a quarter of global energy demand.

An economy based on so many technologies is unprecedented. The Industrial Revolution relied on steam engines powered by wood, water, or coal. In the 20th century, oil and gas were added to the mix, then nuclear fission. The

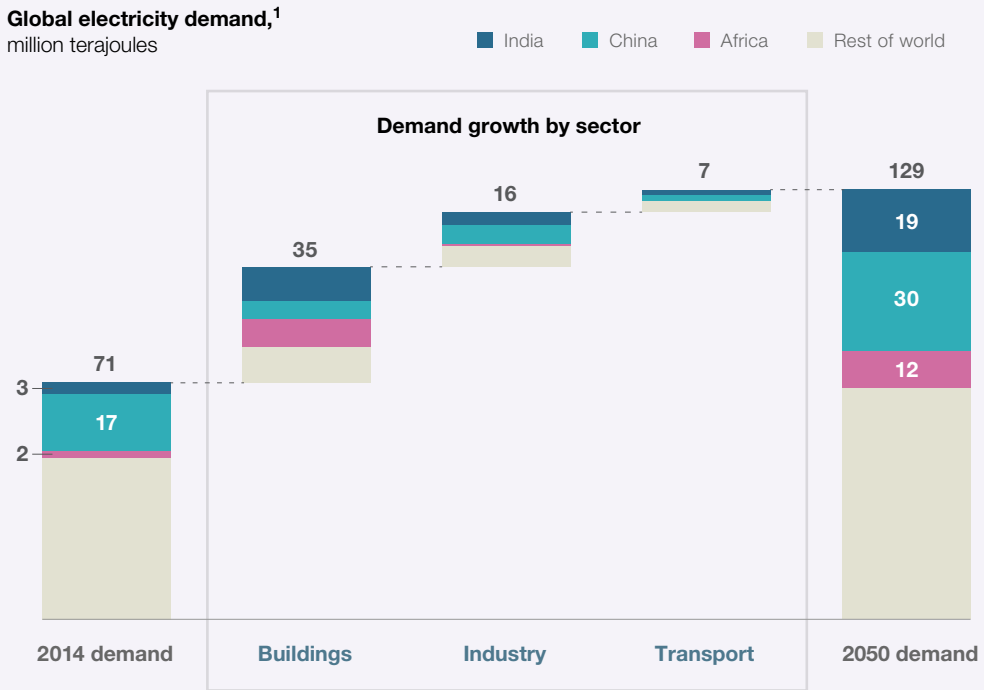
abundant choice on the horizon raises new dilemmas. For example, where should governments focus investment and research efforts? Most are minded to keep their options open for the time being in order to satisfy demand, as well as for cost and environmental considerations. Over time, though, they might have to choose. Uncertainty about how funding will be shared between new technologies could slow their development. And if technologies are in contention, governments might struggle to secure reliable energy supplies. Securing those supplies, however, will no longer necessarily depend on access to oil, gas, and coal reserves—access that has long colored geopolitics. In tomorrow's world, access to the technologies that harness resources such as wind, sun, water, or heat from the earth's core is likely to matter most.

Mobility

The way we move around our ever-spreading cities is set to be transformed by technology and the drive to reduce pollution, congestion, and carbon

Exhibit 1

Global demand for electricity will nearly double by 2050, propelled by growth in China and India.

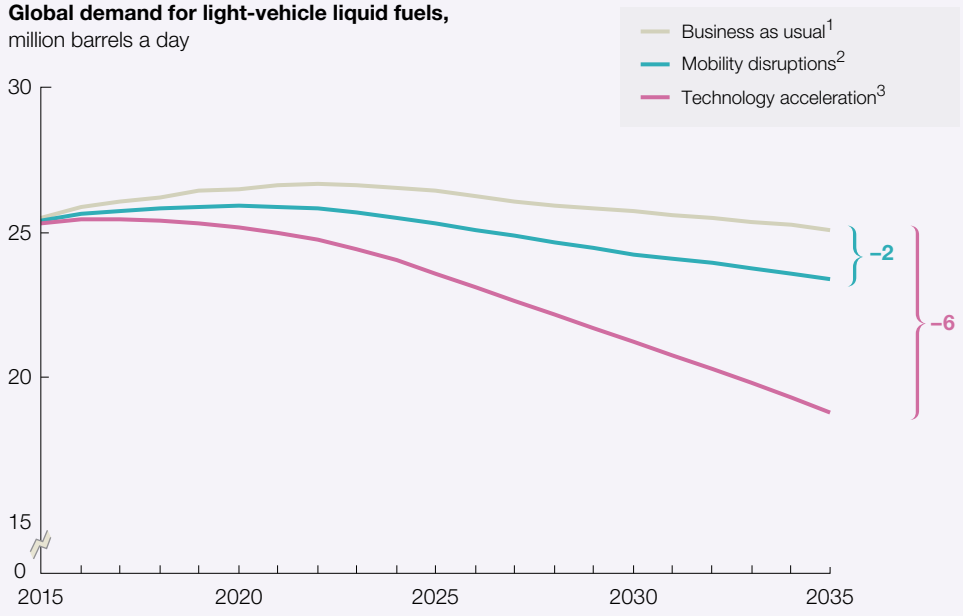


[1] Figures are rounded; 2050 data are projected.

Source: "Global Energy Perspective 2016," Energy Insights by McKinsey

Exhibit 2

Demand for liquid fuels will fall as more electric vehicles take to the road.



[1] Assumes current regulatory and technology developments result in electric vehicles representing 27% of new-vehicle sales in 2035.
[2] Includes impact of shared and autonomous vehicles.
[3] Assumes 37% of new-vehicle sales are for electric vehicles as a result of an acceleration in technological developments and more ride sharing and autonomous vehicles.

Source: "Global Energy Perspective 2016," Energy Insights by McKinsey

emissions. Center stage is the electric vehicle. EVs still have high upfront costs compared to conventional vehicles, but thanks in part to the falling price of batteries, they may be competitive by the mid-2020s. By the mid-2030s, our research shows they could account for between 27 and 37 percent of new-vehicle sales, depending on the extent to which regulation, technology, ride sharing, and self-driving vehicles further reduce costs and boost EV popularity.

These factors present a range of potential consequences. For example, global demand for liquid fuel used in light vehicles could fall by between two million and six million barrels a day (a drop of between 8 and 25 percent), helping to make the chemical industry, not transportation, the source of demand growth for these fuels (Exhibit 2). Oil companies might need to rethink their strategies as a result, perhaps acquiring more acreage to support production of naphtha or natural-gas liquids—key feedstocks for chemical plants. If mobility patterns change rapidly, city planners could find themselves in a matter of years with expensive parking lots that stand empty. And if the cost of

moving around cities in self-driving, shared vehicles falls to the point where it matches the cost of using public-transport systems, passenger numbers and revenues for these systems could fall, potentially making them harder to maintain.

Fragmentation

For the past half century, large players have dominated energy markets. Today, technology is spawning many smaller operators at the same time as new sources of capital emerge. Public markets and governments were once the only investors in the energy sector. But with many governments now cash-strapped, pension funds and private-equity firms are taking up the slack. In the past five years, private-equity firms invested more than $200 billion in the sector, matching new ideas and business models with capital hungry for returns. This fragmentation is diminishing the power of scale to shape markets.

A large number of shale gas and oil producers in North America, for example, make uncoordinated decisions about supply, challenging the ability of the Organization of Petroleum Exporting Countries to influence prices. Large utilities have to factor into their strategies the growing number of cities, businesses, and households that generate their own energy from renewables, often selling surplus back to the grid. And governments could find it harder to implement effective regulation. Rules around drilling, water disposal, and public health and safety are already being tested in North America because of the speed at which the number of oil and gas producers has grown. And distributed power generation has sparked regulatory questions about how to charge grid users equitably. Assuming it is wealthier consumers who can afford to install solar panels, the cost of maintaining the grid falls to a smaller number of less affluent households.

As scale in some areas diminishes in importance, agility takes precedence. With so many players interacting in so many different ways in so many different locations, it is harder than ever to predict the future. Billion-dollar investments in assets that must be productive for three decades or more become far too risky. Instead, companies will need to make smaller initial investments and be able to adjust their strategies rapidly as circumstances change or local conditions dictate. Local differentiation carries increasing competitive weight. In oil and gas, service providers increasingly tailor their offerings not at the country or even regional level, but basin by basin; power companies may need to consider different strategies for different cities depending on the choice of feedstock and the numbers of residents and businesses producing their own energy.

Ironically, fragmentation is likely to encourage more partnerships. While these are already commonplace in oil and gas, where companies split the cost and risk of large capital projects, one might assume that smaller assets with lower costs and risk would have less need of them. Yet with a rising number of participants in an energy system where local differentiation counts, the reverse could be true.

The speed and scale of change in the energy system will depend on the pace of technological advancement—in establishing cheaper, more efficient power storage, for example—and on government policies and regulation. Unless system participants start to plan now, they could find themselves left adrift. Q

Nikhil Patel is a partner McKinsey's Houston office, where **Thomas Seitz** is a senior partner; **Kassia Yanosek** is an associate partner in the New York office.

The authors would like to thank Ann Hewitt for her contribution to this article. She was central to McKinsey's collaboration with the World Economic Forum, gathering the views of industry experts and stakeholders and framing the issues discussed here and in the longer research paper, *Game changers in the energy system: Emerging themes reshaping the energy landscape*, available on McKinsey.com.

MAPPING THE BENEFITS OF A CIRCULAR ECONOMY

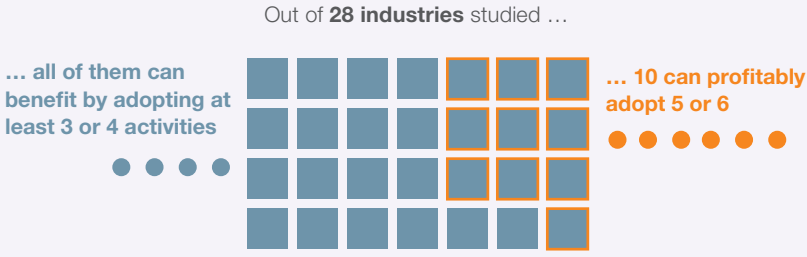
Companies in many industries can improve their financial performance by reconfiguring product life cycles and reusing natural capital.

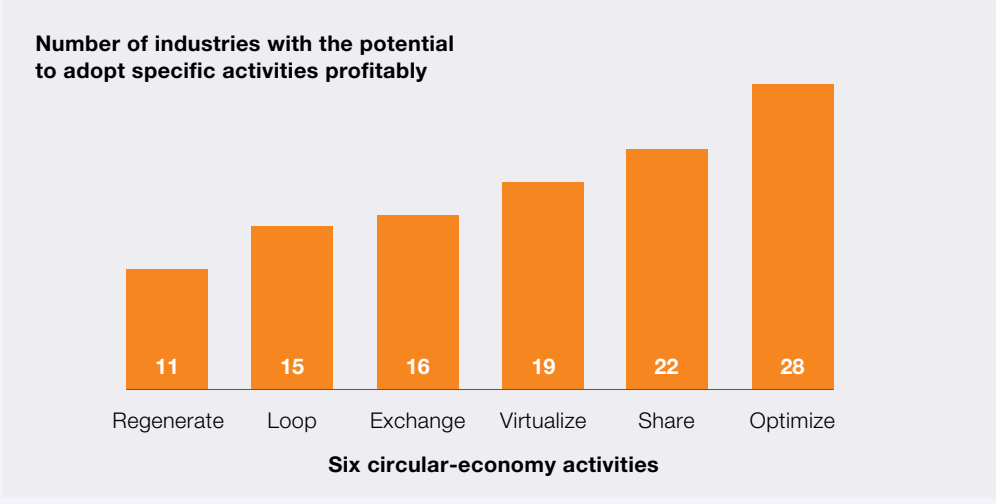
Is there a reliable way for industries to increase their profitability while reducing their dependence on natural resources? In recent years, McKinsey research has shown that the circular economy—using and reusing natural capital as efficiently as possible and finding value throughout the life cycles of finished products—is at least part of the answer.[1] In 2015, as part of a major study with the Ellen MacArthur Foundation, we demonstrated that such an approach could boost Europe's resource productivity by 3 percent by 2030, generating cost savings of €600 billion a year and €1.8 trillion more in other economic benefits.

Exhibit 1 shows that most of the 28 industries we studied could adopt three to four of six potential circular-economy activities, improving performance and reducing costs accordingly. These are shifting to renewable energy and materials (Regenerate), promoting the sharing of products or otherwise prolonging product life spans through maintenance and design (Share), improving product efficiency and removing waste from supply chains (Optimize), keeping components and materials in "closed loops" through remanufacturing and recycling (Loop), delivering goods and services virtually (Virtualize), and replacing old

Exhibit 1

Six circular-economy activities have the potential to improve performance and reduce costs for a number of industries.





Source: *Growth within: A circular economy vision for a competitive Europe*, Ellen MacArthur Foundation and the McKinsey Center for Business and Environment, June 2015

materials with advanced renewable ones or applying new technologies such as 3-D printing (Exchange). Most industries already have profitable opportunities in each area.

On the next pages we explore how leaders are putting these principles to work in three short case studies covering emerging markets and specific industries.

[1] See, for example, Hanh Nguyen, Martin Stuchtey, and Markus Zils, "Remaking the industrial economy," *McKinsey Quarterly*, February 2014, McKinsey.com; and Scott Nyquist, Matt Rogers, and Jonathan Woetzel, "The future is now: How to win the resource revolution," *McKinsey Quarterly*, October 2016, McKinsey.com.

For additional research on the circular economy, see "Finding growth within: A new framework for Europe," in *The circular economy: Moving from theory to practice*, McKinsey Center for Business and Environment, October 2016, on McKinsey.com, by **Morten Rossé,** an associate partner in McKinsey's Munich office, **Martin Stuchtey,** an alumnus and former director of the McKinsey Center for Business and Environment, and **Helga Vanthournout,** a senior expert in the Geneva office.

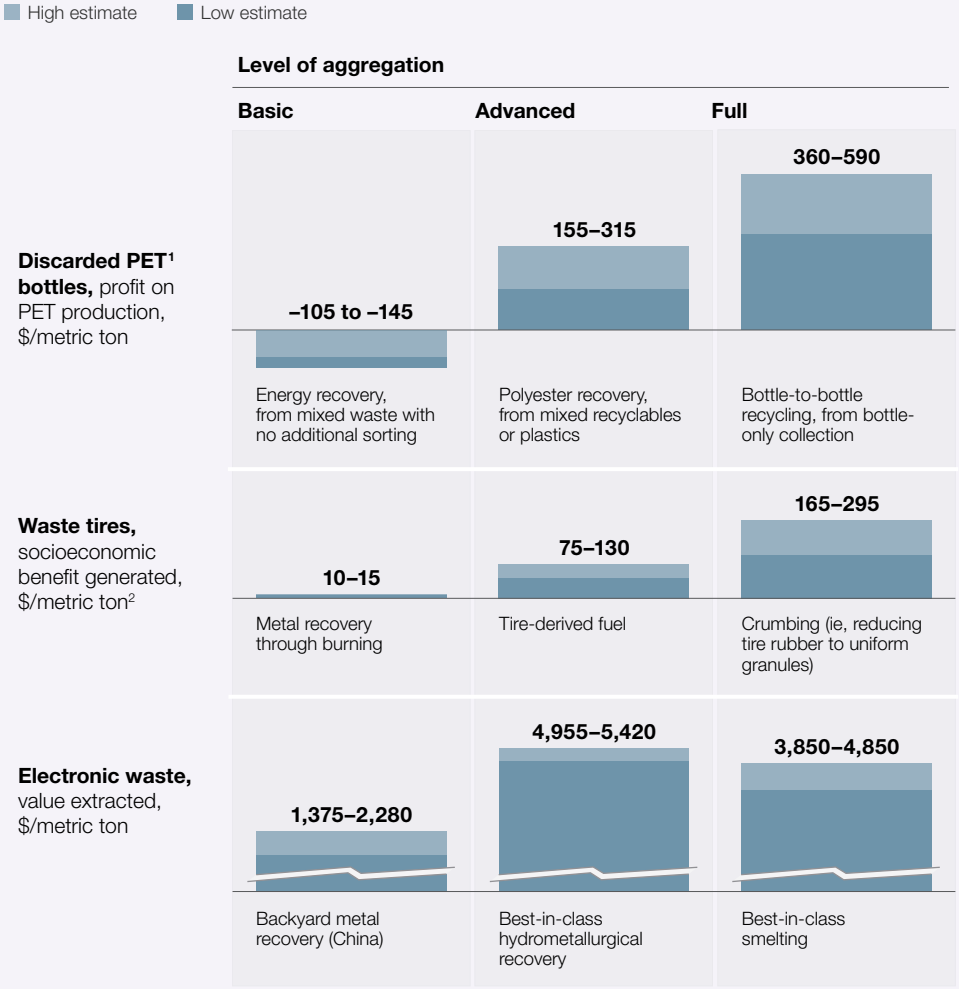
BUILDING A BUSINESS FROM WASTE

Economic growth in emerging markets has helped to raise living standards—but inevitably it has also generated massive consumer and industrial waste. Many municipalities in these markets spend up to half their budgets on solid-waste management. Innovative businesses, however, drawing on circular-economy principles, are finding ways to convert trash into income streams. By aggregating volumes substantial enough to justify business investment, they are able to create the infrastructure to organize and manage waste supply chains.

Exhibit 2 shows three opportunities and three levels of value for each. Polyethylene terephthalate bottles

Exhibit 2

Value recovery generally increases with the aggregation of waste flows and investment in more advanced recovery approaches.



[1] Polyethylene terephthalate.
[2] South Africa example; socioeconomic benefit includes operating profit, wages, interest and rent, taxes, R&D investment, social uplift and education spending, and is net of public investment (fees levied). Exchange rate: $1 = 10 South African rand (average 2013–15).

Source: *Plastics News*; Umicore; United Nations University/Step Initiative; WRAP

in mixed waste, for example, can be incinerated, but the economic payoff from the energy generated is low. Recovering the bottles' material value, from mixed recyclables or bottle-to-bottle recycling, produces a much higher payout. Metals, meanwhile, are commonly extracted from tires in open backyard fires—at great cost to human health and the environment. Aggregating tires for use as industrial fuel, on the other hand, could increase their value almost tenfold, while crumbling them to make road-paving material yields even more. The same principle works for electronic waste: shifting from small-scale recycling to best smelting processes or liquid-chemical extraction techniques multiplies yields. Bear in mind that pound for pound, there is more gold in electronic scrap than there is in ore.

Scaling up requires management discipline. Successful programs such as the tire-recycling exchange of the Recycling and Economic Development Initiative of South Africa (REDISA) have a strong balance sheet that encourages investment by downstream waste users and the management expertise to hone operations and attract talent. They also invest in infrastructure, including IT. REDISA's digitized product tagging improves recovery, which in turn allows manufacturers to design tires with less toxic materials.

For the full article, see "Ahead of the curve: Innovative models for waste management in emerging markets," in *The circular economy: Moving from theory to practice*, McKinsey Center for Business and Environment, October 2016, on McKinsey.com, by **Hauke Engel,** a consultant in the Frankfurt office, **Martin Stuchtey,** and **Helga Vanthournout.**

MAKING 'FAST FASHION' SUSTAINABLE

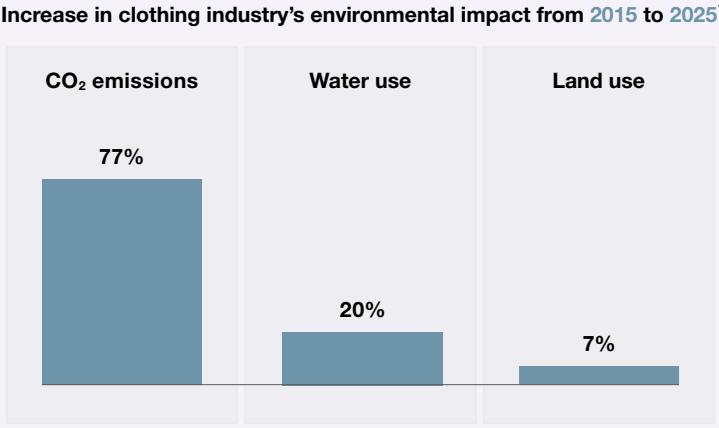
Apparel sales have risen sharply in recent years, as businesses have used "fast fashion" design and production systems to cut prices and introduce new lines more often. From 2000 to 2014, global clothing production doubled and the number of garments sold per person increased by 60 percent. In five large developing countries—Brazil, China, India, Mexico, and Russia—sales grew eight times faster than in large advanced countries, though the average advanced-country resident still buys more clothing each year.

Narrowing that gap represents a big opportunity for clothing companies, but the environmental consequences are clear (Exhibit 3). Making and laundering clothes typically requires large quantities of water and chemicals; fiber farms occupy vast tracts of land; greenhouse-gas emissions are significant. After consumers discard old garments—something that happens ever more quickly—current technologies cannot reliably turn them into fibers for new clothes. Without improvements in how clothing is made, cared for, and disposed of, apparel's environmental impact will worsen.

Clothing businesses are taking note. Some have formed coalitions to promote nontoxic chemicals, improve cotton farming, and raise production standards. Others are helping develop standards for garments that can be more easily

Exhibit 3

As consumer spending increases, especially in emerging economies, the clothing industry's environmental impact could expand greatly.



[1] Estimated, assumes 80% of emerging markets achieve Western per capita consumption levels while rest of world's current level remains constant. CO_2 emissions were measured in millions of metric tons; water use, billions of cubic meters; and land use, millions of hectares.

Source: World Bank; McKinsey analysis

reused or recycled, and investing in the development of new fibers that will lower the environmental effects of production. Using more sustainable methods may cost slightly more, but doing so can also spur innovation, guard against supply-chain shocks such as drought conditions that affect cotton supplies, and enhance corporate reputations.

For the full article, see "Style that's sustainable: A new fast-fashion formula," October 2016, on McKinsey.com, by **Nathalie Remy,** a partner in the Paris office, **Eveline Speelman,** a consultant in the Amsterdam office, and **Steven Swartz,** a partner in the Southern California office.

WHY SUPPLY CHAINS HOLD THE KEY

The global consumer sector is expected to grow 5 percent a year for the next two decades. But environmental and social problems pose a real threat. We estimate that more than half of the enterprise value of the top 50 consumer companies depends on their projected growth, which is vulnerable to issues such as drought, government limits on greenhouse-gas emissions, and reputational damage from insufficient attention to pollution and safety.

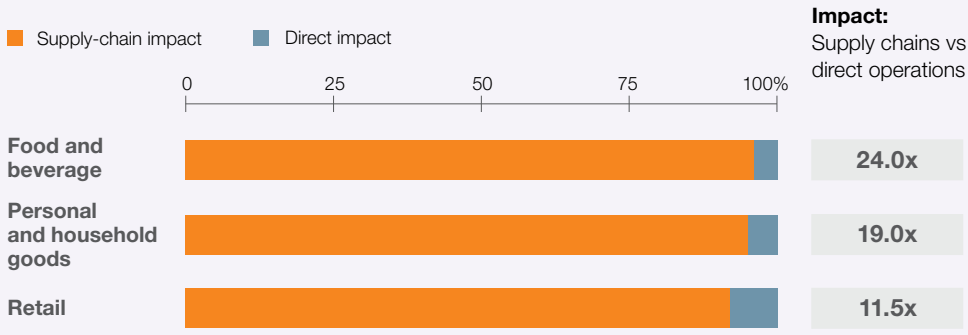
When managing their sustainability performance, consumer companies often start with their own operations. The largest opportunities for improvement, however, can probably be found in supply chains, which typically account for 80 percent of a consumer business's greenhouse-gas emissions and more than 90 percent of its impact on air, land, water, and biodiversity (Exhibit 4).

Identifying sustainability challenges along the entire supply chain, then, is

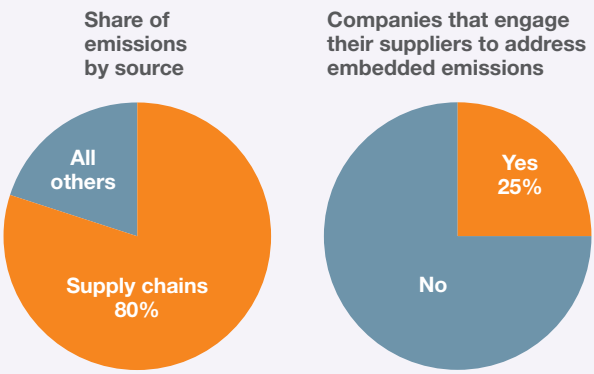
Exhibit 4

Most of the environmental impact associated with the consumer sector is embedded in supply chains.

Impact by source on natural capital resources
(eg, air, soil, or water) for selected industries



Greenhouse-gas emissions
for 4 industries studied



Note: Supply chains are defined here as all organizations, including energy providers, involved in producing and distributing consumer goods. Greenhouse-gas-emissions data are for electronics and electrical equipment, food, manufacturing, and textile, apparel, and shoes.

Source: Carnegie Mellon University; CDP (formerly the Carbon Disclosure Project); GreenBiz; McKinsey analysis

crucial. However, fewer than 20 percent of the 1,700 respondents to a survey by the Sustainability Consortium are doing this. Best-practice companies assist suppliers with managing sustainability impact, offering incentives for improved performance, sharing technologies that can help optimize the use of resources such as water and soil, and closely monitoring performance to be able to intervene quickly when problems arise.

For the full article, see "Starting at the source: Sustainability in supply chains," November 2016, on McKinsey.com, by **Anne-Titia Bové,** a specialist in the São Paulo office, and **Steven Swartz.**

THREE TIPS FOR KEEPING TRANSFORMATIONS ON TRACK

Individual initiatives often underdeliver or fall behind schedule. These ideas may help leaders meet their goals.

by Michael Bucy, Tony Fagan, and Cornelia Piaia

Rapidly improving corporate performance often involves thousands of initiatives aimed at boosting revenue, cutting costs, or both. Some are big, some are small, but all face a common challenge: translating opportunity into reality. Much can go wrong as initiatives move from an initial identification of the scale of the opportunity to validation, planning, execution, and (finally) concrete cash-flow realization.

To understand how much (and why) such initiatives come up short, we studied 18 performance transformations in 13 organizations across a range of industries in Asia–Pacific,[1] some of them facing significant operational or financial challenges and others stable but seeking a substantial step-up in their performance. Our review[2] suggests the cumulative impact of the leakage during implementation is startling at nearly 70 percent (Exhibit 1). The majority of this leakage takes place quite early on—just between the identification of opportunity and the approval of a business case.

What's more, many initiatives that ultimately deliver do so far behind schedule. On average, for example, almost one-third of initiatives will have their execution end date changed at least once throughout their life cycle. About 28 percent will see it happen twice, and 19 percent three times. Even after all these changes, about half of all initiatives still miss their execution target date by more than a week. In fact, the average initiative isn't fully executed until approximately four weeks after the set deadline.

Value leakage and time slippages suggest a variety of execution challenges. Clearly, some initiatives quickly prove unrealistic to pursue, and many others with promise die early on or take much longer than expected to execute. Here are a few ideas for leaders hoping to do a better job of delivering on ambitious performance-improvement goals.

1. Be relentless (especially in finding the small initiatives)

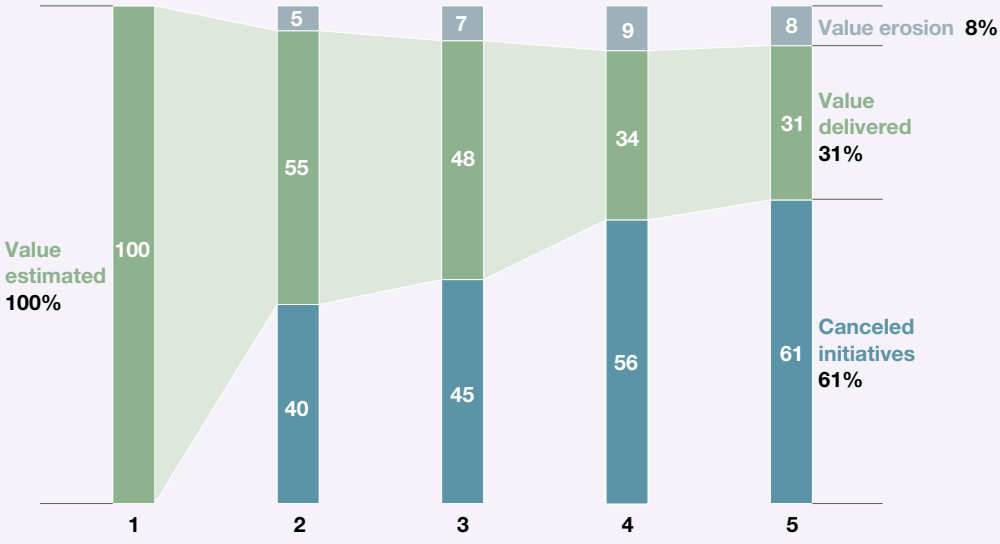
Leaders may ultimately need to generate a portfolio of initiatives whose estimated value is at least three times their program's goal. With good reason, leaders often focus on the highest-profile, highest-value initiatives. But it turns out that about half of a typical program's value comes from small initiatives, which we dubbed "sand" (Exhibit 2).

Small initiatives work, in part, because they require fewer layers of approval and less coordination and because frontline analysts and managers with more of a

Exhibit 1

Initial estimates for the impact of transformations are invariably optimistic, but little impact survives to realization.

Expected impact of leakage by level,[1] %



[1] Figures may not sum to 100%, because of rounding.

Source: Wave by McKinsey

stake in the transformation's success often lead them. At one mining company, a mechanic came up with an idea that reduced maintenance time for each truck by more than 30 minutes. Once applied to the regular monthly service schedule across the entire fleet, this idea added several thousand truck working hours per year and was worth millions of dollars.

2. Focus your resources

Every moment an initiative owner spends on work that isn't productive is a moment taken away from helping generate more impact.

How much, therefore, is it reasonable to ask of initiative owners? On average, we found that initiative owners, whom we defined as the most senior person who actually did the day-to-day work, managed three initiatives each. That's a heavy load. What's more, in the transformations we studied, 20 percent of initiative owners manage about 80 percent of total impact (Exhibit 3). Typically, these heavy hitters represent a few very senior or high-potential individuals who own big-value initiatives, such as major contract renegotiations.

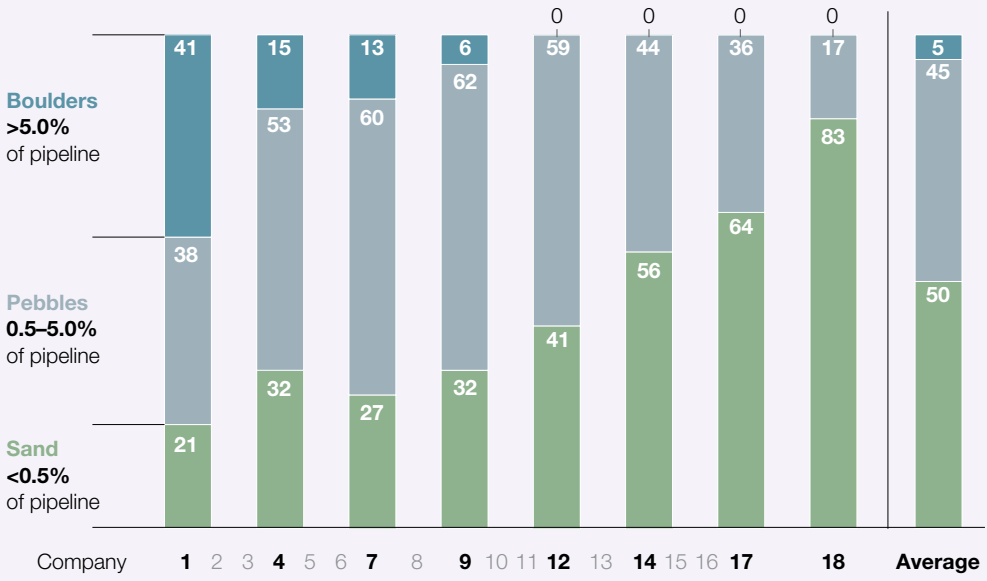
Breaking up big initiatives into smaller–value initiatives can spread the load, involving more people and building momentum for the program as a whole.

More initiatives, though, add complexity and must be managed carefully. While

Exhibit 2

Half of the value for transformation programs typically comes from the smallest initiatives.

Recurring impact on selected companies by initiative size, % share



Source: Wave by McKinsey

tracking is important, executives driving a transformation should avoid setting detailed milestones that distract initiative owners at negligible additional value. Our data show that an average of four milestones was typically the right balance—enough to provide early warning about potential problems but not so many as to get in the way of implementation.

Complex financial metrics can also intrude. Our evidence suggests that of the metrics organizations claim to follow, less than a third are actively used during the length of the project. The rest become statistical noise and a source of confusion for initiative owners trying to decide where to allocate savings from their initiatives. Several organizations told us that, as a rule of thumb, they eliminated any metric likely to carry less than 0.01 percent of total program impact.

3. Plan and adapt

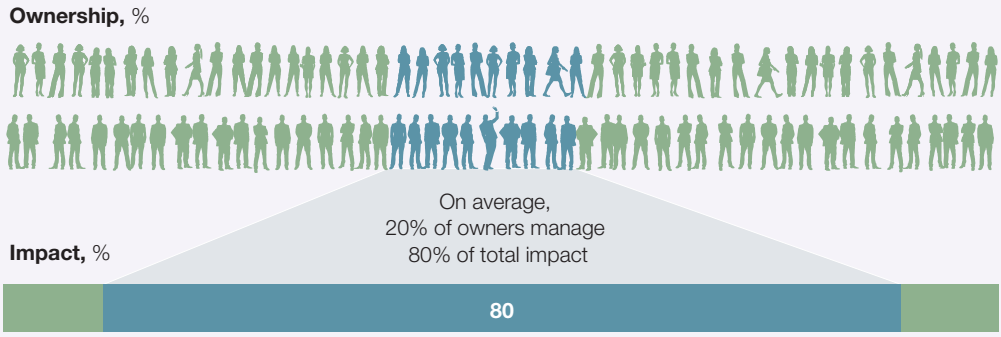
What can organizations do to prevent delays in the implementation of initiatives?

Helping initiative owners, and particularly heavy hitters, meet their goals is ultimately the role of the transformation office.[3] McKinsey experience suggests that a chief transformation officer who comes from outside the organization can often be in a better position to break through the cultural norms and other constraints that often impede an initiative's progress.

Some delays are unavoidable, but initiative owners can still mitigate the impact

Exhibit 3

Heavy reliance on a few initiative owners could create burnout risk.



Source: Wave by McKinsey

by ensuring that each initiative moves forward every week, regardless of whether there's a milestone or not. Leaders should expect 80 percent of the initiatives across a program to be updated with specific actions every week. While that may seem high, we have found that with five minutes of planning, almost every initiative, no matter how small, can be improved or accelerated each and every week. Two companies in our sample drew on data from a program-management tool to review how much actual value each initiative was generating, and conducted a root-cause analysis on those that were cancelled, delayed, or that underdelivered. This analysis enabled them to improve on execution in real time, and in subsequent initiatives.

Performance transformations are enormous efforts. Yet our research suggests leaders can boost their odds of success by thinking small, involving more people as owners of initiatives, and then delivering relentlessly week after week. As is so often the case in business and in life, it's the little things that matter. Q

[1] Annual company revenues ranged from $2 billion to $28 billion, and sectors included construction, consumer goods, electric power, mining, oil and gas, natural resources, and retail banking.

[2] The analysis was enabled by McKinsey's proprietary program-management platform, Wave, which generates detailed reports tracking the financial and operational impact of individual initiatives.

[3] See Olivier Gorter, Richard Hudson, and Jesse Scott, "The role of the chief transformation officer," November 2016, McKinsey.com; and Kurt Chauviere, Ben Maritz, and Jasper van Halder, "The role of the transformation office," November 2016, McKinsey.com.

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The authors wish to thank Barr Blanton, Simon Herrmann, Matteo Iachino, Benoît Maraite, Nicolas Maya Medina, and Erwin Sie for their contributions to this article.

For more on improving the odds of your transformation success, see "Transformation with a capital *T*," on McKinsey.com.

THE VALUE PREMIUM OF ORGANIC GROWTH

Beware of letting acquisitions take priority.

by Marc Goedhart and Tim Koller

It's not surprising that many executives think about growth primarily in terms of acquisitions. For some, opportunities to grow organically are limited, especially in maturing or contracting product markets. Others are drawn to the allure of high-profile deal making, with its virtually instant boost to revenues and often earnings per share as well.

But executives shouldn't underestimate the power of organic growth. It may take more time and effort to affect a company's size, but organic growth typically generates more value. A look at the share-price performance of 550 US and European companies over roughly 15 years reveals that for all levels of revenue growth, those with more organic growth generated higher shareholder returns than those whose growth relied more heavily on acquisitions (exhibit).[1] The main reason is that companies don't have to invest as much up front for organic growth.[2] In growing through acquisition, companies typically have to pay for the stand-alone value of an acquired business plus a takeover premium. This results in a lower return on invested capital compared with growing organically.

We often see companies pass up organic-growth opportunities because they take longer to boost earnings than acquisitions do. But, given an option, they should probably tip the balance toward what they can achieve organically. Q

[1] We grouped 550 large US and European companies into thirds based on total revenue growth. We then ranked the companies in each tercile by their increase in goodwill and intangibles as a proxy for acquired growth, and again broke them into thirds based on their level of acquired growth. We then compared the median TRS for each of the nine groups. Since our proxy is imprecise, the chart shows the TRS only for those companies with the most and least organic and acquired growth. The sample excludes the banking and insurance sectors, which severely underperformed in this period because of the 2008 financial crisis. It also excludes the extraction and commodity sectors because their performance is strongly affected by commodity price cycles.

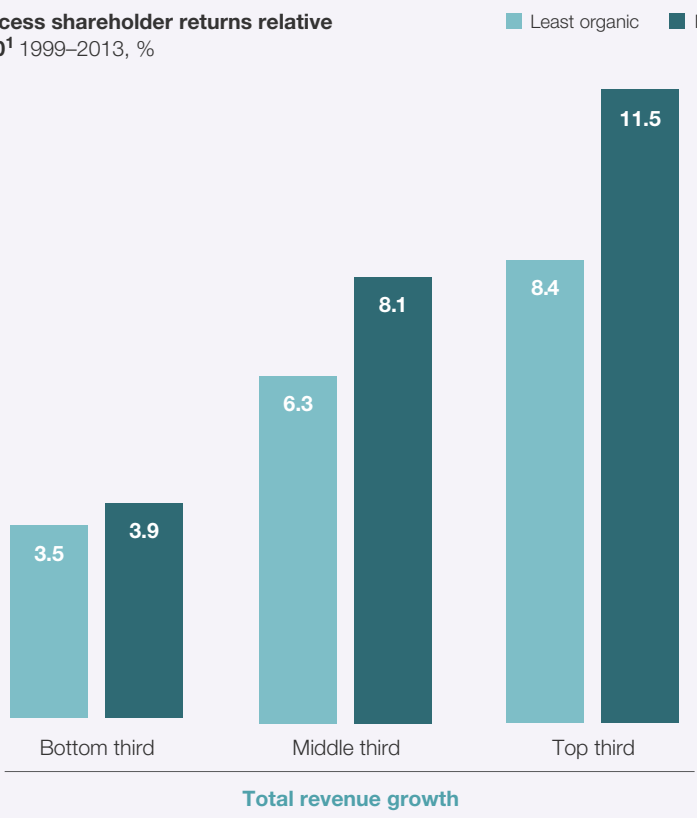
[2] There is a selection bias in our sample: not all companies that invest in organic growth actually realize that growth.

Marc Goedhart is a senior expert in McKinsey's Amsterdam office, and **Tim Koller** is a partner in the New York office.

Exhibit

At comparable total growth levels, companies with more organic growth outperform those with more growth from acquisitions.

Annualized excess shareholder returns relative to the S&P 500[1] 1999–2013, %



[1] Excludes banks, insurance companies, extraction companies, and cyclical commodities.

PUSHING MANUFACTURING PRODUCTIVITY TO THE MAX

Advanced analytics and lower-cost computing give companies a powerful tool for managing profitability on an hourly basis.

by Robert Feldmann, Markus Hammer, and Ken Somers

Many companies do their best to optimize production processes using established rules of thumb or incomplete data. But at the end of the month or reporting period, they often discover sizeable gaps between actual profits and what they had expected. In our experience, that is because they typically lack precise-enough measures to understand the small, real-time variations in process flows and manufacturing steps that cumulatively erode returns at facilities such as mines, steel mills, or other manufacturing plants. This information, moreover, is rarely shared quickly enough for managers to respond in the tight time frames required.

Our work across a number of industries suggests that companies can eliminate these profit-draining variations, as well as speed up reaction times by using advanced data analytics combined with upward cascades of data to manage performance. A metric we have termed *profit per hour*—which in an earlier article[1] we described as a way to improve resource productivity—provides a much more exact view of fluctuations in the operating environment and a much better means of communicating the implications to top managers.

Extending the measurement frontier

By combining measures of value, cost, and volume over *time*, profit per hour is more potent than the sort of metrics commonly used in many industries. Using data captured from sensors, along with advanced-analytics tools, industrial companies can deploy self-learning models that simulate the expected value and cost of individual processes and even entire factories on a continuous basis. From this analysis, patterns emerge on where costs, heat levels, recovery levels, and other variables are deviating from predicted values. Operators can then fine-tune process procedures or adjust inputs so as to eliminate losses as much as possible during those periods in the day when profitability falls below optimum levels. The insights create a new information backbone, linking real-time performance at ground level to company profitability and allowing managers time to make the necessary trade-offs.

Until recently, companies lacked the usable data, advanced sensors, and processing capabilities to gauge the performance of operations with real-time precision. But increases in lower-cost sensors, wireless connectivity, cloud data storage, and computing power have

changed the equation, as has the development of smarter analytics tools that analyze continuous process flows and complement advanced-process-control systems such as those found in refining, the petrochemical industry, or major production steps of the steel industry. Moreover, as more efficient and effective analytics emerge, there is greater scope to widen profit-per-hour analysis beyond just a few of the most critical processes. Meanwhile, further reduction in the cost of storing vast quantities of data allows finer-tuned performance management to reach across entire plants and even across companies.

Reaping the benefits

Two examples demonstrate how profit per hour can result in significant performance gains.

Process-level improvements at a chemical plant. The manufacturer had previously invested substantially in automation and advanced process control to increase throughput of a product line. Managers, however, knew that the external weather was affecting the efficiency of the process and the performance of the plant: the problem was they didn't know to what extent. Technicians therefore identified a list of ambient and internal conditions that tended to vary in summer, such as wind direction, relative humidity, and temperature, among others. Armed with the necessary data, they built an advanced neural analytics model that was able to simulate profit per hour for the line under ideal, seasonally adjusted conditions—enabling management to note disturbances and take remedial action. The model further allowed the team to identify precisely the lost output and margin effect resulting from variations in each factor, including and in addition to the weather parameters. The team then focused on the top five that could be controlled by process adjustments or targeted investments. The company ultimately discovered that upgrading one piece of equipment could yield nearly €500,000 in value annually, in an investment that paid for itself within 12 months. The model also indicated how speedy reaction to operating deviations boosted profit per hour, a message communicated in additional training sessions for the frontline operators charged with monitoring dashboards and adjusting processes in real time. The newly defined parameters and rules were thereafter included in the process-control systems with the goal of increasing profits per hour by up to 2 percent.

Facility-wide gains at a steel mill. A steelmaker's most important site seemed to be operating in the dark. Capital upgrades only intermittently resulted in higher returns. Operating decisions were often based on historical wisdom and personal experience, with little in the way of facts to demonstrate their potential financial impact. Meanwhile, data gathering was substandard, and manufacturing units within the plant often used different top-level key performance indicators (KPIs), preventing an integrated view of performance across the whole plant.

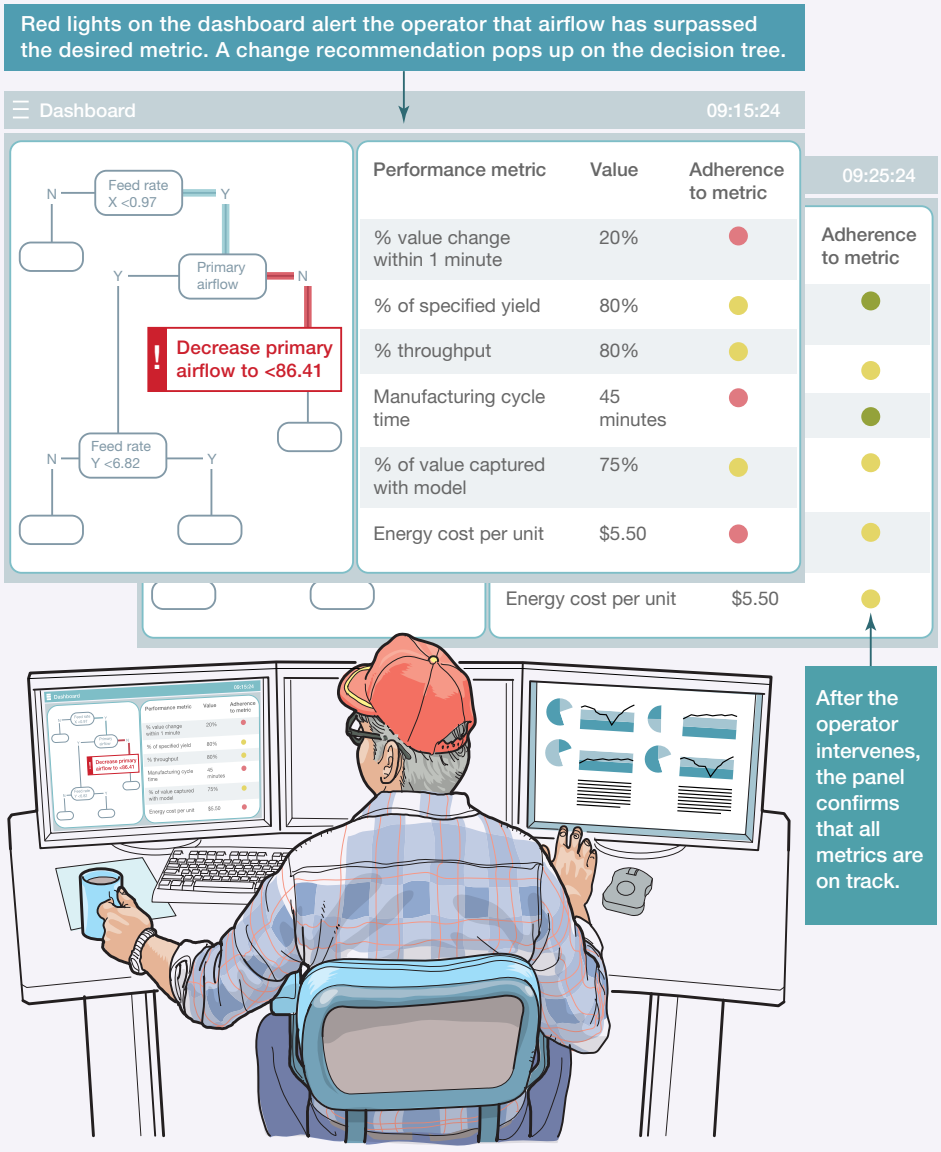
Senior management decided to remedy the situation with a radically different, multistep approach. At the core was a new KPI, which cascaded to the entire

executive suite and linked operations performance to a single plantwide daily profit standard, grounded in profit-per-hour analytics. The goal was to give plant-level managers and frontline operators greater visibility into production variability, as well as to offer financial executives a surer sense of the facility's performance. During the first phase, the mix of operational metrics was aligned with the new profit measure.

In phase two, technicians tested the metric for insights into operating performance across the site's hot rolling mills, steel-making plant, ironmaking plant, sintering plant, auxiliary power generators, and other units. In a third phase that involved new investments in IT, the company installed dashboard monitors (exhibit) that displayed the metrics both on the plant floor and in senior-management offices.

Exhibit

To increase profits per hour, operators and engineers monitor dashboards and adjust processes in real time.



A centralized data-storage system and standardized data analytics form the IT backbone.

The unified metric has allowed full tracking of costs. With additional training of front-line employees and managers alike, it has driven *kaizen*[2]-like problem solving on a real-time basis. Variations in efficiency, previously likely to continue for days, are now eliminated within hours on average thanks to new ways of working across the facility. Costs have fallen by 8 percent in the two years since the new profit standard was adopted, and, coupled with other improvement initiatives, it has resulted in close to an $80 million cumulative increase in earnings. Additional gains are expected as better data analytics open pathways to new process improvements and work flows.

Exploring new horizons

With rapid adoption of process sensors and greater capture of data, artificial intelligence (AI) is likely to figure prominently in the next wave of gains. Analytics models will "learn" from process variations and make adjustments automatically. Google's DeepMind AI is already doing this to reduce energy used for cooling its data centers by up to 40 percent. Models learn from historical data such as temperature, power consumption, and the functioning of cooling systems. They use that information to understand variations in data-center operating conditions and "judge" how best to run cooling systems with minimum power use. In future AI systems such as these, profit per hour could become the benchmark for optimizing operations.

While still in its early days, we're seeing instances where profit per hour can be applied across multiple company manufacturing sites and even more broadly to supply-chain networks and decisions about how to serve customers. A more accurate, real-time view can help companies understand—among a growing list of possibilities—how to optimize the supply routes to a given finished product, how to most profitably serve customers when several production sites exist, how many products to manufacture from a single production site, and the best combination of make-versus-buy options. Such end-to-end systems could provide companies with unparalleled "postmortem" analysis of where value is leaking across their operations, as well as new ways to simulate the forward impact of strategic decisions.

With the growing capture of unstructured data on human interactions from video and social media, profit-per-hour metrics could soon be applied in nonindustrial settings, such as retail operations. As the quality of IT and analytic skills improves across sectors, and as managers learn to accelerate frontline adoption, productivity levels are likely to increase in a wide range of economic activities. Q

[1] See Markus Hammer and Ken Somers, "More from less: Making resources more productive," *McKinsey Quarterly*, August 2015, McKinsey.com.

[2] A Japanese business philosophy of continuous improvement.

Robert Feldmann is a senior expert in McKinsey's Frankfurt office, **Markus Hammer** is a senior expert in the Vienna office, and **Ken Somers** is a partner in the Antwerp office.

The authors wish to acknowledge the contributions of Steve Chen, Olivier Noterdaeme, Joris van Niel, and Xiaofan Wang.

SPURRING DIGITAL BANKING IN THE GULF

Regional consumers purchase everything online but financial services. Bankers and regulators need to step up the pace of innovation.

by George Haimari, Sheinal Jayantilal, and Kishan Shirish

Consumers in the Middle East may be avid digital buyers. Yet the two big banking markets among the Gulf Cooperation Council (GCC) states,[1] Kingdom of Saudi Arabia and United Arab Emirates, rank well below developed Asia when it comes to purchasing digital financial services (exhibit). There is some urgency to stepping up the pace. Our research shows that over the next three to five years, competition from digital-only banks and fintech start-ups will heat up as it has in developed markets. The new competition could leave digital-laggard banks five to ten percentage points behind the winners when measured by return on equity.

Besides strong customer adoption of digital purchasing generally, increasingly multichannel consumer decision journeys and customer openness to purely digital propositions are intensifying the pressure on banks. In fact, we estimate about 80 percent of consumers in the two big banking markets are willing to shift from a third to more than half of their credit-card, savings, and borrowing activity to banks with strong digital offerings. Consumers, we found, want to be able to access value-added features, such as loyalty programs and discounts, through their mobile phones.

However, bank branches will not disappear from the GCC, in the short term at least. Despite the allure of digital offers, our survey shows that physical channels will continue to play major roles in banking. Banks will need to repurpose their branches for higher-value advisory services.

Attacker banks are likely to develop more focused digital experiences with much less costly service models. Fintechs will offer innovative, app-based services, as they are not held back by legacy IT costs and constraints.

Incumbents will therefore need to harness new technology to improve the customer experience, streamlining processes and using data and advanced analytics to drive revenues. To capture the digital opportunity, they must also elevate digital to the C-level; acquire and nurture digital talent through an organization tuned to creativity, flexibility, and speed; and build digital marketing capabilities that equal those of e-commerce players. They should also focus on creating strong ecosystems of partnerships. Q

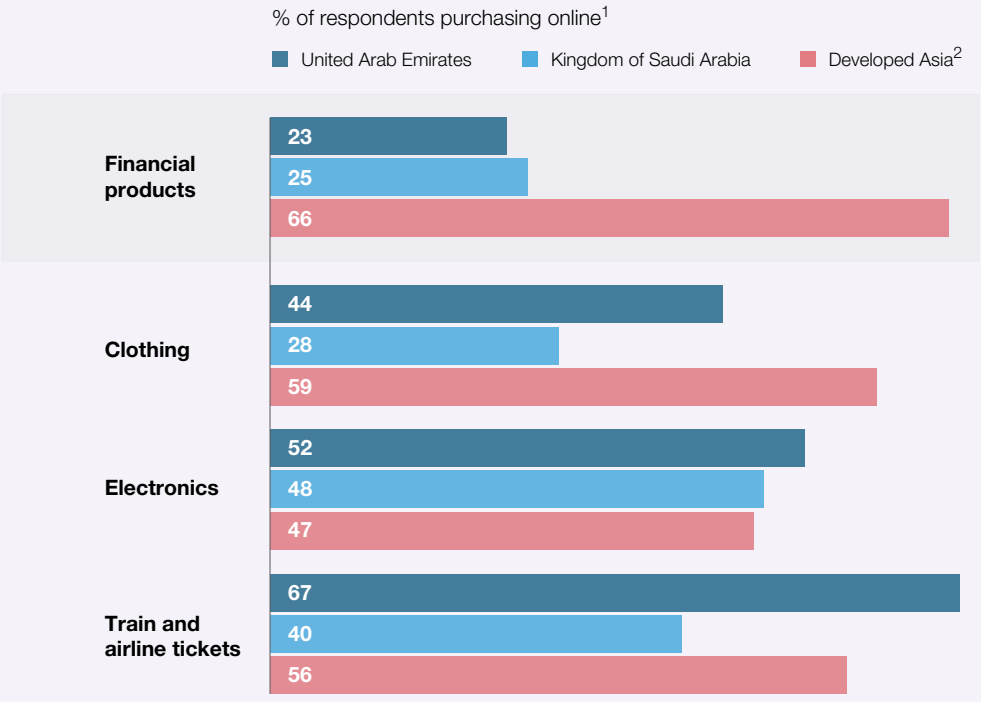
[1] An alliance of six Middle Eastern countries: Bahrain, Kuwait, Oman, Qatar, Kingdom of Saudi Arabia, and the United Arab Emirates.

George Haimari and **Sheinal Jayantilal** are partners in McKinsey's Dubai office, where **Kishan Shirish** is an associate partner.

For the complete set of findings, see "Digital banking in the Gulf," on McKinsey.com.

Exhibit

Only a quarter of respondents in Saudi Arabia and the United Arab Emirates have acquired financial products digitally, far fewer than in developed Asia.



[1] E-commerce penetration (overall share of consumers making online purchases) in developed Asia is 97%; in the United Arab Emirates, 96%; and in the Kingdom of Saudi Arabia, 82%.
[2] Australia, Hong Kong, Japan, Singapore, South Korea, and Taiwan.

Source: McKinsey online survey of 1,750 urban consumers in the United Arab Emirates and the Kingdom of Saudi Arabia, October 2016; Kishan Shirish, Sheinal Jayantilal, and George Haimari, *Digital banking in the Gulf: Keeping pace with consumers in a fast-moving marketplace*, November 2016, McKinsey.com

A DIGITAL UPGRADE FOR CHINESE MANUFACTURING

Executives are enthusiastic about Industry 4.0 but less prepared than their international counterparts to make it happen. A clear road map is needed.

by Forest Hou, Arthur Wang, and Ting Wu

China accounts for about 25 percent of the world's manufacturing activity, more than any other country on earth. Yet the advantages gained through lower costs of labor and capital, as well as efficiency-driven innovations, are slowly eroding. China's manufacturing productivity remains only a fifth of that of developed economies.

Companies and policy makers are therefore looking to upgrade China's digital manufacturing capabilities by embracing Industry 4.0, the shorthand widely used for automation and data exchange in manufacturing technologies (including cyberphysical systems, the Internet of Things, and cloud computing). The goal is for manufacturers to use real-time data to link product designers, "smart" factories, and distribution centers across the value chain.[1]

In June 2016, we surveyed 130 companies across sectors to gauge China's readiness. As the exhibit shows, Chinese manufacturers, particularly private companies, are more optimistic than their counterparts in Germany, Japan, and the United States on the potential of Industry 4.0 to transform industry. However, that is tempered by the lack of a solid game plan. Chinese manufacturers say they are less prepared than their counterparts to push ahead with Industry 4.0 initiatives. Notably, only 44 percent of state-owned enterprises report they are prepared.

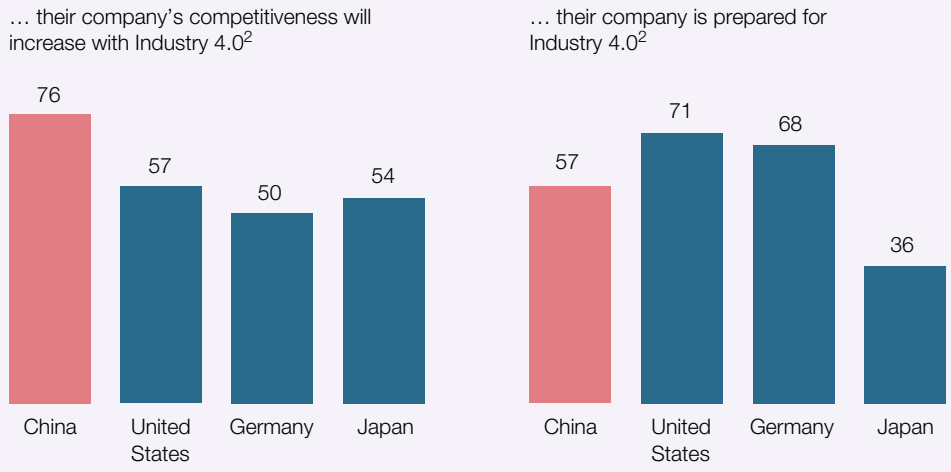
In interviews with executives, we drilled more deeply into the challenges. While Industry 4.0 has become a management buzzword across manufacturing, organizational capabilities, talent, and mind-sets are all lagging in many companies. Only 9 percent of companies have assigned responsibilities for Industry 4.0 initiatives versus more than a third in the United States and Germany. An even smaller number of Chinese companies, 6 percent, have a clear road map of the way ahead versus a fifth or more in the developed-economy cohort. Few companies have made digitization a priority or raised the awareness and skills of frontline managers. We also found that digital manufacturing tools along the value chain remain inadequate. Chinese auto companies, for example, lack the digital grounding to analyze, manage, and use data collected from production lines. Such data are crucial to the product development and R&D efforts required to raise quality and create globally competitive cars.

Our research suggests that to fully capture the benefits of Industry 4.0, Chinese

Exhibit

Chinese manufacturers are optimistic about Industry 4.0 but feel unprepared to push ahead with it.

% of respondents[1] who believe . . .



[1] For China, n = 130; for Germany, Japan, and United States, n = 100.
[2] Industry 4.0 refers to automation and data exchange in manufacturing technologies.

players will need a tailored approach to digital transformation. They should avoid a one-size-fits-all strategy and instead focus on three fundamentals: building a foundation of lean manufacturing, developing a solid management infrastructure, and developing new mind-sets and capabilities, especially in data and advanced analytics.

[1] A national manufacturing strategy, Made in China 2025, seeks to advance these goals.

Forest Hou is a senior expert in McKinsey's Shanghai office, where **Ting Wu** is a partner; **Arthur Wang** is a partner in the Hong Kong office.

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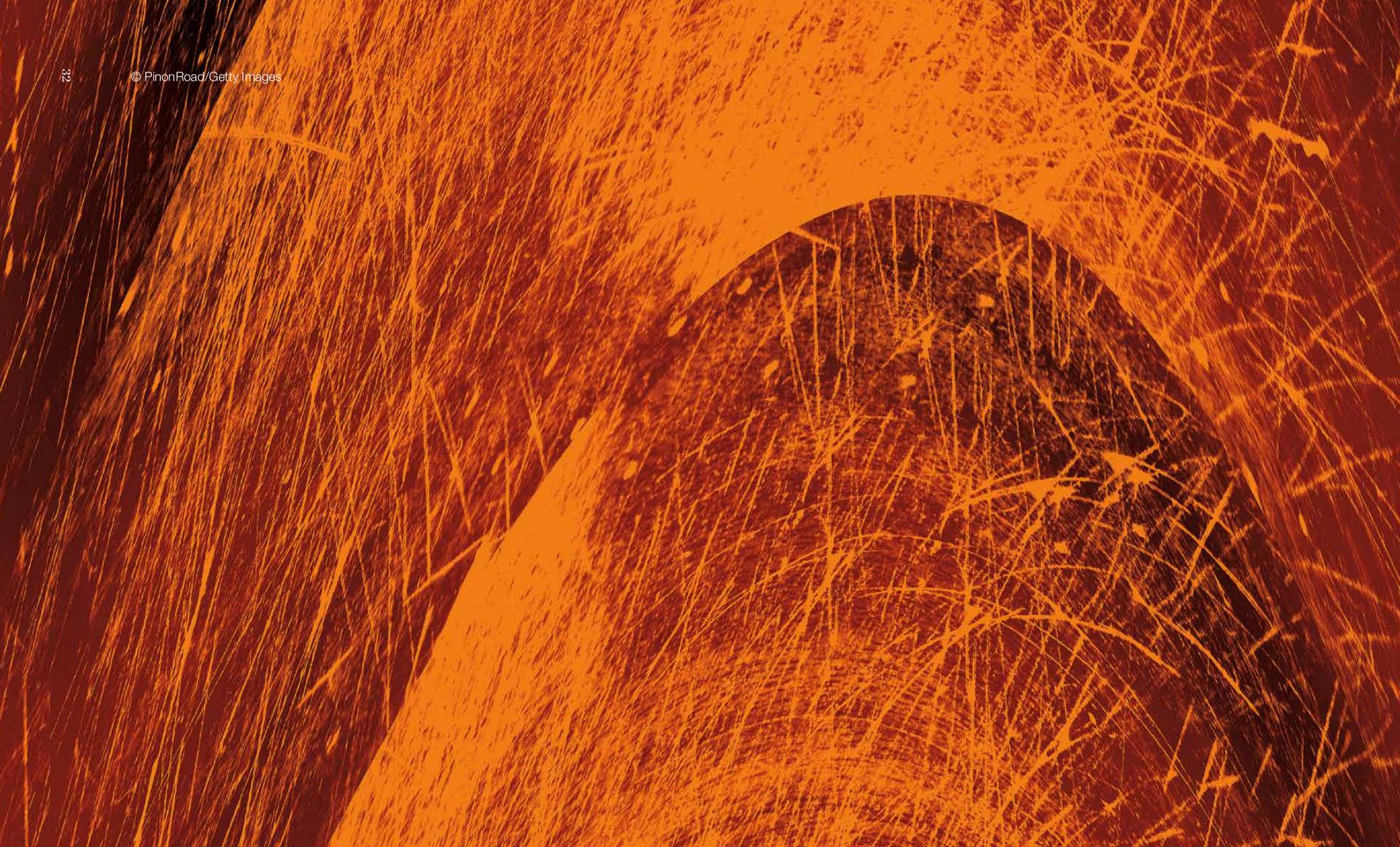


The global forces inspiring a new narrative of progress

Growth is shifting, disruption is accelerating, and societal tensions are rising. Confronting these dynamics will help you craft a better strategy, and forge a brighter future.

by Ezra Greenberg, Martin Hirt, and Sven Smit

"The trend is your friend." It's the oldest adage in investing, and it applies to corporate performance, too. We've found through our work on the empirics of strategy that capturing tailwinds created by industry and geographic trends is a pivotal contributor to business results: a company benefiting from such tailwinds is four to eight times more likely to rise to the top of the economic-profit performance charts than one that is facing headwinds.

It's easy, however, to lose sight of long-term trends amid short-term gyrations, and there are moments when the nature and direction of those trends become less clear. Today, for example, technology is delivering astounding advances, and more people are healthy, reading, and entering the global middle class than at any period in human history. At the same time, the post–Cold War narrative of progress fueled by competitive markets, globalization, and innovation has lost some luster.

Those contradictions are showing up in politics, and the long-term trends underlying them are reshaping the business environment. Corporate leaders today need to rethink where and how they compete, and also must cooperate in the crafting of a new societal deal that helps individuals cope with disruptive technological change.

That broad narrative of intensifying competition, as well as the growing need for cooperation, contains challenges, but also great opportunity. We hear about the challenges every day in our conversations with global business leaders: How long can their traditional sources of competitive advantage survive in the face of technological shifts? How will changing consumer and societal expectations affect their business models? What does it mean to be a global company when the benefits of international integration are under intense scrutiny?

All good questions. But they should not distract from the extraordinary opportunities available to leaders who understand the changes under way and who convert them into positive momentum for their businesses. Our hope in this article is to help leaders spot those opportunities by clarifying nine major global forces and their interactions. Significant tension runs through each of them, so much that we'd characterize them as "crucibles," or spaces in which concentrated forces interact and where the direction of the reactions under way is unclear. These crucibles, therefore, are spaces to watch, in which innovation "temperature" is high.

- The first three crucibles reflect today's **global growth shifts.** The globalization of digital products and services is surging, but traditional trade and financial flows have stalled, moving us *beyond globalization.* We're also seeing new growth dynamics, with the mental model of BRIC (Brazil, Russia, India, and China) countries giving way to a regional emphasis on *ICASA* (India, China, Africa, and Southeast Asia). Finally, the world's natural-resource equation is changing as technology boosts resource productivity, new bottlenecks emerge, and fresh questions arise about *"resources (un)limited?"*

- The next three tensions highlight **accelerating industry disruption.** Digitization, machine learning, and the life sciences are advancing and combining with one another to redefine what companies do and where industry boundaries lie. We're not just being invaded by a few technologies, in other words, but rather are experiencing a *combinatorial technology explosion.* Customers are reaping some of the rewards, and our notions of value delivery are changing. In the words of Alibaba's Jack Ma, B2C is becoming *"C2B,"* as customers enjoy "free" goods and services, personalization, and variety. And the terms of competition are changing: as interconnected networks of partners, platforms, customers, and suppliers become more important, we are experiencing a business *ecosystem revolution.*

- The final three forces underscore the need for cooperation to strike a new societal deal in many countries. We must cooperate to safeguard ourselves against a "*dark side*" of malevolent actors, including cybercriminals and terrorists. Collaboration between business and government also will be critical to spur *middle-class progress* and to undertake the *economic experiments* needed to accelerate growth. This is not just a developed-market issue; many countries must strive for a "next deal" to sustain progress.

These tensions seem acute today because of fast-moving political events and social unease. But earlier times of transition provide encouraging precedents: the Industrial Revolution gave rise to social-insurance programs in Western Europe and the Progressive movement in the United States, for example. Progress has won out over most of the past two centuries—indeed, at an accelerating rate since World War II, which has seen global growth rates more than double the average of the preceding 125 years. As business leaders strive to compete and cooperate in new ways, they should take heart: if history is any guide, we're operating in crucibles of progress that can help create an exciting tomorrow.

GLOBAL GROWTH SHIFTS

No developed country has recaptured the growth momentum we expected before the financial crisis of 2008–09. World GDP as a whole, while ahead of some long-term historical trends, remains below what we had thought to be our economic potential. Moderated growth has challenged individuals, and it has also made it more important for companies to take a granular approach to identifying opportunities, placing bets, and backing them with sufficient resources. The opportunities are large, particularly for leaders who understand how the dynamics of global growth are shifting as the nature of globalization changes, the largest emerging markets grow in importance, and technology reshapes our resource trade-offs.

Beyond globalization

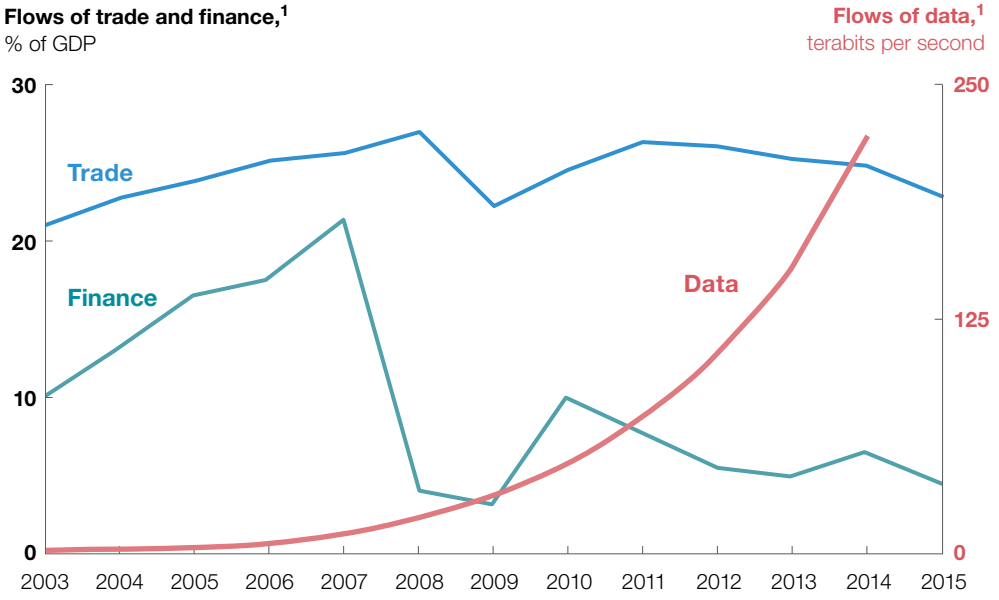
Globalization is still progressing, but also facing powerful headwinds. "Anti-globalization" sentiments are growing, and governments are responding: the United Kingdom is moving ahead with Brexit implementation; the United States has already stepped back from the Trans-Pacific Partnership (TPP) and may now have changes to the North American Free Trade Agreement (NAFTA) in its sights. Meanwhile, traditional globalization metrics are slowing. The growth of trade compared with the growth of GDP in this decade has been half of that in the late 1990s and early 2000s, while global capital flows as a percentage of GDP have dropped precipitously since the 2008–09 financial crisis and have not returned to pre-crisis levels.

At the same time, there is evidence that other facets of globalization continue to advance, rapidly and at scale (Exhibit 1). Cross-border data flows are increasing at rates approaching 50 times those of last decade. Almost a billion social-networking users have at least one foreign connection, while 2.5 billion people have email accounts, and 200 billion emails are exchanged every day. About 250 million people are currently living outside of their home country, and more than 350 million people are cross-border e-commerce shoppers—expanding opportunities for small and medium-sized enterprises to become "micro-multinationals."

Operating in tandem with these crosscurrents are calls for localization and recognition of pronounced differences in local tastes, which are making it more costly and complicated to compete globally. Multinational companies need, in the words of GE's Jeff Immelt, "a local capability inside a global footprint." Many companies are trying to compete with the increasing number of world-class local players by carefully recognizing subtle differences in local taste and custom. Some fast-food chains, for example have global, iconic brands but also local menu options that are distinct. Estée Lauder in 2012 introduced Osiao, its first China-specific beauty brand, which it developed at the company's Shanghai R&D center. At the end of 2016,

Exhibit 1

Global flows of data have outpaced traditional trade and financial flows.



[1] Trade and finance are inflows; data flows are a proxy to inflows, based on total flows of data.

Source: IMF Balance of Payments Statistics; TeleGeography, Global Bandwidth Forecast Service; UNCTAD; World Bank; McKinsey Global Institute analysis

Hyundai announced it would be producing several new models in China to compete with local brands.

Globalization was never an unstoppable, monolithic force, as Pankaj Ghemawat of NYU has long said.[1] As globalization's complexities have become increasingly evident, the importance of competing with local precision at international scale continues to grow.

ICASA: The force of billion-person markets

It was more than 15 years ago that Goldman Sachs economist Jim O'Neil popularized the term "BRIC" in reference to the growth prospects of Brazil, Russia, India, and China. Since then, Brazil and Russia have sometimes faltered, while other emerging markets, particularly in Africa and Southeast Asia, have grown in importance. Although there will be more ups and downs in the years ahead, it's important not to get distracted and lose sight of the numbers. There are three geographic entities—India, China, and Africa—in which urbanization is empowering populations that exceed one billion people, and a fourth, Southeast Asia, with more than half a billion. Together, these enormous "ICASA" (India, China, Africa, and Southeast Asia) markets hold the potential for significant continued expansion (Exhibit 2). They also pose some of the biggest risks to global growth as they confront internal obstacles:

- In India, challenges include transitioning to more sustainable urbanization; building a manufacturing base in India, for India; substantially increasing women's participation in the general economy; and fully exploiting the country's technical brainpower to move up the value chain.

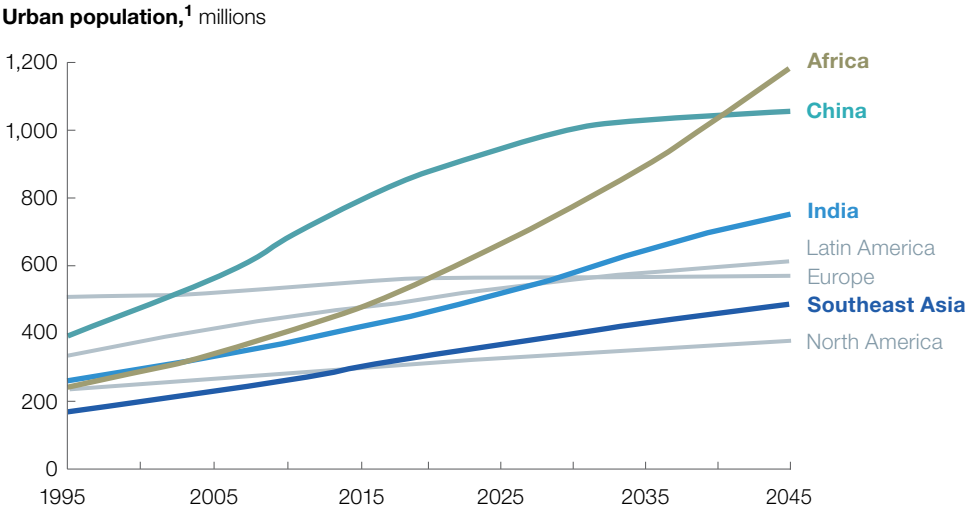
- China's growth rate has begun to taper, and despite substantial institutional changes over the past decade, the country needs to do more to complete its transition from an investment-led growth model to a productivity-led one. The demographic headwinds China will soon be facing amplify the need for this transition.

- Africa, whose working-age population is projected to top that of China and India before 2040, has the most unfilled potential. It also faces the greatest challenges: mobilizing its domestic resources, aggressively diversifying individual state economies, increasing sustainable urbanization, accelerating cross-border infrastructure development, and deepening regional integration. Failing to achieve any one of these could stall growth.

[1] See Pankaj Ghemawat, "Remapping your strategic mind-set," *McKinsey Quarterly*, August 2011, McKinsey.com.

Exhibit 2

Urbanization still has significant room to run in Africa, China, India, and Southeast Asia.



[1] Data for 2016–45 are projected.

Source: United Nations World Population Prospects; McKinsey Global Institute analysis

- Southeast Asia's impressive past growth has been driven by an expanding labor force and a shift of workers from agriculture to manufacturing. To continue growing as these factors fade, the region needs substantial investment in infrastructure that supports digitization and urbanization.

Economic power generates geopolitical power, as China's success has most recently confirmed. The more these markets overcome their unique challenges, the more central their role will be on the global stage. How these players assert that new power may not conform to approaches followed by OECD countries.[2] Institutions reflecting these markets' new clout, such as the Asian Infrastructure Investment Bank, are already emerging. So are economic arrangements that align with their interests, such as China's One Belt, One Road initiative, which seeks to connect, through maritime links and physical roads, more than half the world's population and roughly a quarter of the goods and services that move around the globe.

The opportunity remains enormous: we expect more than roughly half of global growth over the next ten years to come from these geographies. Whether a company is from one of these markets and already capturing

[2] Members of the Organisation for Economic Co-operation and Development.

regional growth or is seeking to enter one or more of them, its ability to reallocate resources, realign its footprint, and react to unexpected dips will shape whether it can successfully compete in the rebalancing global economy.

Resources (un)limited?

A modern-day Malthus might wring his hands at our world's ability to sustain billions more people emerging from poverty, eating more protein, driving carbon-emitting automobiles, and enjoying a fuller basket of other consumer goods. There is, however, a counterforce at work today, as technological advances change the resource equation in a variety of ways:

- Advances in analytics, automation, and the Internet of Things, along with innovations in areas such as materials science, are already showing great promise at reducing resource consumption. Cement-grinding plants can cut energy consumption by 5 percent or more with customized controls that predict peak demand. Algorithms that optimize robotic movements can reduce a manufacturing plant's energy consumption by as much as 30 percent. And smart lighting and intuitive thermostats are significantly reducing electricity consumption in businesses as well as homes.

- Technology is transforming resource production. Gas and oil output has increased significantly because of advances in fracking, deepwater drilling, and enhanced oil recovery. Seawater desalination currently contributes hundreds of millions of cubic meters per year to Israel's water supply (up from less than 50 million in 2005), and the country now gets 55 percent of its domestic water from desalination.

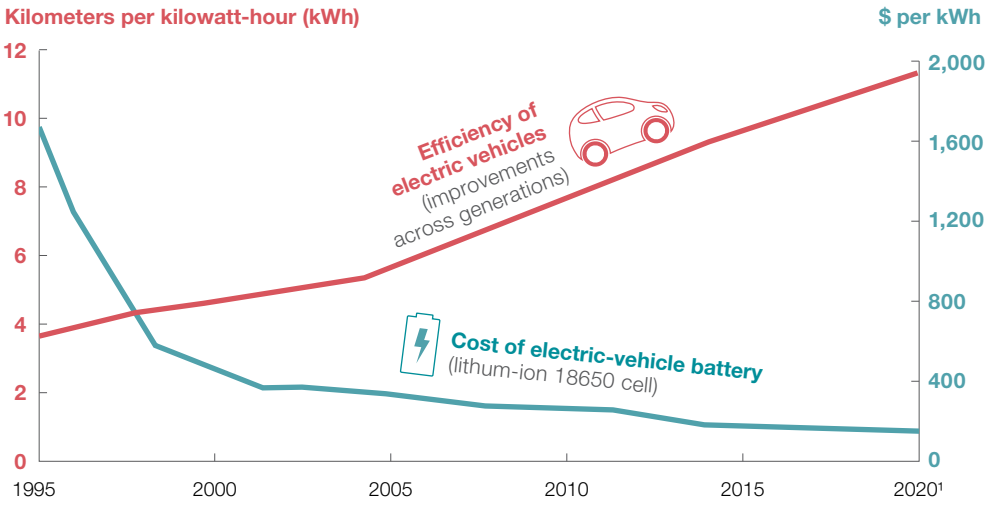
- Technologies are combining in new ways, with the potential to reduce resource intensity dramatically (Exhibit 3). Vehicle electrification, ride sharing, driverless cars, vehicle-to-vehicle communications, and the use of new materials are rapidly coming together to reduce automobile weight, change driving patterns, and improve the utilization of cars and of road capacity. In fact, analysis by our colleagues suggests that global demand for oil could flatten by around 2025 under plausible scenarios regarding the adoption of light-vehicle technologies and slowing plastics consumption.[3]

Technology isn't a panacea, of course; technological solutions come with external consequences. Fertilizers, for example, helped trigger a boom in agriculture, but fertilizer runoff polluted many water supplies. Fossil fuels lifted the standard of living for billions of people but have led to deteriorating

[3] See Occo Roelofsen, Namit Sharma, Rembrandt Sutorius, and Christer Tryggestad, "Is peak oil demand in sight?," June 2016, McKinsey.com.

Exhibit 3

Electric vehicles are just one technology among many with the potential to reduce resource intensity dramatically.



[1] Estimates based on projected vehicle efficiency, battery costs, and performance.

Source: Stefan Heck, Matt Rogers, and Paul Carroll, *Resource Revolution: How to Capture the Biggest Business Opportunity in a Century* (New Harvest, 2014)

air quality, oil spills, and carbon dangers that are ecologically existential and drivers of investment to meet regulations and arrangements (such as the Paris Agreement) aimed at slowing the impact of climate change.

But there is also opportunity. While companies are working through the implications of resource constraints for their business models, they will generate new ideas—creating less resource-intensive processes, turning waste into raw materials, and building a more circular economy (for more, see "Mapping the benefits of a circular economy," on page 12). We can expect an accelerating resource-innovation cycle: growth will strain supplies, technology will yield solutions, externalities will arise, and further ideas will emerge in response.

As technology continues to progress and data flows reveal efficiency opportunities across operations, companies should have more influence over their cost structure, and resource prices should be less correlated to one another and to macroeconomic growth than they were in the past. McKinsey research[4] suggests, for example, that iron-ore demand could decline over the next two decades as a result of softening demand for steel and increased recycling,

[4] See Scott Nyquist, Matt Rogers, and Jonathan Woetzel, "The future is now: How to win the resource revolution," *McKinsey Quarterly*, October 2016, McKinsey.com.

but copper demand could jump, given its role in a wide range of electronics and consumer goods. Resource-related business opportunities will turn up in unexpected places, and there's room for a multitude of new products and services. An example is new carbon-based materials that are lighter, cheaper, and conduct electricity with limited heat loss. They could transform entire industries, including automobiles, aviation, and electronics. Business leaders will have more opportunities to seize the initiative as they stretch their thinking about the changing nature of resource constraints.

ACCELERATING INDUSTRY DISRUPTION

"Disruption" isn't just one of the most overused words in management writing; it's also one of the most imprecisely used. When we say industry disruption is accelerating, we mean that in many sectors, critical foundations of industry structure—the economic fundamentals, the power balance between buyers and sellers, the role of assets, the types of competitors, even the borders of industries—are rapidly shifting. While that degree of change can be uncomfortable or even destructive, it can also contain the seeds of opportunity.

Our work on digitization highlights both sides of the coin.[5] By reducing economic friction, digitization is enabling competition that pressures revenue and profit growth. It also is creating fresh opportunities to improve performance through supply-chain, product, process, and service improvements. Ensuring alignment between a company's digital and its corporate strategy appears to be one of the factors differentiating winners and losers—a useful reminder that leading today requires tough choices about big, disruptive forces.

Combinatorial-technology explosion

The most radical technological advances have not come from linear improvements within a single subject or expertise, but from the combination of seemingly disparate inventions and disciplines. As W. Brian Arthur has noted, "The overall collection of technologies bootstraps itself upward from the few to the many and from the simple to the complex."[6]

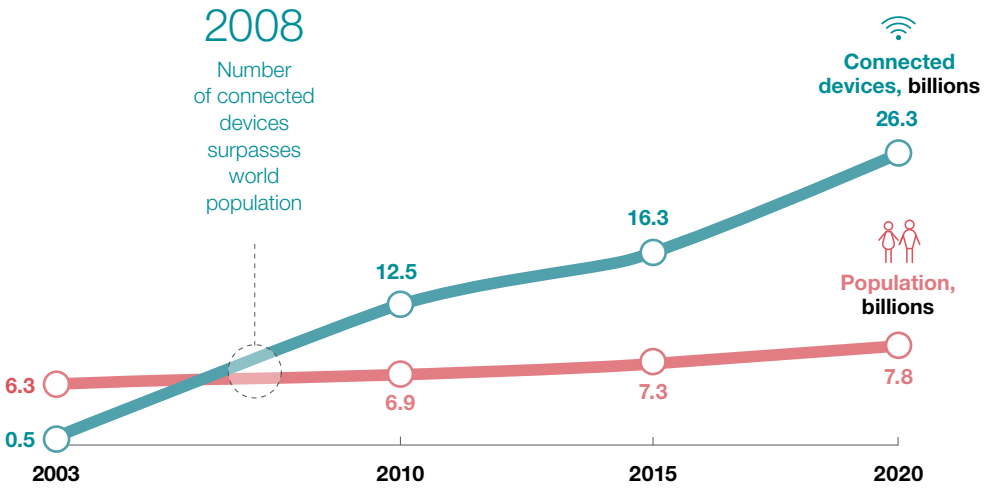
For example, consider how increased online connectivity (Exhibit 4), cryptography, and advanced analytics have combined to create a distributed, global database for transactions called blockchain. It's potentially a game changer, because transaction costs represent a substantial share of the

[5] See Jacques Bughin, Laura LaBerge, and Anette Mellbye, "The case for digital reinvention," *McKinsey Quarterly*, February 2017, McKinsey.com.

[6] W. Brian Arthur, *The Nature of Technology: What It Is and How It Evolves*, New York, NY: Simon & Schuster, 2009.

Exhibit 4

Online connectivity—including a plethora of connected devices—is growing exponentially.



Source: Cisco; United Nations

world's commercial costs. In fact, the desire to avoid transaction costs such as the negotiating and writing of contracts helps explain why firms exist, according to Nobel laureate Ronald Coase. Since blockchains can process transactions without intermediaries, their potential impact on costs and competition is profound.

Or consider machine learning, whose potential we have barely begun to tap. It is starting to combine with other technologies in a variety of unexpected ways. Recently, a team from Houston Methodist Hospital developed an algorithm that translates text from the hospital's patient charts into a prediction of breast-cancer risk 30 times as fast as a human can.

Combinatorial effects are revolutionizing many aspects of biological technologies. Low-cost genetic sequencing enabled by massive computing power is laying a foundation for developing "precision medicine" and providing people with facts that can influence life choices. Advances in materials science have allowed the development of stents (widely used to expand clogged arteries) that naturally dissolve after their job is done, potentially freeing patients from longer-term medications. Wearable and ingestible sensors, meanwhile, are being developed to increase the effectiveness of drug therapies by helping ensure medications are taken and physiological responses monitored.

The effects of technology combining can go beyond the products or services a company provides to alter the very definition of what a company does. The automotive industry, for example, isn't just about building cars anymore. As artificial intelligence and computational power merge with advanced automobiles and consumer products, companies are thinking about how they can provide "mobility solutions," or even utility solutions, given the size of batteries in electric cars. This is disruption writ large.

And everything is accelerating. Arthur's combinatorial effects are compounding the impact of Moore's law, creating more scope to innovate and to conceive new businesses. Leaders with imagination and foresight who can keep up with the pace of change have unprecedented opportunities.

C2B: Customer in the driver's seat

Digitization has brought consumers an ever-expanding menu of goods and services to choose from, some of which are free. Many goods and services consumers once paid for are now available online at a swipe or a click. Wikipedia's English-language pages alone would fill the equivalent of more than 2,300 encyclopedias if printed. Skype, which allows users to make free video and audio calls to other Skype users, provides over two billion minutes of calls every day. And infinite variety means that just about any taste or preference is being catered to. Think of detergents on Amazon, where customers can find a selection of strawberry-scented washing powders exclusively meant for black clothes.

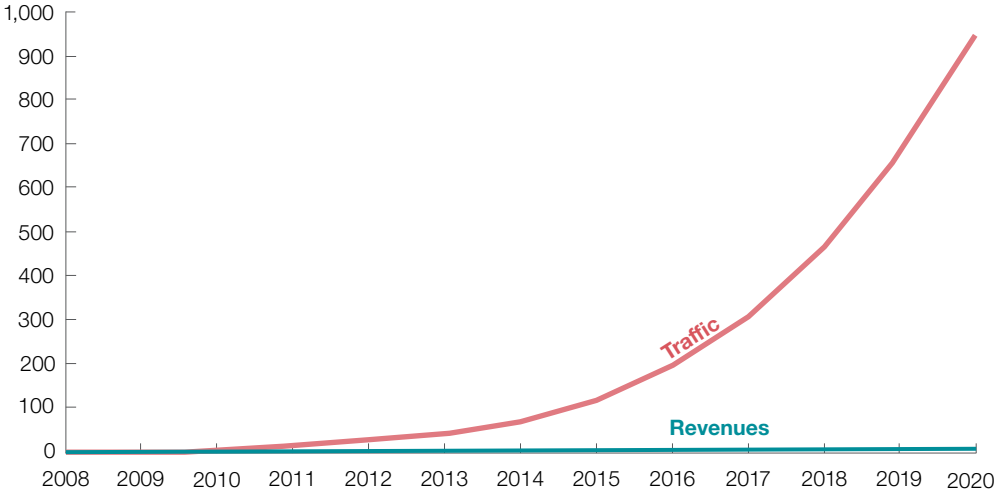
In an environment where so much costs so little and proliferating variety fragments markets, customers are capturing more of the surplus. In the United States alone, the Internet provides consumers with an estimated unpaid annual welfare gain of $100 billion. Take, for example, global mobile-data traffic and revenues: from 2008 to 2020, mobile data are expected to expand by more than 900-fold, while revenues from the data are forecast to grow by a factor of only 3.25 (Exhibit 5).

Customers also are taking the driver's seat in steering the products that companies develop. They are able to communicate with companies directly and in large numbers for the first time. What they want is more variety, more specificity, and greater self-expression. Google is renowned for its practice of rapidly incorporating direct customer feedback in product design. Chinese mobile-phone maker Xiaomi engages directly with consumers in person or online. Adidas has even built a robot-operated "Speedfactory," which creates sneakers designed by individual consumers, while Doob Group enables consumers to scan their bodies and create unique, 3-D-printed figurines.

Exhibit 5

Digitization and the Internet have put consumers in the driver's seat.

Example: Traffic vs revenues for global mobile data[1]; index: 2008 = 0



	2008	2020	CAGR, 2008–20
Traffic, petabytes per month	37	35,054	77%
Revenues, $ billion	177.7	578.3	10%

[1] For traffic, data are estimated; for revenues, 2016 data are estimated and 2017–20 data are projected.

Source: Cisco; Analysys Mason

It remains to be seen how the willingness of customers to pay a premium will evolve. Right now, as Ray Kurzweil, the futurist and now a director of engineering at Google, recently noted, "There is an open-source market with millions of free products, but people still spend money to read *Harry Potter*, see the latest blockbuster, or buy music from their favorite artist." Those examples may seem like outliers, but as Kurzweil pointed out, "coexistence of a free open-source market and a proprietary market" is also "the direction we're moving in with clothing."[7] In such a world, it won't be just customers who have more choices; companies, too, have more decisions to make about their business models and how they create value.

Ecosystem revolution

In a classic 1960 *Harvard Business Review* article, Theodore Levitt asked readers to consider, "What business are you really in?" Because of digitization and the blurring of industry boundaries, Levitt's question needs

[7] Elizabeth Paton, "Fashion's future, printed to order," *New York Times*, December 5, 2016, nytimes.com.

an addendum: "And what's your ecosystem?" Businesses can broadly be grouped into three categories, with ecosystems emerging as both a powerful source of value creation and a heated competitive arena:

- Linear value chains, which dominated for most of the 20th century, comprise a series of value-adding steps with the goal of producing and selling products: think automotive assembly.

- Horizontal platforms, which gained prominence with the rise of personal computing and the Internet, cut across value chains. Companies operating under this model own hard assets and sophisticated architecture, typically built around value-adding software and technology stacks.

- "Any-to-any" ecosystems, such as those of Uber and Airbnb, have emerged most recently. These companies also operate at the center of platforms, but they are distinctly asset-light.

The horizontal platforms of players such as Google, Amazon, and Facebook have been creating value for years and currently account for five of the ten largest US companies by market cap (Exhibit 6). And horizontal plays aren't just digital. Companies of all stripes still ship their designs to Taiwan Semiconductor Manufacturing Company (TSMC), which relies on its sophisticated semiconductor factories to turn brilliant designs into high-performance chips.

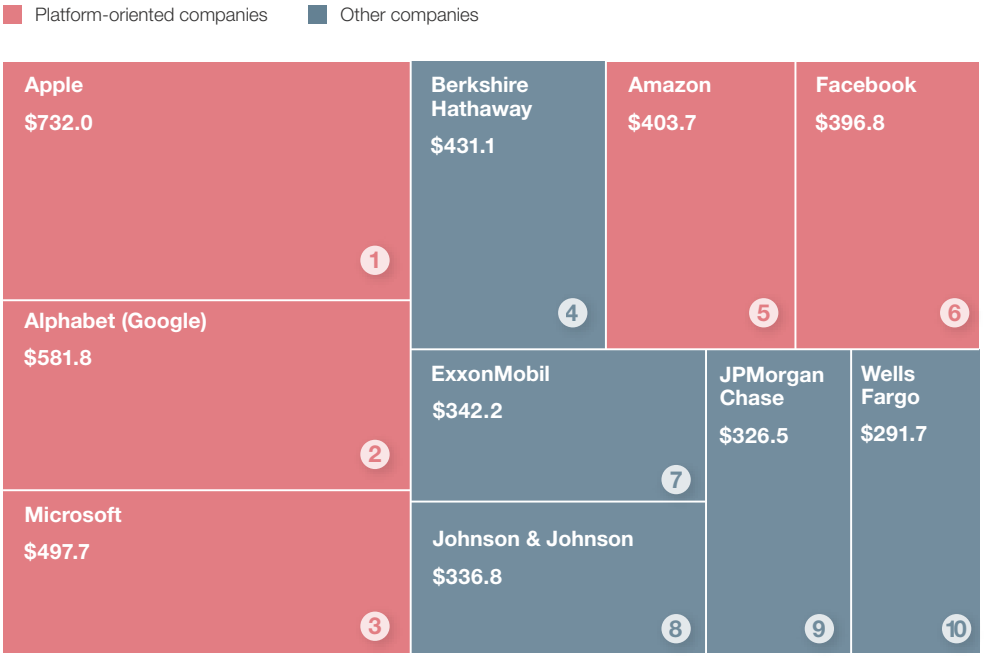
Leading horizontal platforms have shifted value pools quickly and unpredictably. The shrinkage of the compact-disc industry from $17 billion in US sales in 2001 to $2 billion a dozen years later, as sales from music downloads, subscriptions, and synchronizations have soared, is one well-known example of how disruptors "destroy billions to create millions." So far, many of the traditional industries that have endured these disruptions still exist, but their structure, and the players capturing most of the value, are often unrecognizable relative to the pre-platform era.

Now any-to-any models have taken the fore. These companies are at the center of platform-based ecosystems, and unlike horizontal players, they are distinctly asset-light. Alibaba is the world's largest retailer measured by gross merchandise volume, and it does not own any warehouses. The world's largest accommodation provider, Airbnb, does not own rooms; the world's largest taxi company, Uber, does not own cars—and neither company existed ten years ago. That's disruption, although the staying power of any-to-

Exhibit 6

Platform-oriented companies represent half of the top ten US public companies by market cap.

March 8, 2017, market capitalization, $ billion



Source: Corporate Performance Analytics by McKinsey

any models remains to be seen, given the low barriers to creating software-based platforms.

The lines of demarcation between categories are beginning to blur as value chains, platforms, and ecosystems open, expand, and combine. Linear value chains aren't immune: Under Armour, a leader in sports apparel and accessories, has announced plans to build the biggest connected fitness platform in the world.

In today's rapidly evolving landscape, leaders face a continuum of possibilities: build an ecosystem, use someone else's platform, stick to one's linear-value-chain knitting, or fashion some combination of the above. Navigating this crucible ultimately comes down to asking hard questions about a company's sources of differentiation and positional advantage, and placing all options on the table, even if that means disrupting or cannibalizing one's own business.

A NEW SOCIETAL DEAL

The biggest opportunity of all—and arguably the biggest need—transcends companies and competition. If private-, public-, and social-sector leaders can cooperate to create a new societal deal, they will forge a brighter future for individuals and for a wide range of institutions. Collaboration will be critical to overcome forces undermining openness, to drive middle-class progress, and to encourage experimentation that recharges growth and redresses income inequality.

Business leaders typically spend about 30 percent of their time on external engagement, but by their own assessment, few do so effectively. For more business leaders to "step up to the plate" and "play a key role in driving solutions," as Unilever CEO Paul Polman says,[8] they will need to do more to embed society's concerns in their business priorities, to make external engagement an integral part of their strategy, and to adopt a long-term mind-set.

The dark side

Progress thrives on openness, and openness almost by definition means exposure. The Internet, for example, has brought critical dangers even as it has unleashed a business and social miracle. Everyday acts, such as connecting your phone to your car via Bluetooth, create vulnerabilities most of us do not yet consciously consider. The costs of fighting cyberthreats are rising into the trillions. Meanwhile, rogue states continue to frustrate the global community, and the strains from combating terrorism are reverberating worldwide. The number of terrorist incidents and casualties remains relatively small but has been rising; global terrorism death levels by the end of 2015 were more than five times higher than they were in 2001.

Sometimes, international cooperation can counteract destructive power that is concentrated in the hands of a few. Consider how multiple states came together to beat back pirates in the Somali basin beginning in 2010, saving the world economy about $18 billion per year (Exhibit 7).

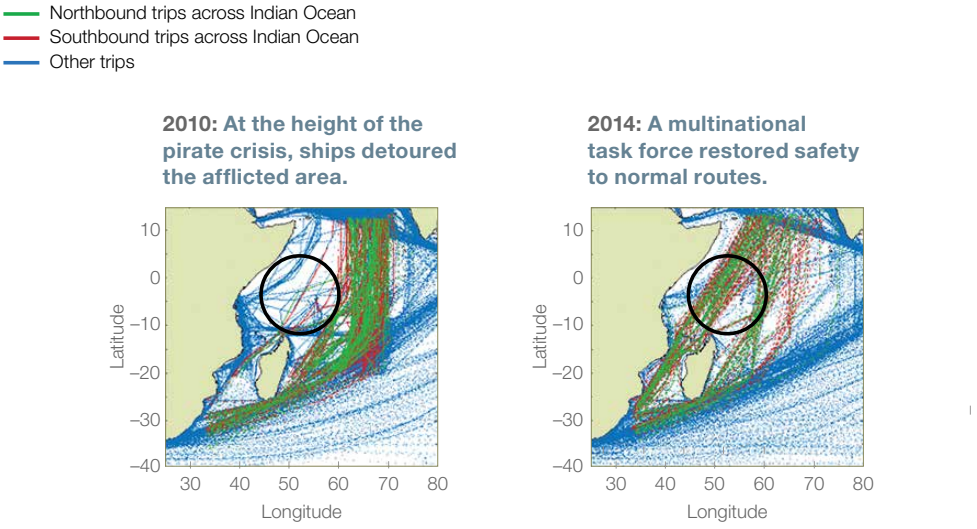
The achievement of digital resilience also requires collaboration. At a minimum, more collaboration is needed between the broad cross-functional leaders responsible for security-related decisions within a business. In an interconnected world, companies may also need to explore shared platforms and data sharing about cybersecurity threats across the boundaries of their own businesses and industries. As leaders figure out how to strike the right

[8] See Paul Polman, "Business, society, and the future of capitalism," *McKinsey Quarterly*, May 2014, McKinsey.com.

Exhibit 7

Multinational cooperation in addressing the Somali pirate crisis saved the world economy approximately $18 billion a year.

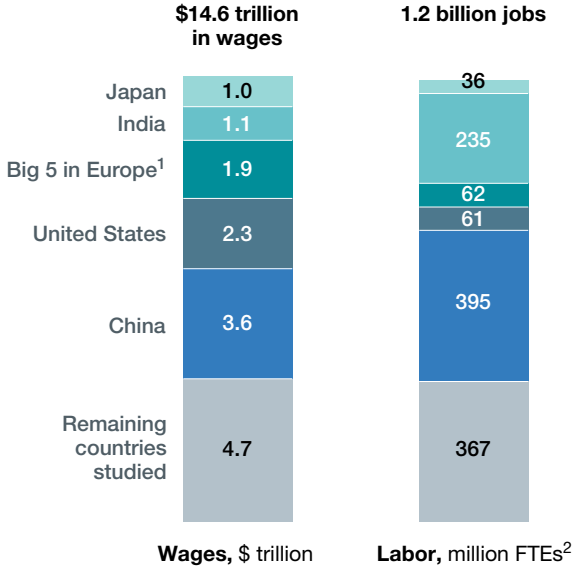
Time series of shipping traffic, January to June



Source: Michele Vespe, Harm Greidanus, and Marlene Alvarez Alvarez, "The declining impact of piracy on maritime transport in the Indian Ocean: Statistical analysis of 5-year vessel tracking data," *Marine Policy*, Volume 59, September 2015; Eurostat; OECD Migration Policy Debates, November 2015; Quy-Toan Do, "The pirates of Somalia: Ending the threat, rebuilding a nation," World Bank, 2013

Exhibit 8

Using currently demonstrated technologies, the number of tasks that can be automated would affect $14 trillion in wages and a billion jobs.



[1] France, Germany, Italy, Spain, and United Kingdom.
[2] FTEs = full-time equivalents.

Source: *A future that works: Automation, employment, and productivity*, McKinsey Global Institute, January 2017

balance between competing effectively, guarding the corporate ramparts, and cooperating in self-defense, they will be helping to redefine what it means to live together, safely, in our interdependent world.

Middle-class progress

The rising tide of progress has not lifted all boats equally. Globalization and automation are polarizing the labor market, with more on the way as expanding machine-learning capabilities increase the automatability of a wide range of tasks in developed and emerging markets alike (Exhibit 8). As middle-wage workers are displaced, many are forced to "trade down," reducing their income and putting pressure on existing lower-wage workers. There is also widening earnings disparity. Workers with advanced degrees have generally seen their earnings rise, while wages for those with only high-school diplomas have stagnated, and wages for those who do not hold a high-school diploma have declined. Youth unemployment has reached 50 percent or more in several major developed economies.

Demographic trends are exacerbating matters. The number of workers earning income for each dependent is falling as populations age, making it harder for society to support the young and the old. Entitlement programs such as pension plans are woefully underfunded.

Trust has fallen among the threatened middle class. Significant segments within Western democracies now have a negative view toward immigration and blame their governments for failed policies. Globally, 60 percent of working-age, college-educated, upper-income individuals express trust in business, government, media, and nongovernmental organizations (NGOs). Yet only 45 percent of the remaining population do so. This trust gap is largest in France, the United Kingdom, and the United States, and overall trust throughout scores of countries has declined to the lowest levels in more than five years.

A central part of the narrative behind the "Leave" campaign in the United Kingdom and the Trump campaign in the United States was that the leaders of major institutions had forgotten about the middle class. Business leaders can help rebuild that trust. In fact, citizens expect this from them. In a 2015 survey,[9] more than 80 percent of employees agreed that a business can "take specific actions that both increase profits and improve the economic and social conditions in the community where it operates."

[9] *2015 Edelman Trust Barometer*, Edelman, 2015, edelman.com.

The need for middle-class progress isn't just a developed-markets issue. As the emerging world's new consuming class comes to the fore, it is striving for opportunity beyond entry-level roles, and observing the income polarization that often accompanies industrialization. Some of the ICASA balancing acts previously described, such as China's transition from an investment-led to a productivity-led growth model, will determine the success of the middle classes in those markets.

Economic-growth experiments

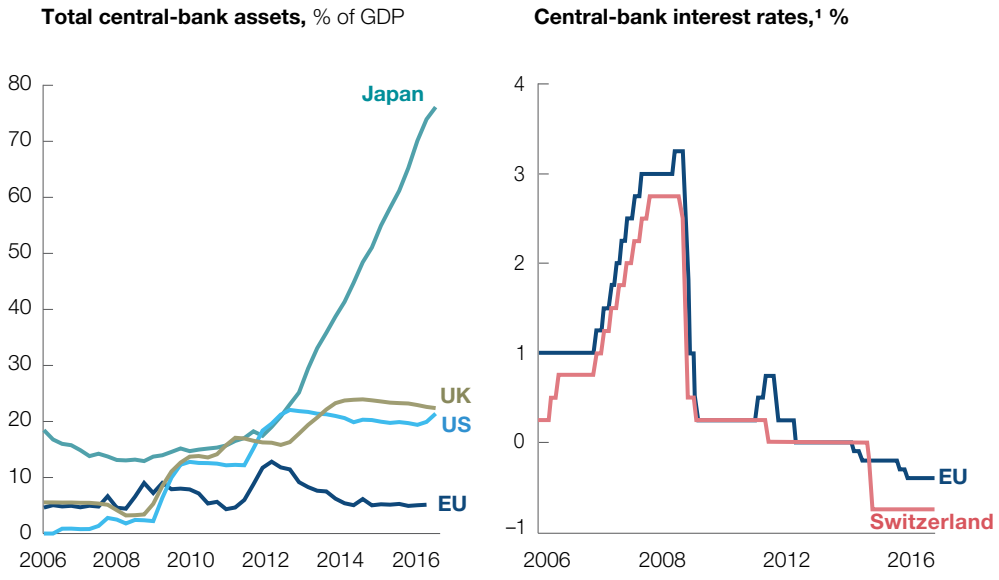
While running for president in 1932 during the depths of the Great Depression, Franklin Roosevelt remarked, "The country needs and, unless I mistake its temper, the country demands, bold, persistent experimentation." We are on the cusp of a new wave of experimentation today, because there are no clear answers to some of the challenges looming before us.

Exhibit one is growth. There is no consensus as to why it has been stuck in lower gear for years, or where it is headed. Northwestern University economist Robert Gordon argued in his 2016 book, *The Rise and Fall of American Growth*, that the productivity slowdown that started in 1970 is likely to continue and hamper growth. Other researchers, including our colleagues at the McKinsey Global Institute, argue that automation enabled by artificial intelligence, robotics, and other advances will likely raise productivity—which would increase growth, provided that those productivity gains go hand-in-hand with jobs and demand for goods and services, as they have in the past. Will they?

One thing that does seem clear is that many growth policy tools have reached their limits. Central banks and governments in the developed world responded to the financial crisis by slashing interest rates (Exhibit 9), creating innovative facilities to try to keep the credit flowing, and in some cases bailing out financial and nonfinancial players. Different mixes of austerity and structural reforms also were tried. When these proved insufficient to restart growth, leaders around the world turned to new, sometimes overlapping policy experiments, in search of a more effective solution. And they continue to debate alternatives, some as yet untried. The combined list is long and includes quantitative easing (QE), helicopter money (also called "the people's QE"), debt mutualization (Europe), debt monetization (Japan), guaranteed minimum income (Brazil), and massive stimulus programs combined with a regulatory rethink (the United States).

Exhibit 9

Quantitative easing and negative interest rates are two fairly recent monetary experiments.



[1] European Central Bank facility rate for EU, Swiss National Bank 3-month Libor target rate for Switzerland.

Source: Bank of England; Bank of Japan; European Central Bank; Federal Reserve Bank; national statistical offices; Swiss National Bank

We're entering uncharted territory in other areas, too. As the world ages, new approaches will be needed to support retirees who haven't saved enough or are counting on pension and healthcare benefits that seem unsustainable without placing crushing burdens on the workers of today and tomorrow. Or consider infrastructure spending. The McKinsey Global Institute (MGI) finds that the world will need to spend $3.3 trillion annually between 2016 and 2030 to keep up with projected growth—nearly $1 trillion more than we have been spending annually. MGI research also suggests that infrastructure spending can be cut by as much as 40 percent through better project design and execution—areas ripe for public–private experimentation.

The results of experimentation—with respect to growth, aging, infrastructure, income inequality, and more—will have dramatic implications for our world, for the business environment, and for corporate performance. Analysis by our colleagues suggests that 30 percent of corporate profits can be traced to social and regulatory issues, and that shares of companies that connect

effectively with *all* stakeholders outperform their competitors' by more than 2 percent per year on average. Employees, too, will reward companies that are part of the experiments ahead. About 85 percent of employees working at companies engaged in societal issues said they are committed to achieving their leadership's strategy, motivated to perform and have confidence in the future of their company—some 20 percent more in each case than employees of companies not engaged.[10]

Growth shifts. Accelerating disruption. A new societal deal. These are powerful forces that demand thoughtful responses and contain the seeds of extraordinary opportunity. Leaders reaching for these opportunities will need to question their own assumptions and imagine new possibilities. Those who do will compete more effectively; they also will be better able to contribute to broader solutions, and ultimately to a new and more inclusive narrative of progress. Q

[10] *2016 Edelman Trust Barometer*, Edelman, 2016, edelman.com.

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How GE is becoming a truly global network

The company's vice chairman describes GE's efforts to bust silos, boost collaboration, and build an internal marketplace of ideas and solutions.

by John G. Rice

The GE that I work for now is not the same company as the one I joined in 1978, with stand-alone businesses in a holding company. Today, we operate on the premise that our whole is greater than the sum of the parts, and the dynamic networking and exchange of ideas and solutions across GE is a performance differentiator for each business. Close to 70 percent of our business now takes place outside the United States, so this networking exchange needs to reach far and wide.

The problem, of course, is that as businesses grow larger and scale up internationally, more silos start to pop up. It's not always easy for employees to stay connected and share ideas that drive innovation and add new value, or to view sharing and multiple teaming as a competitive advantage. That has been GE's challenge: how to connect more than 300,000 people, operating in over 180 countries, in a dynamic and practical way without adding more process and bureaucracy that slows them down. Without a radical shift in everyday working behavior—in employees' relationships with the company and with one another—silos will remain, and the sort of cross-industry and horizontal collaboration that companies like GE need to foster for growth is not going to happen.

We don't have the perfect answer, but we are investing in digital tools, training, and "exchange" platforms to facilitate an internal marketplace that enables individuals and businesses to contribute or tap into ideas, inventions, and practices. When our approach works, it has helped us speed up development times, expand globally at a faster pace, scale innovation across industries, improve productivity, and accelerate problem solving. When it does not work, we have a *Game of Thrones* scenario—silos and fiefdoms. It is metrics that aren't reconciled or leaders that have not engaged the right way.

While we're still on the journey, we hope that some of what we've learned so far can be helpful for other industries and companies. One lesson is paramount: nothing changes without the right culture. Along with the technical solutions we're pursuing to support this marketplace, here are five steps we're taking to create a new team culture and establish a new way of working.

1. Create a network effect

We encourage GE employees to reach out to employees in other departments and regions around the world to share or ask for ideas and tips. We recently created a virtual forum that connected over 30,000 employees across ten businesses in 91 countries to share insights and drive faster problem solving. One of the results from this virtual exchange was a project leader in our Power business in Europe identifying a solution he needed from the Australia Oil and Gas team, who had earlier worked with the Aviation services team in Singapore. Other leaders use cross-team meetings or councils to connect to horizontal and vertical expertise within the company. We're also investing in digital tools like sites and apps to make it easier for our teams to identify the right inputs and partners—for any project. At the core, we're working to eliminate silo thinking that inhibits people from taking advantage of a cross-industry and global network.

2. Get to 'why' early, and establish an underlying 'yes' philosophy

When an internal network works, it's because everybody understands that there is a mission to deliver for a customer, solve a problem, launch a product, or create a solution. That means bringing people together, often from across the organization. Teams that understand the importance of the mission, starting with the why, find ways around obstacles, get past no, and get to yes. Strong leadership and intervention are often required to get everyone to yes and drive a must-win mentality. This means aligning the priorities across the team and agreeing on shared metrics for the common endeavor, whether that is a Power deal in North Africa or a Gas project in the Middle East.

3. Hunt in packs

There is no confusion in a well-oiled team. Everyone is working to accomplish both the team goals and their own personal goals; they know their roles and reconcile any differences. Nothing of substance happens at GE without a team. Leadership meetings, management councils, and training at GE are conducted with cross-business teams working on problems with the collaborative mind-set we aim to foster. When we worked with Centrais Elétricas de Sergipe (CELSE) for Brazil's Porto de Sergipe combined-cycle power plant, five different vertical business teams aligned as one to meet the customer demand for a one-stop shop. If we hadn't, we would have won only a third of the deal.

4. Move at market speed

Solutions and business models for places as diverse as Japan, Nigeria, and Pakistan require local knowledge and speed as much as global industry expertise, which necessitates both horizontal and vertical intersections. We have to move at a speed that's determined by customers and by markets, while aligning what we need locally with what we can scale globally. The last three years in India, for example, have seen fast changes brought about by the new government, bringing with it infrastructure-spending increases of 22.5 percent. The market also is highly competitive. Five years ago, we decided to invest in an extremely flexible manufacturing facility in India that could scale multiple businesses as they grew. Spread over 67 acres in Pune, the plant is among the first flexible factories where different products for multiple businesses are built using shared infrastructure, equipment, and people under the same roof. We invested more than $200 million, and in less than three years that investment has paid off. The opportunity that facility provides to demonstrate our local capabilities and flexibility across industries has helped us secure new business, including a $2.5 billion India Rail deal.

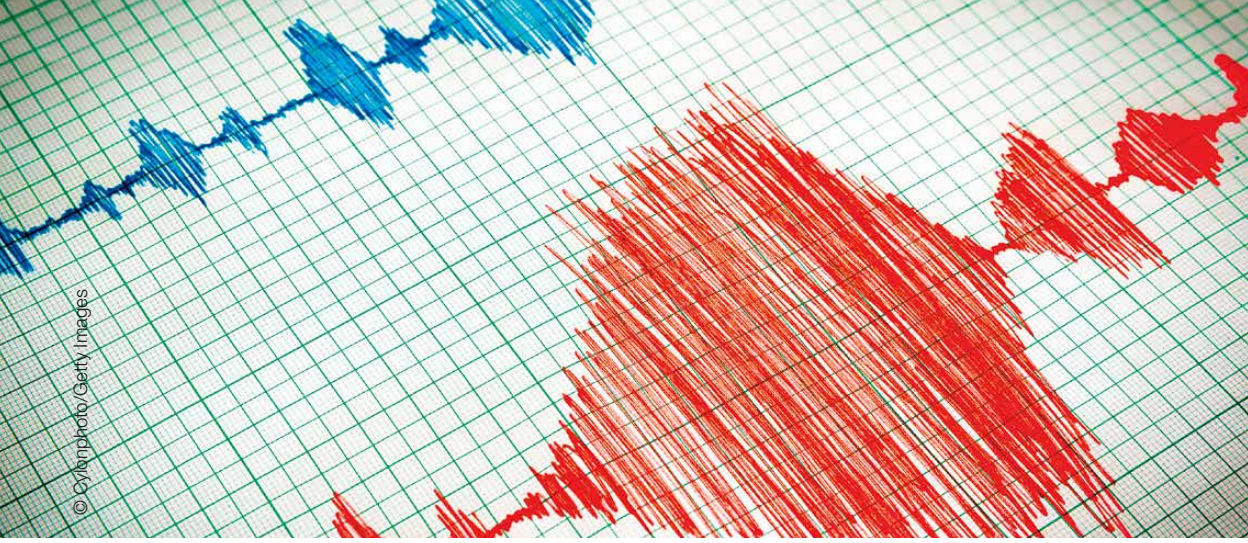
5. Be the dog with the bone

Breaking down silos is tough, even when the intention—and the company goal—is there. Individuals must have persistence and make it part of their personal leadership journey. It is up to the individual leading a team to be both a contributor and an extractor. Continual appraisal of what is valuable is important, giving people an opportunity to say they see things they don't think add value or to explain why it's worthwhile to do something differently; we have a company simplification initiative and new employee-appraisal system to support this. But it still requires personal intervention, where leaders interject to align on metrics and outcomes, or it can involve knocking on enough doors internally before you get the right solution.

People often think about the marketplace as something that happens primarily on the outside. But the key insight from our efforts has been the degree of business value, measured by business performance, driven by internal exchanges with the right combination of leadership and culture. When the transportation industry went into a downturn and orders for our locomotive business dropped off, for example, our Transportation team worked with Aviation and our software division GE Digital to create a new business model and build a successful parts business. The transition from new build to fleet modernization happened in months rather than years.

The best marketplaces create as much value as your people put into and take from them. And for me, it's always about the outcomes. Otherwise, just call it a work happy hour. Q

John Rice is vice chairman of GE and president and CEO of the GE Global Growth Organization.



Measuring the economic impact of short-termism

New McKinsey research provides evidence that short-termism has been on the rise. A long-term approach can lead to superior operating and financial performance—and to more job creation.

Crafting the new, more inclusive societal deal described by our colleagues (see "The global forces inspiring a new narrative of progress," on page 32) will place a premium on business leaders' ability to think long term. Recent McKinsey surveys of C-suite executives, however, suggest that pressure to deliver strong short-term results has actually increased in the past five years, and that many executives believe their companies are using excessively short time horizons in their strategic planning.[1] Are those executives right—and if so, what will be the costs?

Evidence remains scarce that short-termism genuinely detracts from corporate performance and economic growth, partly because of difficulties in measurement. To provide a fact base that informs these issues, the McKinsey Global Institute, along with the firm's Strategy and Corporate Finance Practice, created a five-factor Corporate Horizon Index (CHI) based on patterns of investment, growth, earnings quality, and earnings management. The CHI, which is built on a data set of 615 large- and midcap US publicly listed companies from 2001 to 2015, enables us to separate long-term companies from others and compare their relative performance, after controlling for industry characteristics and company size (see sidebar, "About the research"). The research suggests that short-termism has been on the

[1] Jonathan Bailey, Dominic Barton, and Joshua Zoffer, *Rising to the challenge of short-termism*, FCLT Global, September 2016, fcltglobal.org.

rise and that companies classified as long term have outperformed their shorter-term peers on a range of metrics, including job creation.

SHORT-TERMISM IS INCREASING

The median CHI score, across the entire sample of companies studied, has become increasingly short term over time. There was a slight reversion away from short-termism in the years immediately preceding the financial crisis (Exhibit 1), mostly driven by increases in fixed asset investment and strong earnings growth. However, short-termism resumed during the crisis and has largely continued to increase since. On an industry level, the findings suggest that as of 2015, idea-intensive industries such as software and biotechnology were among the most long term, while capital-intensive industries such as automobiles and chemicals were among the most short term.

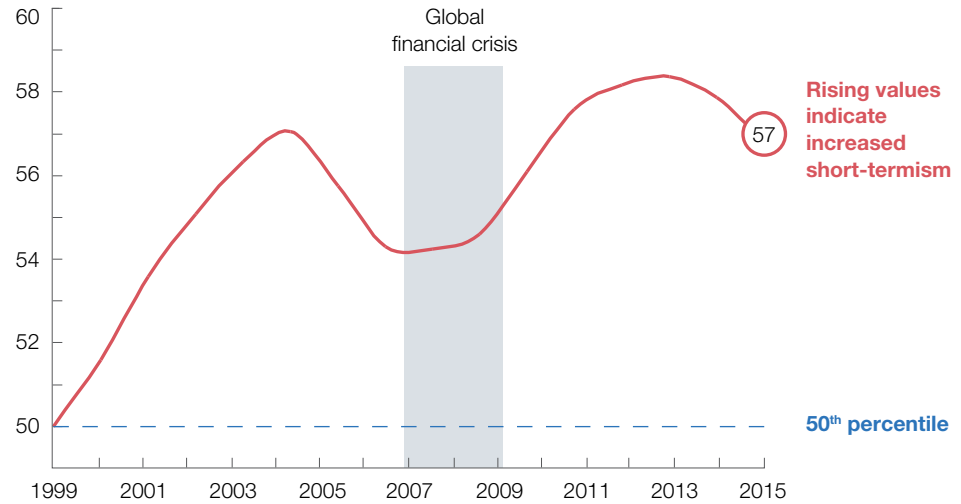
LONG-TERM COMPANIES EXHIBIT STRONGER PERFORMANCE AND CONTINUE TO INVEST IN DIFFICULT TIMES

Companies classified as long term outperformed their shorter-term peers on a range of key operating metrics (Exhibit 2). From 2001 to 2014, the revenue of long-term companies cumulatively grew on average 47 percent more than

Exhibit 1

Short-termism is on the rise—a company at the median of our index in 1999 would be long term in all subsequent years.

Corporate Horizon Index,[1] aggregate gauge of short-termism, annual percentile



[1] Based on dataset of 615 large- and midcap US publicly listed companies from 2001 to 2015.

Source: S&P Capital IQ; McKinsey Global Institute analysis

ABOUT THE RESEARCH

This article is based on *Measuring the economic impact of short-termism*, a February 2017 discussion paper by **Dominic Barton** (McKinsey's global managing partner), **James Manyika** (a director of the McKinsey Global Institute), **Timothy Koller** (a partner in McKinsey's New York office), **Robert Palter** (a senior partner in the Toronto office), **Jonathan Godsall** (an associate partner in the New York office), and **Joshua Zoffer** (a consultant in the New York office).

The Corporate Horizon Index introduced in the paper provides a fact base for categorizing companies as short or long term relative to industry peers facing similar trends in competition and growth, and with similar opportunity sets available for investment. A critical focus of the research was testing whether long-term-oriented companies differ from shorter-term counterparts in the following ways: consistency of investment rates, with the long-term companies investing more and more consistently; the quality of their earnings, with long-term companies relying less on accruals and accounting methods to boost reported earnings; and their focus on metrics closely tracked by Wall Street, such as earnings per share, rather than the fundamentals of value creation, such as revenue, with long-term companies focused less on analyst metrics and more on fundamental value.

Download the full report, *Measuring the economic impact of short-termism*, on McKinsey.com.

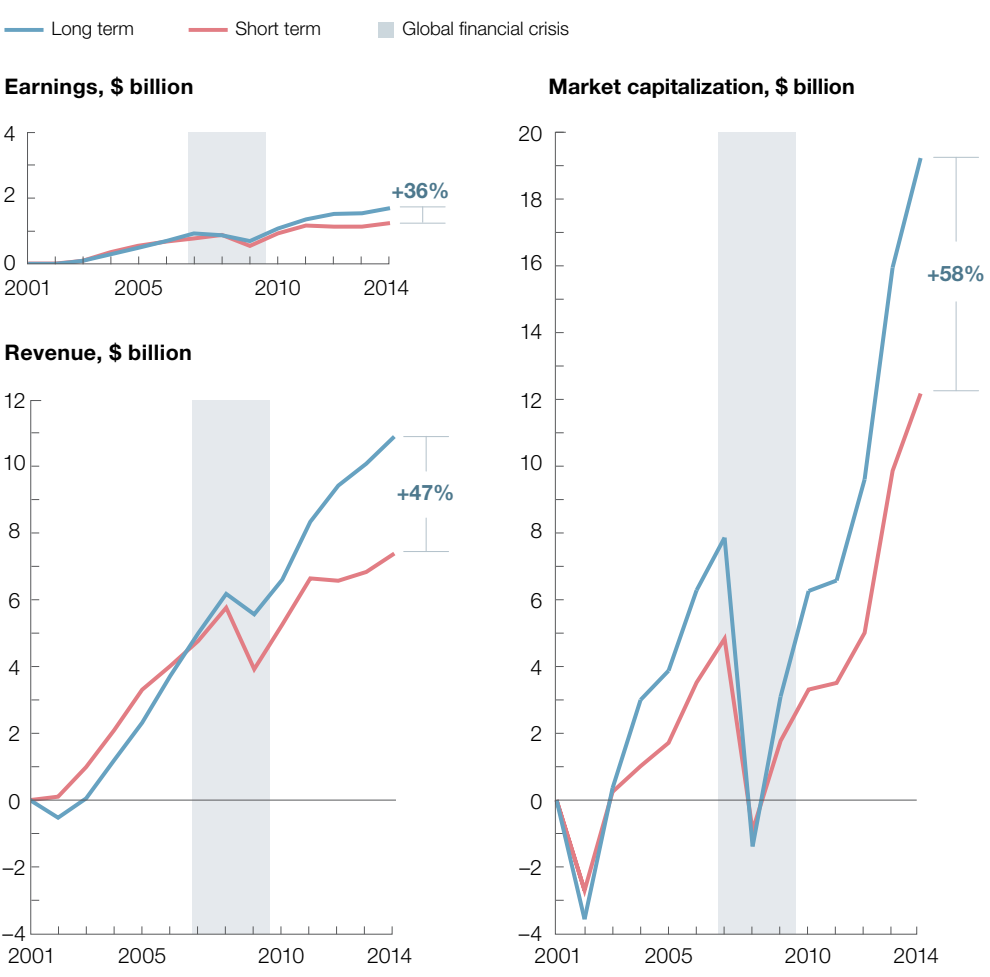
the revenue of short-term companies, and with less volatility. Cumulatively, the earnings of long-term companies grew 36 percent more on average over this period than those of short-term companies, and their economic profit was 81 percent greater on average by 2014.

Long-term companies also exhibited stronger financial-market performance over time. On average, their market capitalization grew $7 billion more than other companies from 2001 to 2014. Their total returns to shareholders was superior, too, with a 50 percent greater likelihood that they would be top decile or top quartile by 2014. And although long-term companies took bigger hits to their market capitalization during the financial crisis than other companies, after the crisis their share prices recovered faster.

Finally, long-term companies invested more than other companies from 2001 to 2014. Although they started this period with slightly lower R&D spending, by 2014 long-term companies on average spent almost 50 percent more on R&D annually than other companies. More important, they continued to increase their R&D spending during the financial crisis while other companies cut R&D expenditure; from 2007 to 2014, average R&D

Exhibit 2

Since 2001, long-term companies have exhibited stronger fundamentals and better performance than the others.



Source: S&P Capital IQ; McKinsey Global Institute analysis

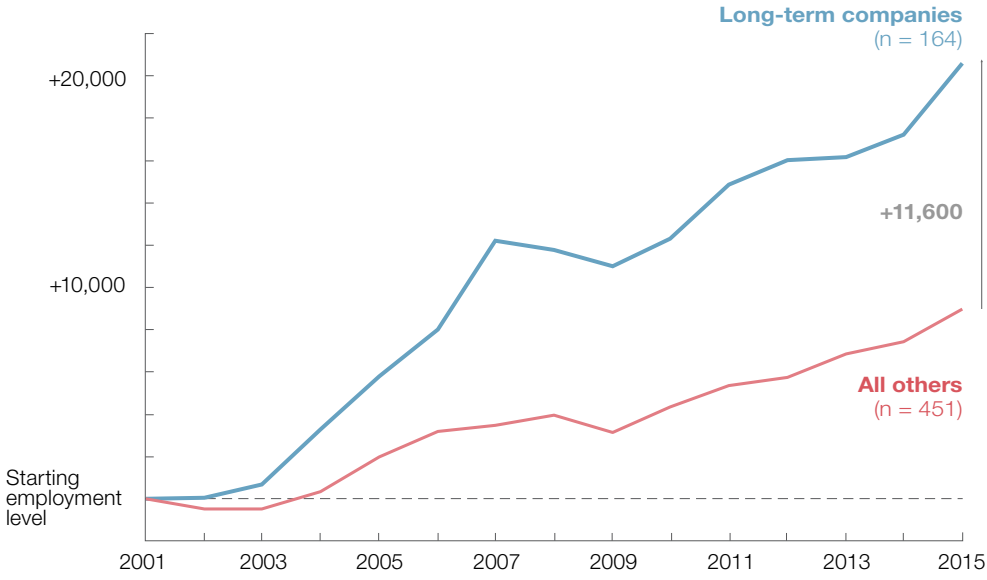
spending for long-term companies grew at an annualized rate of 8.5 percent versus 3.7 percent for other companies.

LONG-TERM COMPANIES ADD MORE TO ECONOMIC OUTPUT AND GROWTH

Long-term companies added nearly 12,000 more jobs on average than other companies from 2001 to 2015 (Exhibit 3). Had all companies created as many jobs as the long-term companies, the US economy would have added more than five million additional jobs from this period. On the basis of this potential job creation, this suggests that the potential value unlocked by

Exhibit 3

From a macro perspective, long-term companies created nearly 12,000 more jobs than other companies over 15 years.



Source: S&P Capital IQ; McKinsey Global Institute analysis

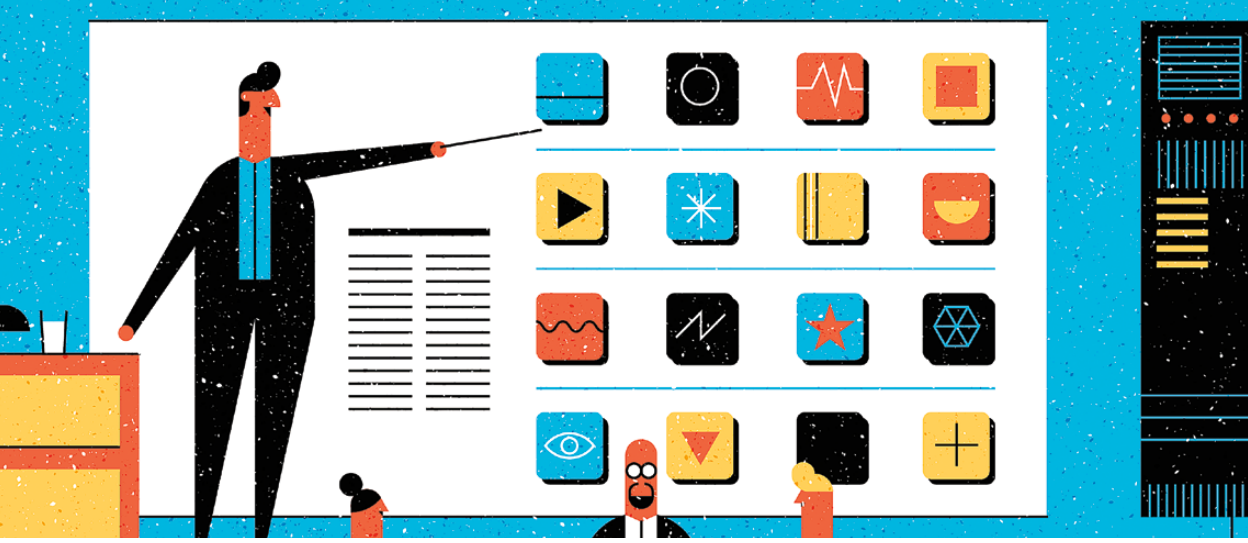
companies taking a longer-term approach was worth more than $1 trillion in forgone US GDP over the past decade; if these trends continue, it could be worth nearly $3 trillion through 2025.

These findings—that short-termism is rising, that it harms corporate performance, and that it has cost millions of jobs and trillions in GDP growth—are sobering. Companies and governments should begin to take proactive steps to overcome short-term pressure and focus on long-term value. The economic success of their companies and their countries depends on it. Q

THRIVING IN THE C-SUITE

Illustration by MUTI

New CEOs must set strategy, assess deals, and build their team—while simultaneously addressing experiential blind spots that could undermine their leadership effectiveness. Skill building is critical for other senior executives, too. The articles that follow present evidence from two major research efforts that show how CEOs and top team members can navigate their transition periods and become more successful leaders.



What makes a CEO 'exceptional'?

We assessed the early moves of CEOs with outstanding track records; some valuable lessons for leadership transitions emerged.

by Michael Birshan, Thomas Meakin, and Kurt Strovink

New CEOs face enormous challenges as they start assembling a management team and setting a strategic direction in today's volatile environment. To provide some guidance for transitioning CEOs, we looked at the experiences of *exceptional* CEOs, those defined as the very top performers in our data set of roughly 600 chief executives at S&P 500 companies between 2004 and 2014.

Our focus was on the top 5 percent of the CEOs in our sample as a whole whose companies' returns to shareholders had increased by more than 500 percent over their tenure. We contrasted this group both with our full sample and with a subset of CEOs whose companies achieved top-quintile performance during their tenure as compared with their peers.[1]

The exceptional group includes some leaders who managed remarkable performance in part due to unusual circumstances, for example, by guiding a company through bankruptcy proceedings and then returning it

[1] We ranked all CEOs by annualized total returns to shareholders (TRS), normalized for the performance of their broader industry. Those in the top quintile, the 120 highest-performing CEOs, achieved at least 9 percent TRS above industry cohorts each year they were CEO.

successfully to the public markets. It also includes CEOs who were able to deliver the highest returns through strategic repositioning and operational discipline over many years, within more normal industry and economic conditions. Overall, the exceptional CEOs were neither more nor less likely to be found in particular industries, to lead companies whose size differed from the mix in the broader S&P 500, or to join particularly high- or low-performing companies. Here are three lessons that emerged from close scrutiny of these exceptional leaders.

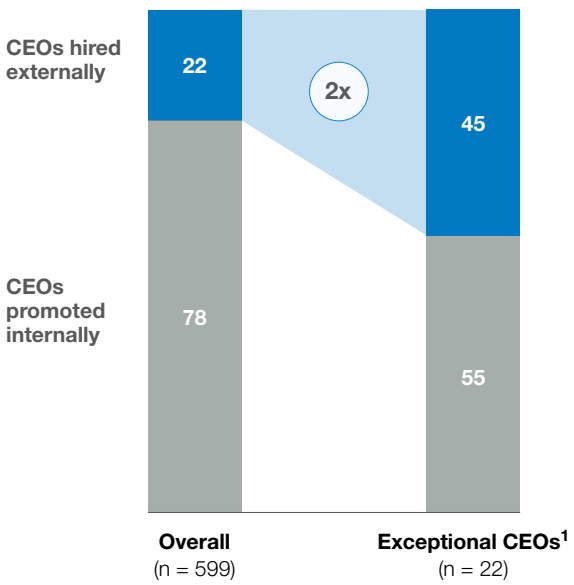
THE OUTSIDER'S EDGE

In our earlier research,[2] we found that on average, CEOs who are hired externally tend to pull more strategic levers than those who come from within and outperform their internal counterparts over tenure. Our research on exceptional CEOs reinforced this finding: these CEOs are twice as likely to have been hired from outside the company as the average CEO in our data set (Exhibit 1), and roughly 1.5 times as likely to have been external hires as the other top-quintile CEOs.

[2] See Michael Birshan, Thomas Meakin, and Kurt Strovink, "How new CEOs can boost their odds of success," *McKinsey Quarterly*, May 2016, McKinsey.com.

Exhibit 1

Exceptional CEOs are twice as likely to have been hired from outside the company.



[1] Defined as CEOs who delivered >500% growth in total returns to shareholders over tenure, normalized for performance of broader industry.

Still, 55 percent of the exceptional CEOs were internal hires. Clearly, insiders can move aggressively and achieve outstanding results. Doing so often means cultivating an outsider's point of view to challenge the company's culture with greater objectivity and overcome the organizational inertia that sometimes limits an insider's span of action.

STRATEGIC ACTIONS

The findings offered additional insights on how CEOs may gain a clear-eyed perspective for action. In our sample as a whole, CEOs joining low-performing companies derived the biggest benefits from conducting a strategic review. Our exceptional CEOs did not join struggling companies in disproportionate numbers, but they were significantly (about 60 percent) more likely to conduct a strategic review in their first two years on the job versus the average CEO in our sample (Exhibit 2).

Exhibit 2

CEOs who were formerly CFOs have natural strengths that are reflected in the moves they make early in their tenure.

In our sample as a whole, CEOs joining low-performing companies derived the biggest benefits from conducting a strategic review.

Informed by this view of the company's past—and potential future—performance, this elite group was bolder than other top-quintile CEOs, far surpassing them in the average number of strategic moves they made in their first year. Changing strategic direction typically requires freeing up resources, often in part by cutting costs in lower-priority parts of the company. While cost-reduction programs are, according to our earlier research, a no-regrets move for all CEOs, the exceptional CEOs were significantly more likely to launch such initiatives than the average CEO, thereby building strategic momentum.

ORGANIZATIONAL BALANCE

In our research on CEOs overall, organization redesign appeared to be a critical part of the typical high-performing CEO's tool kit, and management reshuffles were particularly important for CEOs taking over lower-performing companies. Our sample of exceptional CEOs, though, was less likely than the average CEO to undertake organizational redesign or management-team reshuffles in the first two years in office. This could be a function of the strategic game they were playing: they may have inherited high-performing companies (which can be hurt by reshuffles) or prioritizing, since there are only so many initiatives and changes that organizations and people can absorb in a short space of time. Indeed, since the exceptional group contained an above-average proportion of outsider CEOs launching fundamental strategic rethinks, the data may reflect a sequencing of initiatives, with structural change following strategic shifts.

By definition, not all CEOs will be exceptional. Yet for any CEO starting a transition, there is much to learn from the best. Adopting an outsider's view will yield the unbiased insights needed for breakthrough moves. Likewise,

investing in a robust strategic review will provide a surer perspective for setting a strategic direction. A grounding in the organization's context, meanwhile, will help calibrate the speed and scope of change. Those in our sample do much of this at the highest level, setting a benchmark for every CEO aspiring to a successful debut. Q

Michael Birshan is a partner in McKinsey's London office, where **Thomas Meakin** is an associate partner; **Kurt Strovink** is a senior partner in the New York office.

The authors wish to thank Max Eskell, Madjdy Kassem, Devesh Mittal, and Blair Warner for their contributions to this article.

A deal-making strategy for new CEOs

New CEOs typically raise the tempo of transactions at first, then the pace slows down. Is that costly?

by Michael Birshan, Thomas Meakin, and Andy West

More than half of new CEOs of S&P 500 companies launch some form of transaction during their first two years in office. Whether acquisition, merger, or divestiture, deal making is the second most likely strategic action for a new CEO to undertake, we've found. Few are able to maintain the pace of deals over the course of their tenure, though, and this appears to be a missed opportunity.

THE CASE FOR PROGRAMMATIC M&A

Our work has shown the strategic value of sustained transactions. We looked at different approaches to M&A activity and assessed the success of each in delivering shareholder returns.[1] In "programmatic" deal making, for example, CEOs use M&A regularly (typically three to four deals per year) and meaningfully (with an average of 20 percent of companies' market capitalization acquired over ten years). That contrasts with a "large deal" approach, where companies transform themselves with one deal valued at more than 30 percent of their market capitalization. The research found that companies that pursue a programmatic M&A agenda outperformed their peers, achieving an average of 3 percent excess total returns to shareholders. "Large deal" strategies, on average, destroyed value.

[1] See Werner Rehm, Robert Uhlaner, and Andy West, "Taking a longer-term look at M&A value creation," January 2012, McKinsey.com.

AN EARLY BURST

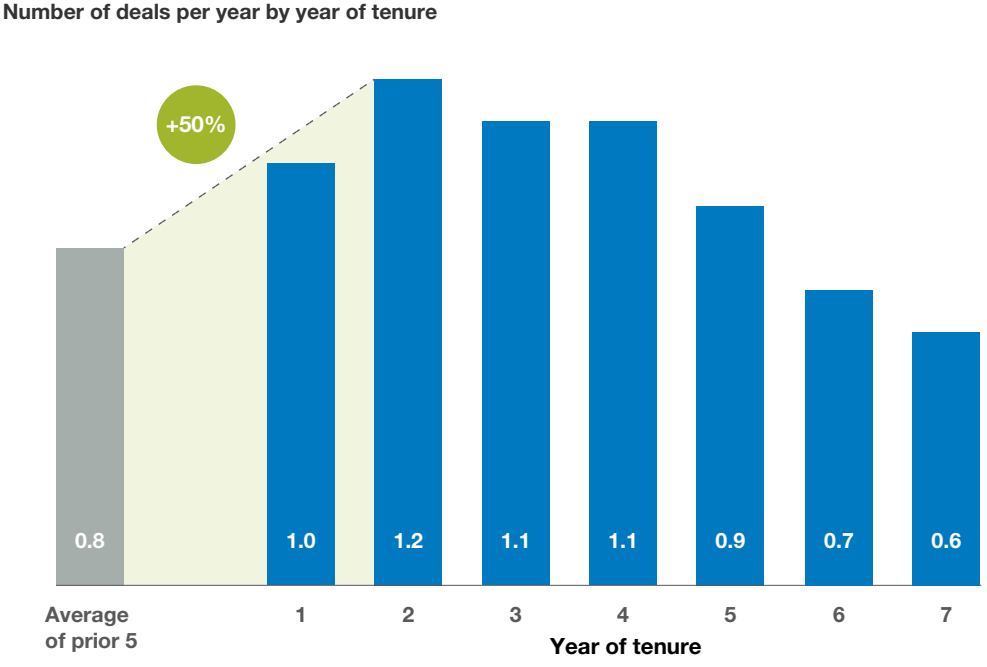
How does CEO behavior stack up against the programmatic M&A model? Fairly well during the initial years of many CEOs, according to our research. A review of all mergers, acquisitions, and divestitures by the nearly 600 CEOs who left S&P 500 companies between 2004 and 2014 showed that CEOs conducted significantly more M&A activity early in their tenures. On average, the number of deals (regardless of deal size) completed by year two of their tenure was 50 percent higher than the average number of deals done in the five years before they took the helm (Exhibit 1).

This initial drive for action is broadly consistent across industries and time periods, and it's a testament to the pressures on CEOs to make their strategic and financial mark. Research by our McKinsey colleagues similarly found that the most successful CEOs front-load their reallocation of corporate resources during the first three years of their tenure.[2]

[2] See Stephen Hall and Conor Kehoe, "How quickly should a new CEO shift corporate resources?," *McKinsey Quarterly*, October 2013, McKinsey.com.

Exhibit 1

New CEOs are under pressure to move early and conduct more M&A deals sooner than later in their tenure.



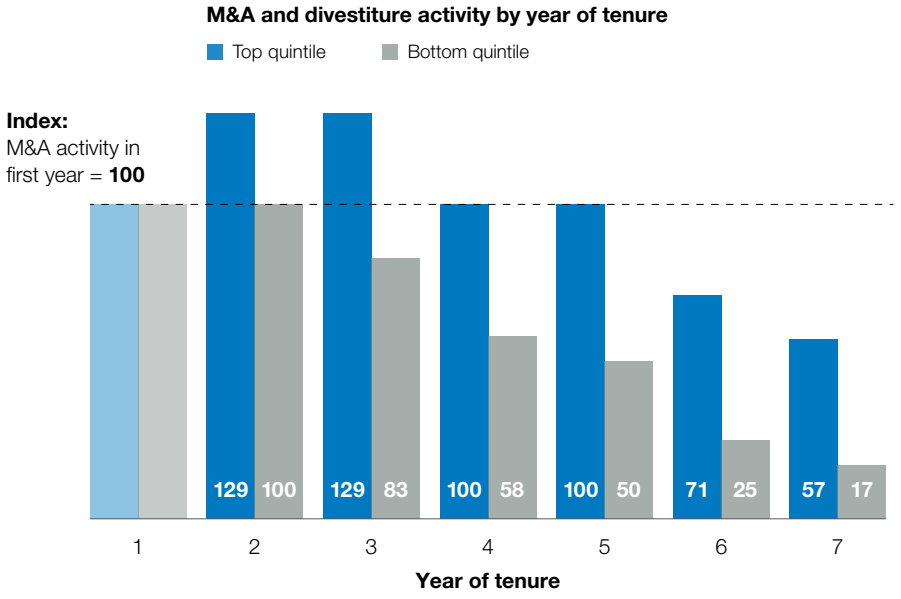
THE CHALLENGE OF STAYING THE COURSE

Our new research shows that transaction activity subsequently drops off, especially after year five of a CEO's tenure. By year seven, the CEOs in our data set were doing roughly one deal every two years. This was true both across the board and for the highest-performing CEOs (defined as those achieving top-quintile excess total returns to shareholders, where "excess" represents returns above the industry average). Those top-quintile CEOs typically were quite aggressive early on. By year two, they were doing nearly 30 percent more mergers, acquisitions, and divestitures than in year one (Exhibit 2). By year seven, though, the deal flow of the top-quintile companies was roughly half the level of year one. (For bottom-quintile CEOs, transactions were roughly one-quarter the levels of year one—an even sharper fall off.)

Like other strategic initiatives launched by incoming CEOs, transaction momentum tends to wane. After making big moves early on, CEOs tend to ride with the changes during the middle of their tenure. In part, that's to give the organization a break from the strains associated with integration

Exhibit 2

Top-quintile CEOs are more aggressive early on and experience less of a drop-off in M&A activity over time.



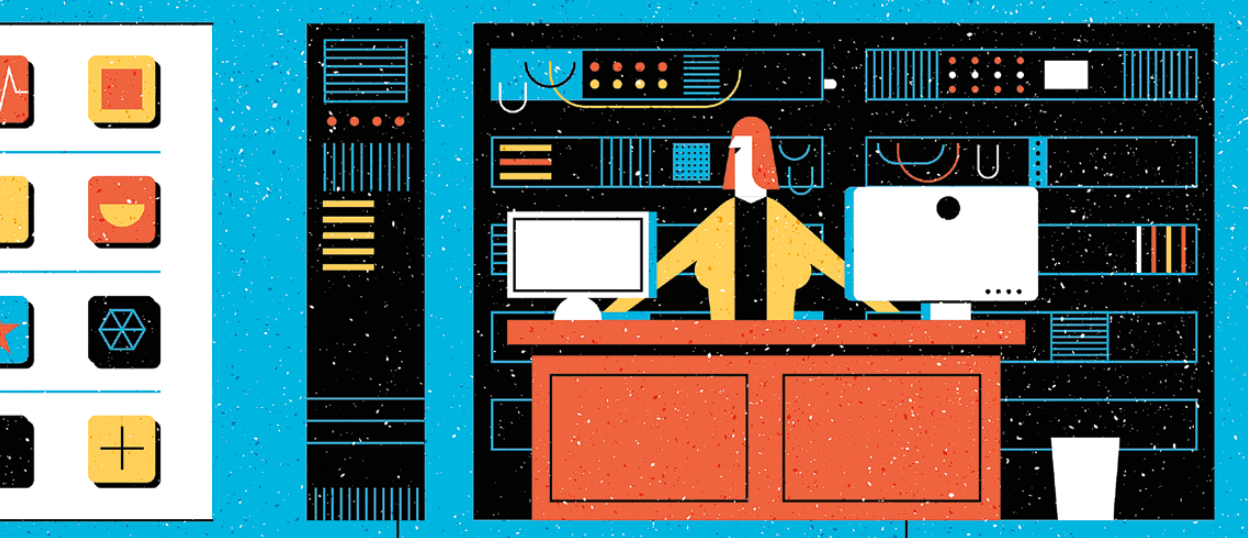
and change. Later on, however, it may reflect a penchant for conservatism and an unwillingness to take on additional risks toward the end of one's tenure. If not addressed, this creeping bias for inaction can hurt a company's performance as opportunities are missed and needed changes are not acted upon.

MAINTAINING MOMENTUM

Programmatic use of transaction activity demands a well-defined strategy supported by precise and analytical decision making by CEOs and their teams. Leaders throughout the organization first need to understand the role of transactions, as well as their relationship to organic-growth efforts, in achieving a vision (for more on organic growth and M&A, see "The value premium of organic growth," on page 22). Then it's valuable to maintain an ongoing commitment to rapid resource reallocation and to embrace frequent market scans and portfolio reviews that identify acquisition targets and divestiture opportunities. Sustaining an aggressive transaction tempo also demands a devotion to basic transaction blocking and tackling, with well-defined deal processes at ground level, along with strong supporting capabilities in deal sourcing, due diligence, and integration. Finally, boards have an important role to play. They should encourage their CEOs to view mergers, acquisitions, and divestitures as an ongoing tool, one that will help them maintain a strategic edge—and standing among shareholders. They should also understand that a CEO's appetite for doing deals (or not) is typically related to tenure, which can create a bias that they will need to identify and manage. Q

Michael Birshan is a partner in McKinsey's London office, where **Thomas Meakin** is an associate partner; **Andy West** is a senior partner in the Boston office.

The authors wish to thank Kurt Strovink for his help shaping this article and his leadership of this research initiative. They would also like to acknowledge the contributions of Ken Fujimoto, Madjdy Kassem, Devesh Mittal, and Blair Warner.



How functional leaders become CEOs

Limited operational experience is not necessarily a barrier to the top job. Here's what CFOs and others must do to jump to the next level.

by Michael Birshan, Thomas Meakin, and Kurt Strovink

Holding a functional leadership role isn't the most direct route to becoming a CEO. Fewer than 15 percent of the CEOs in a data set we've been scrutinizing for more than a year ascended to the corner office after serving as a functional leader such as chief financial officer, chief marketing officer (CMO), chief strategy officer, chief technology officer (CTO), or general counsel. Nearly all the rest had been operators—CEOs at other companies, leaders of major operating divisions, or chief operating officers.

The case for a functional CEO is strongest when his or her expertise is core to a company's critical business challenges. Organizations in the midst of a major digital transformation might benefit from a CTO in the top spot, and a CMO-turned-CEO could be just what the doctor ordered for a company rethinking its brand portfolio. Similarly, companies undertaking a growth plan based on M&A or a major cost-reduction effort often look to CFOs. (More than 70 percent of former CFOs promoted to CEO at FTSE 250 companies were appointed to lead cost-reduction or M&A-led growth initiatives, according to research by our colleagues.[1])

[1] See Richard Dobbs, Doina Harris, and Anders Rasmussen, "When should CFOs take the helm?," November 2006, McKinsey.com.

Regardless of the expertise they bring to bear, functional CEOs have a common set of challenges, rooted in their relative lack of operating experience. To understand both the challenge and the opportunity for functional CEOs, we scrutinized the former CFOs in our data set of 599 CEOs. CFOs represented two-thirds of the functional CEOs,[2] so they provided the most robust fact base for analysis. In our experience, the issues that CFOs-turned-CEOs wrestle with are emblematic of those faced by other functional executives.

BROADENING THE BASE OF LEADERSHIP

Lack of general management experience is a challenge for all functional executives. Many of the CFOs-turned-CEOs in a sample reviewed by our colleagues—a full three-quarters of those promoted to CEO at the FTSE 250 companies—compensated for this lack of experience by spending time outside the finance function. Sometimes nonfinancial experience comes from line roles; in other cases, CFOs burnish their skills by taking on additional functional roles in strategy or by joining the boards of other companies. Broader experiences such as these appeal to boards choosing CEOs, and they can also build decision-making instincts for CFOs when they encounter issues that can't be resolved through numbers.

More than 90 percent of the CFOs-turned-CEOs in our data set were promoted from within an organization rather than hired from outside. Deep knowledge of personalities and corporate culture can help the new CEO motivate employees as he or she articulates a vision for the company. Insider status also often necessitates a reset of relations with former peers on the management team, some of whom may also have been candidates for the CEO post. About three-quarters of the former CFOs in our research reshuffled their management teams within two years of taking office, compared with two-thirds for all new CEOs.

BUILDING ON STRENGTHS

CFOs have some natural strengths that can facilitate effective transitions into the CEO role. Former CFOs are often better at developing detailed strategies, have a deeper understanding of the drivers of business value, and can communicate that to investors. Extensive experience in budgeting and forecasting builds an appreciation of objective analysis, which CFOs

[2] Fourteen CEOs in the Fortune 100 were previously CFOs or finance directors. The figure is between 5 and 10 percent in European markets, and even lower in Asia.

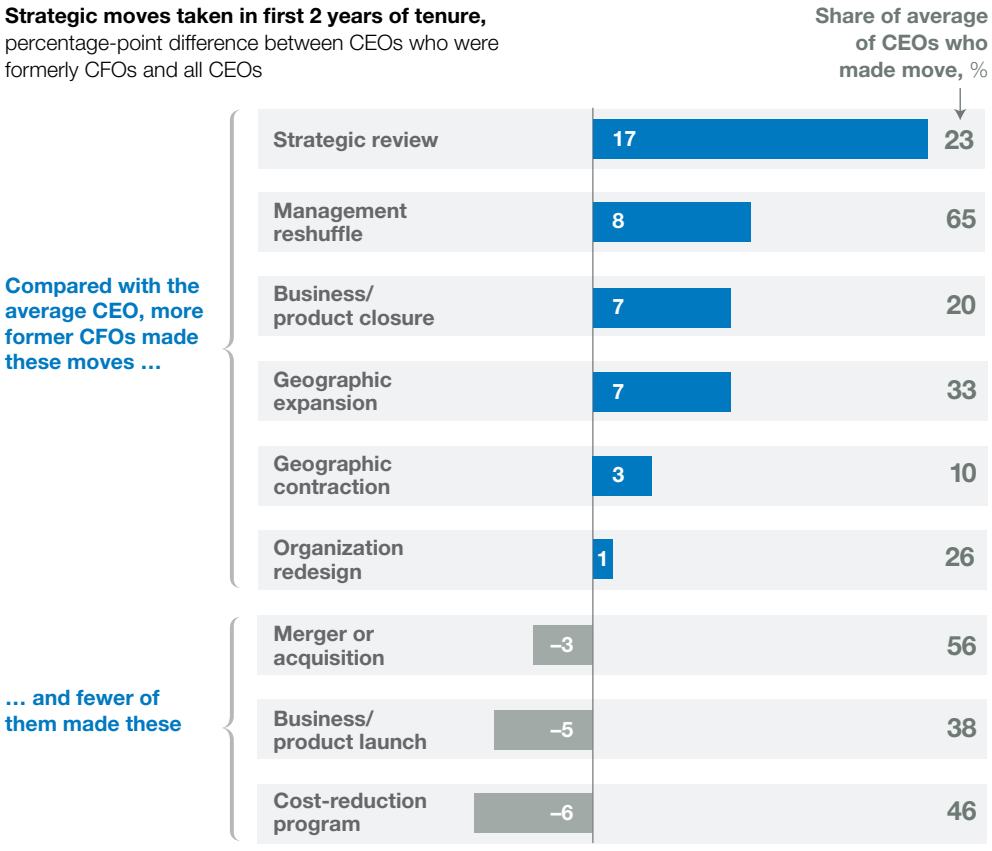
typically bring to bear early in their new role. For example, former CFOs were almost twice as likely as the average CEO to conduct a strategic review in their first two years in office (exhibit).

The CFO role provides experience, and breeds skill, in allocating capital to support the organization's strategy. This is key to outperformance, as research by our colleagues has shown.[3] Effective resource reallocation requires CEOs and their management teams to develop a detailed view of

[3] Yuval Atsmon, "How nimble resource allocation can double your company's value," August 2016, McKinsey.com.

Exhibit

CEOs who were formerly CFOs are more likely to conduct a strategic review.



the attractiveness of different business lines and customers. They also need to be attuned to the biases that can distort allocation decisions, combating through measures such as adopting a common set of metrics to evaluate funding opportunities or committing to annual reallocation thresholds. CFOs' experience leading planning processes makes them especially suited to these tasks.

Slower growth, rising cost pressures, and business-model challenges from digital players steeped in analytics have made a robust financial skill set a big plus for any executive making the transition to CEO. Capabilities once seen as the preserve of the finance function, such as the roles that finance and analytics play in setting strategy, are now priorities for all senior leaders. Functional executives who aspire to the CEO's chair should look for opportunities to show analytic leadership, deploy their own expertise, and broaden their leadership foundation. Q

Michael Birshan is a partner in McKinsey's London office, where **Thomas Meakin** is an associate partner; **Kurt Strovink** is a senior partner in the New York office.

The authors wish to thank Joshua Fidler-Brown, Madjdy Kassem, Devesh Mittal, and Blair Warner for their contributions to this article.

Why effective leaders must manage up, down, and sideways

Strong team leadership isn't enough. New research shows the importance—for business impact and career success—of also mobilizing your boss and colleagues.

by Thomas Barta and Patrick Barwise

Most of the leadership advice aimed at senior functional managers is how to build, align, energize, and guide a world-class team. This is a challenging task in its own right, but we all know it isn't the whole story. Leaders, even those in the C-suite, must also extend their influence upward and horizontally.

Organization theory suggests that managing upward and sideways is good for both the company and the individual leader's career: CEOs need the insights and pushback of trusted executives to help sharpen strategy. And complex modern organizations benefit when people engage with their peers across functional and business-unit boundaries to bring a range of perspectives and drive change and innovation.

Our research confirms this theory, and then some. In a wide-ranging study of the leadership actions of chief marketing officers (CMOs)—a good proxy, we believe, for the skills and behaviors of functional leaders in general—we've shown how "managing" the CEO and mobilizing colleagues increases business impact and career success. To test our hypothesis, we asked more

than 1,200 senior marketing executives from 71 countries about their perceived business impact (contribution to revenue and profit growth), their career success, and their characteristics against 96 variables. Using statistical techniques (explained below[1]), we were able to relate to these outcomes the 96 variables (which included leadership behaviors, functional skills, personality traits, sociodemographic variables, and external factors, such as peoples' fit with the company). We supplemented this research by analyzing existing 360-degree data on 7,429 marketing and nonmarketing leaders—a total of 67,278 individual evaluations by these leaders' bosses, peers, subordinates, and themselves.

Our findings lend support to the notion that senior executives should pay more attention to mobilizing their bosses (managing upward) and functional colleagues (managing horizontally) (exhibit). Taken together, these upward and horizontal actions were about 50 percent more important than managing subordinates for business success (45 percent versus 30 percent)—and well over twice as important for career success (47 percent versus 19 percent).

Clearly, there's more to success than managing up and sideways: leading a high-performance functional team accounted for 30 percent of the explained variation in our CMOs' business impact, and 19 percent for career success, and managing yourself accounted for the remaining variation. Mobilizing subordinates, in particular, is the base executives need to build from if they want to establish credibility with the CEO and with colleagues. The best executives build strong teams, relentlessly enhance team members' skills, keep subordinates focused with objective performance measures, and establish an environment conducive to trust and loyalty.

But they also do much more. Our model helped us identify the most important specific actions associated with managing upward and horizontally, and our 360-degree survey data confirmed that some of those actions receive less emphasis than they should.[2]

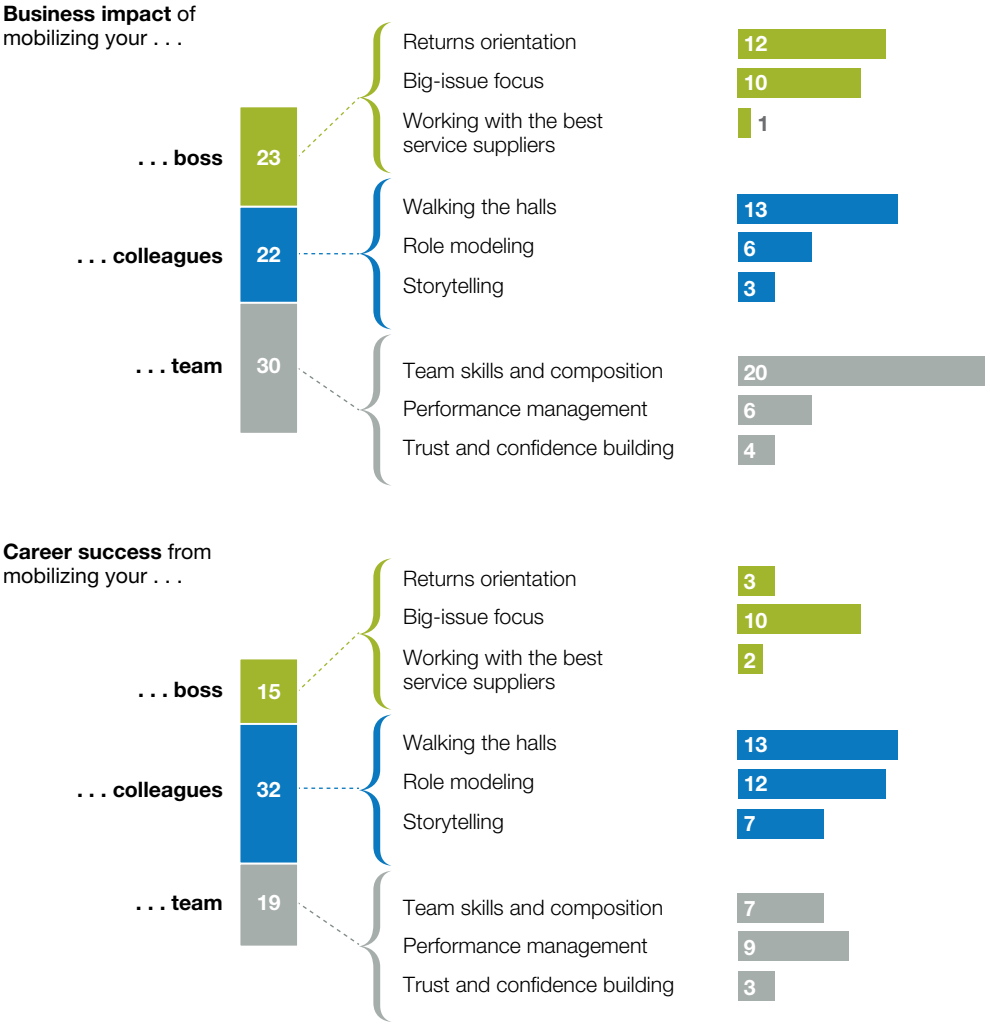
[1] For the main research, 1,232 senior marketers from a wide range of midsize and large companies in 16 different B2B and B2C industries rated, in confidence, how well 96 statements described them and their situation using a six-point scale (1 = not at all, 6 = very well). We then modeled the data using a neural-network-based, causal-analytics algorithm to estimate the network of causal relations among the 96 variables. Besides external factors such as the organizational context, the model revealed 12 sets of leadership behaviors that account for most of the explicable variance in these leaders' business impact and career success. We used additional statistical techniques to reduce the 12 behaviors to four components: mobilizing your boss, colleagues, team, and self.

[2] See Thomas Barta and Patrick Barwise, *The 12 Powers of a Marketing Leader: How to Succeed by Building Customer and Company Value*, McGraw-Hill Education, September 2016.

Exhibit

Managing upward and horizontally can improve your business impact and career success.

CMO example, relative share of explicable variation,[1] %



[1] CMO = chief marketing officer; share for mobilizing self not shown: business impact = 25%, career success = 34%.

Mobilizing your boss: Focus on strategic issues and demonstrate financial results

When we asked CMOs about their primary role, some responded that they "ran the marketing organization" or "led their companies' advertising and brand campaigns." We believe many other functional leaders would provide similar departmentally focused responses. By contrast, the most effective and successful leaders in our study were more likely to describe their

primary role as increasing company growth or better outreach to customers to improve performance. We found that a key determinant of success was taking on the big issues, those in sync with the CEO's agenda and contributing to the company's overall performance. Aligning with the CEO's strategy explained 10 percent of CMO business impact and 10 percent of career success.

But are functional leaders well aligned with the CEO's agenda? Seventy-six percent of our CMOs said yes—but just 46 percent of the bosses in our 360-degree database believed their marketers knew where the organization was going. Many functional leaders, it seems, could and should better align with the top.

Building a reputation as an effective user of resources also increases standing with the CEO. In our study, the ability to demonstrate returns explained 12 percent of CMO business impact and 3 percent of career success. Here, we again found a gap: while 67 percent of our CMOs said they had a strong returns orientation, only 39 percent of C-suite executives in another study reported that marketing executives were delivering measurable return on investment for their expenditure.[3]

Mobilizing your colleagues: Forge strong ties with peers to build momentum

If you want to build a "movement" within the company, lead from the front with an inspiring story to win the hearts and minds of colleagues, including those who don't report to you, and with a clear action plan to deliver tangible results. That can initiate a virtuous circle of internal recognition by energizing a cadre of early followers among colleagues. Our research suggests that leading from the front and having a strong narrative together explained nearly 10 percent of business impact and about 20 percent of career success. The ability to reach beyond the marketing silo to executives in areas such as IT and finance explained an additional 13 percent of the variation in both business impact and career success.

Only 56 percent of CEOs, however, described their marketing leaders as role models who lead from the front, and only 61 percent of CMOs said they use their storytelling skills. Tellingly, while marketers are adept at telling stories that mobilize customers to buy their products, we find they are less likely to ply that strength internally, despite the importance of effective engagement with colleagues.

[3] *Outside looking in: The CMO struggles to get in sync with the C-suite*, Economist Intelligence Unit, 2012.

Mobilizing horizontally means walking the halls, getting out of the office to share ideas with peers, listening to their concerns, and working jointly to attack strategic issues. In theory, leaders could do many of their interactions on video these days. But that's rarely inspiring. Instead, the best leaders connect directly with as many people as possible through town halls when they travel to local markets, and hunker down to help teams solve their biggest problems.[4]

Fortunately, the actions needed to mobilize the CEO and colleagues are often mutually reinforcing. For instance, moves by functional leaders to build support horizontally are often related to their simultaneous efforts to show tangible results and advance the organization's strategy.

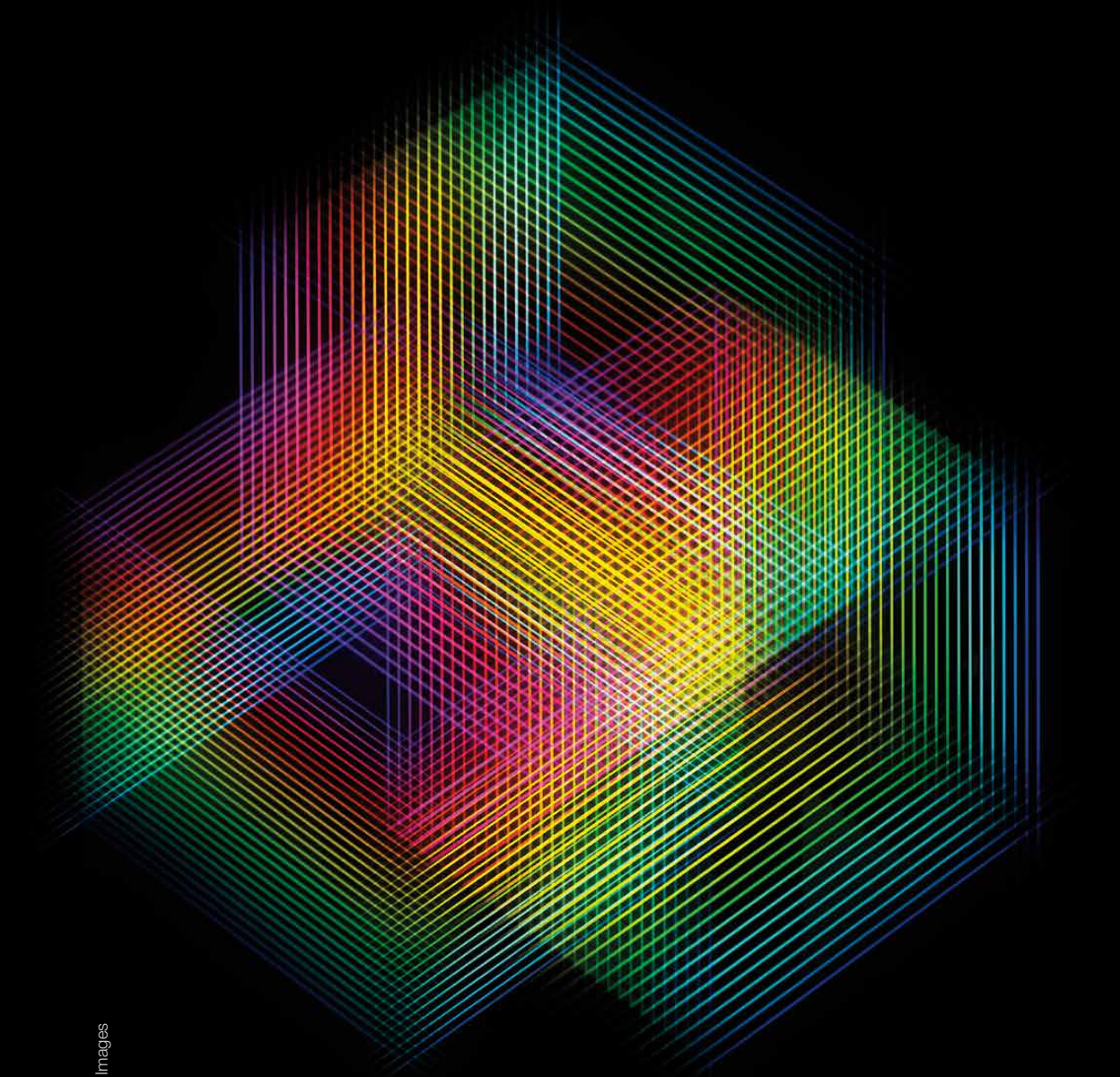
While CEOs rely on functional leaders' ability to build high-performance teams, much more needs to be done to help these leaders extend their influence upward into the C-suite and horizontally across the organization. Happily, our work suggests that not only business impact but also career success redounds to those CMOs (and, we believe, functional leaders of all stripes) who can increase their span of leadership influence upward and across functions. Q

[4] Thomas Barta, "CMO leadership talk with Diageo's Syl Saller: 'Life's too short for PowerPoint,'" *Forbes*, February 24, 2017, forbes.com.

Thomas Barta is a McKinsey alumnus and was a partner in the firm's Cologne office; **Patrick Barwise** is emeritus professor of management and marketing at London Business School. They are coauthors of the new leadership book *The 12 Powers of a Marketing Leader: How to Succeed by Building Customer and Company Value* (McGraw-Hill Education, September 2016).

THREE CASES OF DIGITAL REINVENTION

HOW A BANK, THE INSURANCE INDUSTRY, AND THE G&A FUNCTION ARE RESPONDING TO CHANGE



The digital reinvention of an Asian bank

The CEO of DBS says it's not enough to apply digital "lipstick."

DBS is one of the leading financial-services groups in Asia. Headquartered and listed in Singapore, the company has a growing presence across the region and aspires to be what it calls "the Asian Bank of choice for the new Asia." One of the most important prongs of that ambition is the bank's digital strategy—notably its determination to embrace technology, reimagine the customer journey, and make the bank's culture more entrepreneurial. McKinsey senior partner Joydeep Sengupta recently sat down with Piyush Gupta, the CEO of DBS since 2009, to discuss the challenges and opportunities Gupta has encountered along the way and the future shape of banking, including the threat from platform companies.

The *Quarterly*: *What led you to set out on a digital journey?*

Piyush Gupta: The experience of telcos, transport, and retailing shows that we're changing the way we communicate, the way we commute, and the way we consume. So why would banking be immune or be safeguarded from any of this? Banking is arguably the most digitizable industry of all, so in some ways it's surprising that we haven't been more disrupted. I think part of that has to do with psychology—people think about money a little bit differently than they do about other things—and it's partly to do with regulatory barriers.

That said, with so much money going into fintechs, we have reached a tipping point in the last couple of years. Incumbent players are wrestling with the challenges of how to transform themselves. In Asia, and notably in China, the

actions of new players, such as Alibaba and Tencent, and of established banks, like Minsheng, Ping An, and ICBC, have made this all the more visible. In 2013, the DBS board therefore took the view that the future for us and for our industry would have to be digital. We felt that if we didn't lead the charge, frankly, we might die.

The *Quarterly*: *When you started out, did you have a game plan for what DBS might look like in three to five years' time?*

Piyush Gupta: Not really, but we tried to embrace some of the main macrotrends, like cloud computing and big data and analytics. Our credit-card businesses, for example, may have been using data analytics for 25 years, but today, with off-us and on-us[1] and online data, you can do a heck of a lot more. The shared economy—producers becoming consumers, consumers becoming producers—has been another opportunity, and we've been thinking hard about how we can collaborate with other partners in the ecosystem.

The most important driver of change in the banking industry, though, has been the smartphone. Instead of going to a branch, to an ATM, or even to a desktop, customers can now go around with the bank in their pockets. In theory, the bank can become invisible and seamlessly embed banking services into day-to-day life.

The *Quarterly*: *To what extent were you inspired by new-economy companies?*

Piyush Gupta: When we first started out along this road, we compared ourselves with emerging fintechs and the start-up world and concluded that we really had to digitize completely, not just by putting on digital "lipstick." We made killing paper a big mantra in the organization, for instance, and were determined to go beyond just tacking on a bunch of digital apps at the front end—that's the easy bit. We wanted to go all the way through to middleware and the back end.

A company like Uber has reimagined its processes and digitized everything from end to end, and that's what we have done. This has required rethinking our technology architecture—hard for banks or any company sitting on legacy applications that are 30, 40, or 50 years old—so as to make it API[2] based and integratable with other applications, maybe open source.

[1] Digital shorthand for transactions where the card issuer and the acquirer bank are, respectively, different and identical.

[2] Application programming interface.

A second big priority, to me more important than digitizing per se, was to embed ourselves in the customer journey. This is about much more than automation. Hotel chains, after all, had been automating for the last two decades—most have a version of SAP, Oracle, or what have you—but when Airbnb came along, it fundamentally rethought the customer journey for people seeking accommodations. Doing this at DBS led to some very significant changes in what was offered and how it was offered.

The third—and perhaps most challenging—priority was around culture. Today, we are up against businesses that work out of a garage, take risks, operate in a nimble way, and have a different kind of energy and drive. Large incumbent companies that can't create a similar kind of culture just won't be able to compete. One of our rallying cries has been "how do you create a 20,000-person start-up?"

The *Quarterly*: *What were some of the things you did to make this cultural change successful?*

Piyush Gupta: I once worked for an organization that tried to create a separate R&D organization, but several billion dollars and several years later, we had to shut it down without getting much productive output. I realized then that a lack of ownership at the core of a company is a hurdle. There were too many detractors, people on the sidelines, taking potshots. That's obviously not helpful. Nor is a separate R&D organization able to embrace the issues that are really fundamental to a company. It did a lot of stuff that was nice at the margin, nice to have. But the core P&L and the balance sheet were not addressed. My takeaway from that earlier experience is that if you want to make change real, and if you really want to make change cohesive, then you have to attack the core.

It's not easy to do, but three or four years down the road at DBS there is momentum and energy. We've reached the stage where we have 100 flowers blooming in the core, including the audit team, the compliance team, the back office, the people in the call center, and in sales. Everybody is part of this reimagining of the customer journey and of the process, and part of the digitizing. We have many more people who are part of this transformation than we would if we had just focused on one part of the company.

We invested initially in two small, central teams of 12 to 15 people, which over time I merged. One of the teams was focused on customer experience, the second on innovation. In both cases, the objective was to catalyze a sense of *how* to innovate—what had to be done about customer journeys in

the way of training, exciting people, getting this on the agenda. In hindsight, this focus on customer experience and innovation turned out to be good. When you give people the freedom to go and try a few things with a rubric that says, "As long as it helps the customer, it is worth doing," it opens people's minds and it opens up a lot of possibilities.

The *Quarterly*: *What mechanisms did you set up to help people think differently?*

Piyush Gupta: One of the big things we focused on was how to get the company technology literate. After a couple of months, the learning group reported back that classroom sessions didn't work. But they came up with a different idea—running a series of "hackathons." This involved taking seven or eight DBS employees and forming them into a joint team with a couple of people from a start-up company. We had about 20 teams of this size and

PIYUSH GUPTA

Vital Statistics
Born January 24, 1960, in Meerut, India

Education
Earned a BA (with honors) in economics from St. Stephen's College, University of Delhi, and an MBA from Indian Institute of Management, Ahmedabad

Career highlights
DBS Group
(2009–present)
Director and CEO

Citibank
(1982–2000, 2001–09)
Roles included country officer for Indonesia, Malaysia, and Singapore; head of strategic planning for emerging markets; regional director of Global Transaction Services for Asia–Pacific; and CEO for Southeast Asia, Australia, and New Zealand

Fast facts
Member of the executive committee of the Institute of International Finance, Washington, DC

Member of the board of trustees of Asia Society

Deputy chairman of SPRING Singapore

Board member of the Institute of Banking and Finance and Dr. Goh Keng Swee Scholarship Fund

put them through a five-day hackathon process, with one day devoted to understanding technology and skill building in human-centered design, then three days or so of working together with start-up kits to help the teams code and create an app. We gave them mattresses, Ping-Pong tables, and free-flowing beer, but at the end of 72 hours they had to have an app.

On the final day, they would showcase these apps to a judging team. In many cases, people came up with fairly good creative solutions, but the real power came from the experience of recognizing that you could do something and you could actually come up with an app. The first hackathons we did involved young people in their 20s. But by the third, we started throwing in 40-and 50-year-olds and other employees not naturally comfortable with technology.

The renewed confidence and self-belief among employees was astounding. This made them realize that they could do things differently and have a real impact. It made us realize that if you want to change the company, you have to give people opportunities to experiment and that by making this mandatory you can start to shift the culture. In 2015, it was in everyone's KPI[3] to run an experiment, and we ran 1,000, with most of the senior leadership taking part.

This year, the KPI for all of my direct reports—about 300 people—is that they must either own an employee journey or a customer journey. We have also redesigned many of our physical premises, hiring a couple of anthropologists to help build human-centered design labs. We've done away with cubicles, so in large parts of the bank it's all open space. People stand up, conduct "agile" meetings, do Post-its on the walls, and huddle together in scrums every morning.

Interestingly, the citation that went with our Digital Bank Award from *Euromoney* was not about having the best and most profound applications in digital banking but for the most pervasive embrace of digital. Our call-center head count has fallen from 700 to under 500 this year, yet our volumes have gone through the roof because the call-center people are now using data analytics and tools from the app store to redefine ways to handle, automate, and digitize incoming calls.

On ATMs, we used to have 98 percent uptime, which sounds good but it's actually terrible when you have a large fleet of ATMs and thousands of transactions a day. Consequently, the ATM team used data analytics, worked with an external set of data scientists, and came up with a new algorithm and new models for preventive maintenance, as well as cash recycling. Last year,

[3] Key performance indicator.

we had insignificant downtimes and we're saving $20 million. This is not driven from the top—the team came up with the idea of how it could be done.

The *Quarterly*: *At the same time you were going through the transformation of your core, you also set up a new digital bank for other markets. Tell us a little bit about why you came up with this idea.*

Piyush Gupta: By and large, 90 percent of what we did was to attack the core. But with the digital—that is, the mobile-only—bank, we decided to create a separate group that was independent of business as usual. When we operate as a retail bank in large countries like China, India, or Indonesia, it's very hard to compete with large brick-and-mortar distribution networks. Indeed, many foreign players in retail banking have already withdrawn because of this challenge. So we felt digital distribution was the only way to get to large numbers of people without a large footprint. Alibaba's $100 billion fund-raising for its Yu'e Bao online money-market fund in seven months, with zero branches, seemed to me a clear sign that this could be done. ING Direct, too, had some success in Germany and Australia.

At the same time, even in our core markets, like Singapore and Hong Kong, we have to have an appropriate defensive play. We have large market shares, but we're as vulnerable to attackers coming in with digital solutions as incumbents are to banks like us grasping opportunities in, say, India or China.

The idea of this separate group was to see if we could create a mobile-only bank, completely paperless and branchless. We have chosen to do this in India first, and if it works, we will take it to different markets. So far, we're very encouraged with the results—over 800,000 customers in just nine months. It's all driven by a digital identification process that uses artificial intelligence. An intelligent bot handles all inquiries, so you only need a minuscule call center. There are no checks or checkbooks. If you can do payments well, you can do online lending well, and you can kill paper. You change the customer experience immeasurably. We believe we can run a bank of this sort with 10 percent of the head count needed to run a traditional bank. Today, we are at 25 percent, but we think in another year or 18 months we will get to 10 percent.

The *Quarterly*: *How did you get your board and senior management aligned around the new approach?*

Piyush Gupta: That's a really important question, as most CEOs have to find a balance between short-term results and investing in the long term, which may mean compromising short-term financials. In our case, the board got behind this agenda very swiftly, in part because in 2012 we had an inorganic opportunity that failed. The board concluded that inorganic acquisitions would be very hard to come by. In 2014, after the board had signed off on the planning process, it gave us an incremental $200 million, in their words, "to go blow it up." They said that if you can blow it up, then we might be able to make something worthwhile for the future.

The management team, too, got aligned very quickly. We spent a lot of time getting ourselves onto the same page about our future direction and what we'd need to go there. This included thinking through our purpose—what we were all about, what we hoped to be able to do, and how we thought we could make an impact. We came up with a fairly quirky statement of intent, which was to make banking joyful. When you do that, you very quickly step into the realms of technology and digitization. Most research says 74 percent of customers prefer going to a dentist to going to a bank. So if you could make banking joyful, that would be pretty cool.

The *Quarterly*: *How do you know if you are succeeding in the challenge?*

Piyush Gupta: There's really been a measurable and visible revenue impact. This comes from a reimagined customer experience that leads to customer stickiness and an increased share of the customer's wallet. A customer doesn't want a mortgage. He's buying a house. A customer doesn't want an auto loan. She's buying a car. If the mortgage and the auto loan can be hidden in the house- and car-buying processes, you naturally get more business. The customer experience helps a lot.

Second, when you are completely digitized, you can create products that you couldn't have done previously. A couple of years ago, for example, we created a set of money-transfer products around Asia, which enabled us to transfer money in just three seconds. Our cross-border remittances are up some five or six times, and we make $75 million more of incremental revenues. Our bancassurance market share in our home market, meanwhile, has doubled in the last two years, from about 17 percent to 35 percent, largely because we reimagined the bancassurance journey and process. Intelligent use of data is another factor, not just in risk management, but because it allows you to create differentiated, income-generating opportunities.

I talked about productivity in the context of the call center, but thanks to going digital and going paperless, we'll halve the number of tellers in our branch system over the next two years. We're changing the way people actually withdraw cash. Over the next five years, we believe that we should be able to make substantial improvements in the cost–income ratio of our core bank, which is currently above 45 percent. In the pure mobile bank, we think the cost–income ratio can be as low as 30 percent.

There are other areas where you don't obviously see the revenue–expense impact, or at least it takes time to come through. So we have measures we call ATE. The *A* stands for *acquisition*. What percentage of our customers can we acquire without paper, totally digitally and in the online space? *T* stands for *transacting*, which essentially is about straight-through processing. What percentage of transactions can we put through with no manual intervention? The *E* stands for *engagement*, the hardest metric. Here we're trying to measure how much more of the customer's time, share of mind, and incremental wallet can be retained as a result of a digital experience. We do that by measuring how many products the customer buys when he or she is digitized, as opposed to not digitized.

The *Quarterly*: *Is there anything that worries you as you look to the future?*

Piyush Gupta: In Asia and China at least, the so-called platform companies are doing a remarkable job and, with the support of regulators, are moving rapidly into financial-services territory. This is quite worrisome for incumbents, because these are not only technology companies with a technology culture, they also have a large customer base, perhaps as many as a billion. Their cost of customer acquisition is low, and they can pretty much do everything a bank can—raise money, lend money, move money around. I think most fintechs will end up collaborating with incumbent banks due to the high cost of customer acquisition, but the platform companies could be a different story.

The *Quarterly*: *Do you see any bank effectively emerging as a platform company?*

Piyush Gupta: One of the challenges for banks is a regulatory one. In most parts of the world, banks are prohibited from doing anything except a very narrow range of banking activities—which obviously comes from us being a fiduciary business. But that positive protection means there are some fairly tight barricades around what banks are permitted to do.

That said, I understand that you can buy designer goods like handbags through the ICBC[4] site, one of the leading online shopping malls in China. And banks like Ping An have been able to create an ecosystem of activities outside core banking—they own a housing company and a car dealership. I think the logic is compelling, and there are a number of areas where a banking service can be nicely integrated into e-commerce. It is not entirely clear to me whether the regulatory barriers will be removed very easily. If they are, then there is no reason for banks not to want to move into adjacent businesses.

When we compare ourselves with the platform companies, we will have a lot of heavy lifting to match their speed, technology, and culture. On the other hand, there are new technologies every day, and each time we think we're embracing something, six more opportunities—artificial intelligence or blockchain,[5] for example—come along, which we realize we could be doing ourselves.

On blockchain, I think it will take some time to get to the point where there is a shared protocol, enough critical mass, and enough players. But in time, the possibility of transforming a hub-and-spoke system into a distributed-ledger system has enormous possibilities. The key questions are cultural—are you able to create a company that has got adaptability, energy, and nimbleness and where the vast majority of employees are willing to act and think like entrepreneurs? Q

[4] Industrial and Commercial Bank of China.

[5] Blockchains provide a way to structure data that allows competitors to share a digital ledger across a network of computers without need for a central authority.

Piyush Gupta is the CEO of DBS. This interview was conducted by **Joydeep Sengupta,** a senior partner in McKinsey's Singapore office.

Insurers' digital reality—fewer premiums, more competition

Incumbents should consider partnerships and find new value-added services.

by Tanguy Catlin, Johannes-Tobias Lorenz, and Christopher Morrison

For a long time, insurance proved resistant to digital technology's disruptive power. Complex regulation, the capital reserves required to underwrite insurance, and underwriting skills and proprietary data built on years of experience kept the industry protected. But these barriers are rapidly eroding.

For the most part, the main threat is not from insurtechs, the nimble new tech start-ups that have thus far focused on property-and-casualty (P&C) insurance, as well as marketing and distribution, and into which venture capitalists have poured $4.4 billion in the past two years. Far from toppling the system, these fledgling businesses are in the main, helping incumbents to provide better services, with only 9 percent aiming to oust them (Exhibit 1).

Longer-term trends, on the other hand, are already upending the traditional business model of insurers and destroying value in the process. Exhibit 2 shows how far an incumbent car insurer could improve profits over the next eight years by harnessing digital technology. Better data will make pricing more accurate and help detect fraud, while automation could cut the cost of a claim by as much as 30 percent. Thereafter, however, with forward-collision avoidance, blind-spot assist, and adaptive cruise control already common

features in new cars, safer vehicles will reduce risk and lower premium income. In the case of entirely self-driving cars, manufacturers may assume the risk for what was previously a personal liability. The result of these changes could be that over the course of a decade, insurers' profits fall precipitously.

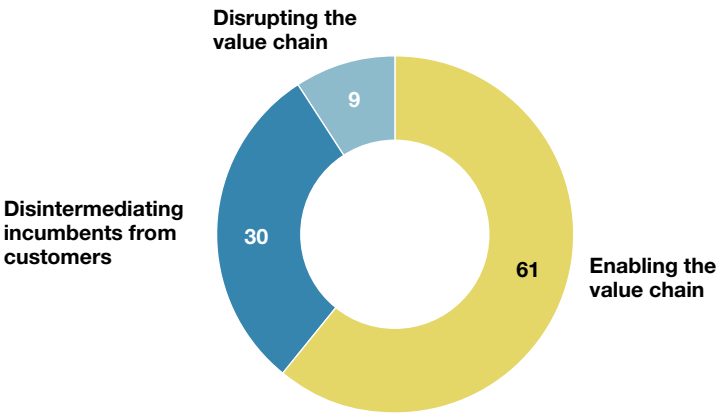
The same shift toward risk prevention is apparent in other insurance segments. In the home, sensors can shut off the water system if they detect a risk of flooding. In factories, connected devices on manufacturing equipment can alert operators to a maintenance issue. Smart devices that monitor health are increasingly popular. It is now possible to imagine a business model built not so much on the premiums consumers pay to protect themselves against damages they might or might not incur, but on gadgets or services that predict and help prevent risk.

Some of the expected decline in premiums will be offset by further efficiencies. But two other trends are significant. First, thanks to economies of scale and network effects in a digital economy, companies that move fast tend to take a greater share of a shrinking economic pie. Not all carriers, therefore, will be able to sustain the performance described earlier. The signs are already apparent. In direct auto insurance in Germany, Spain, and

Exhibit 1

Only 9 percent of insurtechs aim to oust incumbents.

Focus of insurtechs in the insurance value chain,[1] %



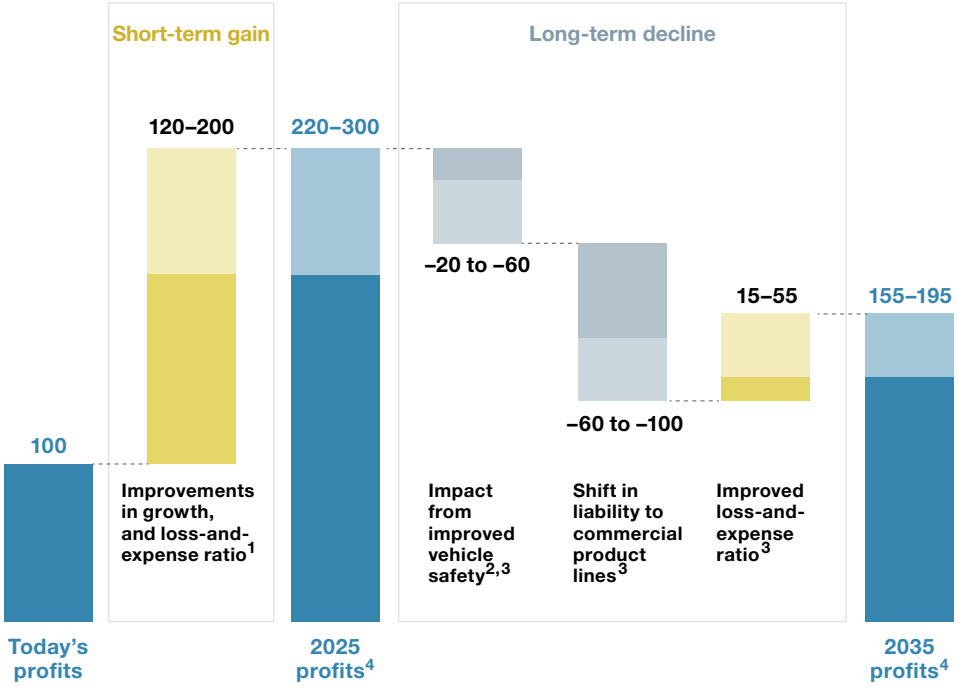
[1] Insurtechs are insurance businesses, usually start-ups, that use technologically innovative apps, processes, or business models; 2016 data based on some 500 commercially well-known cases.

Source: Panorama by McKinsey

Exhibit 2

Digital technology may increase profits for an auto insurer in the short term but lead to a long-term decline.

Future profits as a % of today's profits, digitizing the business, auto-insurance example



[1] Assumes improvements of 3–5 percentage points in loss ratio, 2–4 percentage points in operating expenses, and 6–8 percentage points in direct-sales conversions.
[2] Includes impact of semi- and fully autonomous vehicles.
[3] Assumes a 25% reduction in premiums as a result of telematics and sensors and a 50% risk transfer to commercial product liability.
[4] Includes growth in investment income as well as premiums; investment income modeled as a flat % of premium in each year. Profits for 2035 could drop to 75% of today's or rise as high as 275%.

the United States, a single fast mover has captured the lion's share of profits, leaving subscale, often unprofitable carriers competing for the remainder (Exhibit 3). Second, in a digital economy, those companies that own and analyze data are increasingly powerful. Insurers might have valuable historical data, but will they be able to compete with players that are able to gather real-time data from sensors in cars and homes, or from social media, credit-card histories, and other digital records? Knowledge about how fast someone drives, how hard they brake, or what activities they share on social media is arguably more helpful to assessing risk than age, zip code, and past-accident

record. And what if those with the data and analytical skills and with platforms that reach hundreds of millions—an Amazon or a Google—not only offered well-targeted, tailored products but also began to cherry-pick low-risk customers? If they do so in significant numbers, the underlying principle of traditional insurance—that premiums collected from low-risk policyholders contribute to the claims of high-risk ones—may no longer hold.

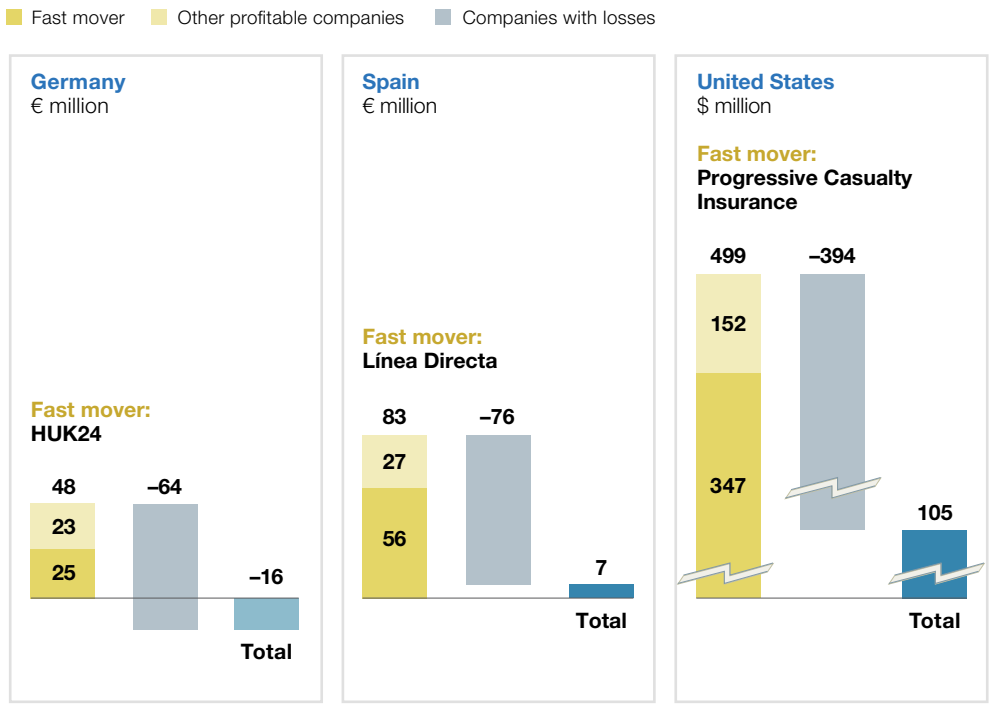
How will incumbents fare in this new world, where the focus is increasingly on risk prevention and insurers no longer have a monopoly on relevant data or customer access?

The answer no doubt lies in the speed with which they digitize existing businesses, using the enormous cost savings and newfound skills in areas such as analytics to drive new sources of growth. Growth will come from

Exhibit 3

Not all carriers will benefit from digitizing—a single fast mover may take the lion's share of profits.

Share of underwriting profit for pure direct auto insurance,[1] 2015



[1] For Germany, n = 13; Spain, n = 5; United States, n = 4.

Source: A.M. Best; Inese Wilmington Risk & Compliance; McKinsey analysis

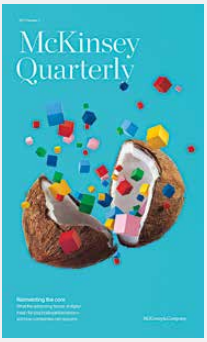
new products fit for a digital age: cybercrime insurance, for example; supply-chain insurance facilitated by tracking sensors; "micro insurance" for farmers in emerging economies, made affordable once claims adjusters can use data analytics to determine if weather conditions have damaged crops and once they no longer have to trek to remote locations to assess claims; and "shared economy" products for car owners who suddenly become cab drivers or home owners who become hoteliers each time they respond to demands from an Uber or Airbnb user.

In addition, incumbent insurers should consider partnerships to offer new, value-added services, be they part of a cybersecurity package offered by software providers or part of a package for car owners offered by an ecosystem of companies that might include telematics providers and car manufacturers, as well as those offering roadside assistance, car repairs, or car rental. Cracks may have appeared in the old insurance business model, but a new one is in the making. Q

Tanguy Catlin is a senior partner in McKinsey's Boston office, **Johannes-Tobias Lorenz** is a senior partner in the Düsseldorf office, and **Christopher Morrison** an associate partner in the Boston office.

For the full version of this article, see "Time for insurance companies to face digital reality," on McKinsey.com.

For more on how insurtechs are disrupting the insurance sector, see "Insurtechs—The threat that inspires," on McKinsey's Digital Insurance site, digitalinsurance.mckinsey.com.



Another take on digital reinvention

"McKinsey research suggests that the more aggressively companies respond to the digitization of their industries—up to and including initiating digital disruption—the better the effect on their projected revenue and profit growth."

For more, see "The case for digital reinvention," from *McKinsey Quarterly* 2017 Number 1, also on McKinsey.com.

What does automation mean for G&A and the back office?

A lot. By incorporating available technologies, redeploying employees, and reimagining processes, companies can improve their performance and reduce their costs dramatically.

by Alexander Edlich, Allison Watson, and Rob Whiteman

The performance of general and administrative (G&A) functions varies dramatically among companies, and the differential is poised to widen. As new forms of automation—fueled by advances in areas such as robotics and artificial intelligence—transform the world of work, G&A functions will be transformed, too.

Some of the impact will show up in costs. We've shown before that top-quartile companies operate at nearly half the cost of their bottom-quartile counterparts in the same sector.[1] Those cost differentials will grow with the increasing use of automation.

Just as important, automation brings with it the potential to improve the quality, speed, and flexibility of work dramatically—and this is where some of the most exciting opportunities in G&A reside. Successful G&A-improvement programs, which in our experience can generate twice as much impact from gains in effectiveness as from increased efficiency, not only improve decision

[1] See Robert Levin and Allison Watson, "Maximizing the value of G&A," *McKinsey Quarterly*, June 2016, McKinsey.com.

making and the allocation of resources but also help employees to work more effectively. As the pace of automation accelerates, the opportunities for improving performance will only increase.

TECHNICAL POSSIBILITIES

McKinsey Global Institute (MGI) research suggests that companies can automate at least 30 percent of the activities in about 60 percent of all occupations by using technologies available today. These findings are consistent with what we've seen in the G&A functions of many companies. For example, about 20 percent of the tasks of a typical finance unit's record-to-report (R2R) process are fully automatable (requiring no human intervention) and nearly 50 percent are mostly so (with technology undertaking most of the work). Similarly, in the HR hire-to-retire (H2R) process, about 30 percent of all tasks can be fully automated and another 30 percent mostly automated.

As the cost of technology falls and its capabilities grow in areas such as robotic process automation, machine learning, and natural-language generation, the economic case for automation is improving rapidly. A major financial institution recently found that it made economic sense to automate nearly 35 percent of finance-function tasks right now. The technology to automate another 35 percent of tasks—though not in a remunerative way—was technically feasible.

STRATEGIC POTENTIAL

What those automation figures fail to reflect are the possibilities created by reimagining business processes. Assigning machines to handle discrete tasks and plugging new technologies into existing processes may generate savings, but they won't take advantage of automation's potential to elevate your G&A function into a more strategic asset. That requires redesigning processes and organizational structures around both current and anticipated automation technologies.

Of course, sustaining G&A improvements has always forced companies to get things done in new ways, to reconfigure roles, and to adapt the workplace culture. But the changes are likely to be bigger for large-scale automation efforts. Consider the experience of a global insurance firm that used a set of automation technologies to redesign an overwhelmingly manual and error-prone process. At any given time, tens of thousands of policies were held up as a result of exceptions, and management faced mounting pressure

from regulators to meet mandated deadlines. More than 30 employees were tasked with working the backlog, and it took about five to seven minutes to bring each policy out of limbo.

Robotic process automation provided a way out of this logjam, as high-performing employees were redeployed to more valuable work. The automated process virtually eliminated errors, cut processing time by 50 percent, and reduced costs by even more. The new, automated process also proved highly scalable.

Another major financial institution, already long established as an industry leader in efficiency, embarked on a rapid program to incorporate automation technologies—such as robotic process automation and natural-language generation—into its processes. Taking advantage of existing market-ready innovations, the company launched use-case pilots to validate new opportunities and build out the necessary capabilities. Even more significantly, rather than just considering how to apply innovations to existing steps of traditional workflows, the company realized that it could reap the greatest benefits by redesigning existing processes—grouping automatable tasks, eliminating handoffs, and resequencing approvals to get the most out of automation. That resulted in a wholly novel model, which drove game-changing performance and efficiency improvements. A reimagined regulatory reporting process, for example, made it possible to complete, in as little as an hour, steps that had previously taken a week (exhibit).

INTO THE FUTURE

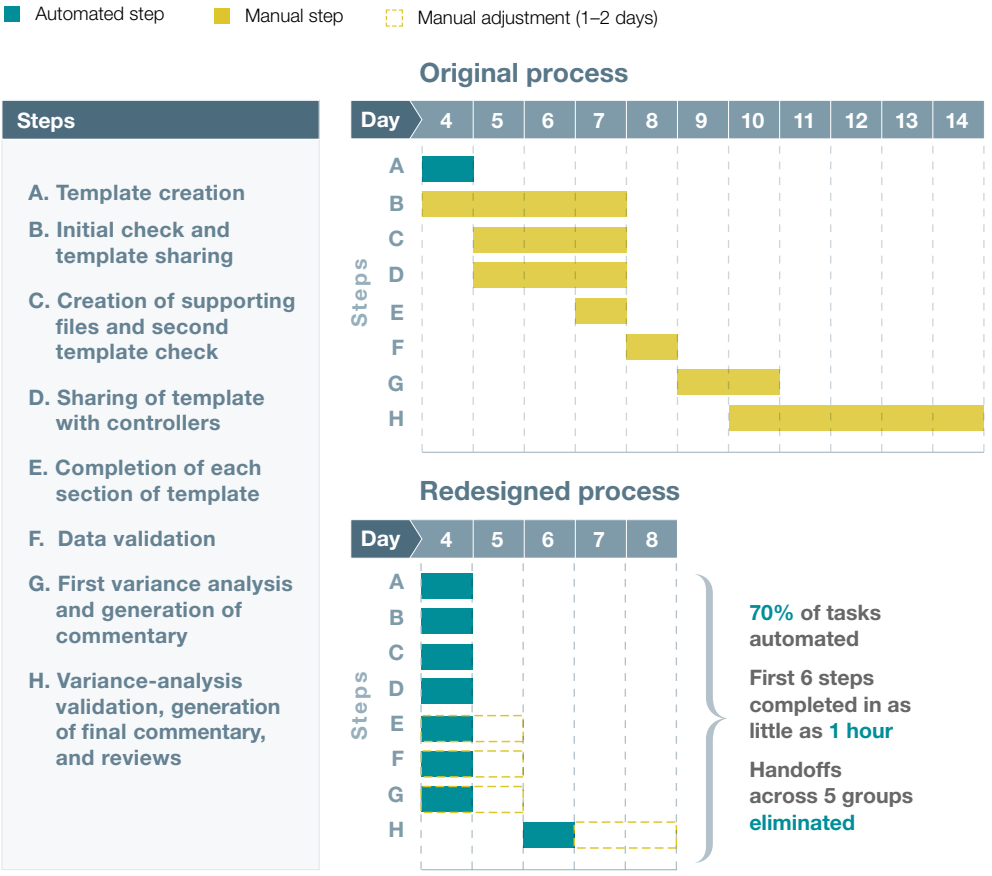
Companies understand that getting started is the easy part; a small centralized team, with help from third parties, can build a few bots or algorithms. But scaling is hard. One way to keep the momentum going after demonstrating early success is to support automation efforts across functions and lines of business by establishing centers of excellence (COE). Effective ones create user-friendly playbooks, contribute advanced expertise, build business cases, manage vendor relationships, track the impact of changes, and develop new capabilities. By working with the business to execute organizational change, maintain automation solutions, and manage risks, the most successful of these units also ensure that automation has a real impact.

One of the biggest risks of automation is demotivating or frightening the people your organization must mobilize to compete effectively. Some of

Exhibit

Reimagining how processes work can make automation a game changer.

Disguised example of global financial institution, regulatory reporting



the fears are misplaced: humans are needed to build bots and to "teach" artificial-intelligence platforms how to perform their tasks, some of which will always require the active involvement of humans. Critically important social, emotional, and creative capabilities, for example, are difficult to automate. Bots can't persuade a leader to run a business unit in a different way or design a new human-resources strategy with millennials in mind.

But automation, if implemented effectively, will inevitably lead to changes in organizational structures, to redefined roles—and, sometimes, to redundancies. There's no point in pretending these realities don't exist

or trying to hide an automation program behind closed doors. Honesty and transparency are critical. So is a commitment from top management to pursue, as part of any automation effort, initiatives that will benefit employees by eliminating routine work they don't enjoy, creating opportunities for them to acquire new and increasingly important technical skills, and using the proceeds of automation to fund roles that support the business in exciting new ways. Finally, it's imperative to be open, from the outset, about how you will treat employees who no longer have a role in the organization.

None of this is easy, but the alternative—being caught flat footed as competitors gain an edge through automation—is a risk that's not worth taking. Automation at its best can help companies to uncover entirely new ways of executing traditional processes and radically new possibilities for operating more quickly, efficiently, and effectively. That makes automation a strategic imperative for G&A functions. The top-quartile companies of tomorrow will be the companies that start the journey today.

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Another take on automation

"The effective use of automation requires the transformation of processes, changing what people do."

For more, see the full McKinsey Global Institute report, *A future that works: Automation, employment, and productivity,* on McKinsey.com.

Illustration by Bill Butcher

Are you prepared for a corporate crisis?

No one can predict when disaster will strike—but knowing what to expect if it does will buy precious time.

by Sanjay Kalavar and Mihir Mysore

Imagine yourself as a top executive in a company hit by a major crisis within the last 72 hours. First, and most importantly, there may have been serious damage to the community in which you operate. Your customers may have suffered, people's livelihoods destroyed. The environment may be irretrievably damaged. Some of your employees and contractors may be injured, or worse. Your investors will be livid, and the board looking to assign blame. By the end of the first week, chances are your organization will be facing dozens of lawsuits, some set to become class actions over time.

Very likely, at this early stage, you will realize that verifiable facts are few and far between. Opinions and rumors abound. You will have little or no idea of the extent of any physical or financial damage or the extent to which the organization was complicit in the event. You don't even know which of your top team members you can count on. Some of them may be implicated; others may be operationally inexperienced, unfamiliar with the political realities, or temperamentally unsuited to the new situation—filled with good intentions but uncertain what role to play.

The crisis will be manna from heaven for your organization's natural antagonists, who will seek to take advantage of your misfortune. Competitors

will try to lure customers and poach employees. Activist investors may plot a takeover. Hackers may target your systems. The media will dig up every past error the company may have made.

Much of the anger, by the way, is directed at you. And it's personal. Parody Twitter accounts may appear in your name, trashing your reputation. Your family may be targeted online. Reporters may be camping outside your home at odd hours of the day and night.

In the middle of all this chaos, what exactly do you do? Do you hold a press conference? If so, what do you say when you have so few facts? Do you admit wrongdoing, or do you say that what happened is not the fault of the company? Do you point to the cap on your legal liability, or do you promise to make everything right, no matter the cost? What do you tell regulators that are themselves under pressure, and demanding explanations?

The issues just described are not hypothetical. They are all real examples of experiences that organizational leaders we know have faced in multiple crises in recent years. What's really troubling is that these experiences are now far more frequent, and far more devastating, than they have been in the past.

Every crisis has its own unique character, rooted in specific organizational, regulatory, legal, and business realities. But after helping around 150 companies cope with a range of corporate disasters, we have seen some clear patterns. These can teach companies some simple best practices they can follow to prepare for a better response, in case the worst happens.

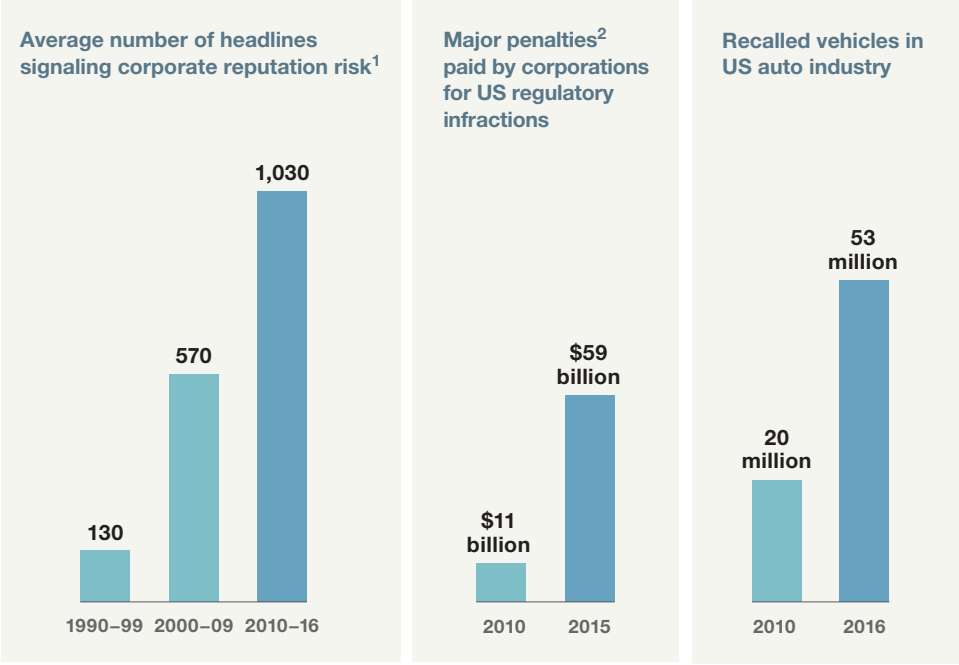
THE THREAT IS GROWING

Many incidents inside companies never hit the headlines, but recent evidence suggests that more are turning into full-blown corporate crises (exhibit). The total amount paid out by corporations on account of US regulatory infractions has grown by over five times, to almost $60 billion per year, from 2010 to 2015. Globally, this number is in excess of $100 billion. Between 2010 and 2017, headlines with the word "crisis" and the name of one of the top 100 companies as listed by Forbes appeared 80 percent more often than in the previous decade.[1] Most industries have had their casualties. For instance, the US auto industry recalled a total of around 53 million vehicles in 2016, up from about 20 million in 2010, while the US Food and

[1] Factiva; McKinsey Crisis Response analysis; top 100 based on the 2015 Forbes Global 2000 list.

Exhibit

Many company incidents remain hidden—but recent evidence suggests that more are turning into full-blown corporate crises.



[1] Reflects headlines with word "crisis" and name of one of top 100 companies in 2015 Forbes Global 2000 list.
[2] Major penalties defined as those exceeding $20 million.

Source: Factiva; National Highway Traffic Safety Administration; www.goodjobsfirst.org/violation-tracker

Drug Administration sent out nearly 15,000 warning letters to noncompliant organizations in 2016, up from just north of 1,700 in 2011.

Why is this a bigger problem now than it has been in the past? First is the growing complexity of products and organizations. A new pickup truck today includes computer controls programmed with more than 150 million lines of computer code, while the average deepwater well is the height of seven Eiffel Towers. Goods travel thousands of miles and move through supply chains that comprise multiple intermediaries and multiple jurisdictions. A second reason for the significance of the problem is a higher level of stakeholder expectations. Customers, often in response to messages on social media, are more willing to sue or shun a company they believe is unethical. Governments are more willing to seek redress from companies they believe are breaking the law, and shareholder activism is on the rise. Third, the changing

social contract is driving anxieties and mistrust in institutions, making irreversible knee-jerk reactions more likely. Finally, the raw speed of business operations—from rapid communications to shorter product-development timelines—makes crises more likely.

Understandably, companies spend more time trying to prevent crises than preparing for them. However, crisis readiness has become at least as important as risk management, takeover readiness, and vigilance over safety.

Underpreparedness has consequences and helps explain why companies engulfed by a large crisis initially underestimate the ultimate cost by five to ten times.[2] Senior executives are frequently shocked by how quickly a problem can turn from a minor nuisance into an event that consumes and defines the company for years to come.

FIVE PARALLEL PATHS TO RESOLUTION

In our experience, it helps to think of a crisis in terms of "primary threats" (the interrelated legal, technical, operational, and financial challenges that form the core of the crisis) and "secondary threats" (reactions by key stakeholders to primary threats). Ultimately, the organization will not begin its recovery until the primary threats are addressed, but addressing the secondary threats early on will help the organization buy time.

When a crisis hits (or is about to hit), one of the first actions should be to create a cross-functional team to construct a detailed scenario of the main primary and secondary threats, allowing the company to form early judgments about which path the crisis may travel. This helps the organization set out major decisions it needs to make quickly and is the first step toward wresting back control—improving the headlines of tomorrow, rather than merely reacting to the headlines of today.

While it is rare to get everything right at this stage, it is equally rare to get most of the second-order effects wrong. People are innately overoptimistic, of course, as we know from work on cognitive biases, but even being half right about how things will unfold is valuable at this early stage. It will provide a strong basis for tackling the five broad issues we see as critical to the outcome of a crisis: controlling the organization, stabilizing stakeholders, resolving the immediate primary threats, repairing the root causes of the crisis, and

[2] McKinsey Crisis Response analysis: ratio of initial company and analyst expectations in multiple crises (as measured by initial drop in market cap) to final cost.

restoring the organization over time. While all five need to be started early, they will likely require different levels of emphasis at different stages.

Control the organization

Normal rules for how the organization operates get torn up quickly in a crisis. Informal networks founded on trust and the calling in of favors can dominate over formal organizational reporting structures. Those previously opposed to the status quo can quickly become vocal, sparking a turf war and delaying action. Some key executives may themselves be implicated and unable to lead the response. Managers may start executing an uncoordinated set of actions with the best of intentions but incomplete or inaccurate information. No longer able to build consensus, they end up with unwieldy organizational structures that have dozens of decision makers around a table, with the result that the effort becomes dispersed and disconnected.

All this explains why an effective crisis team is central to mounting a satisfactory response. The best crisis organizations are relatively small, with light approval processes, a full-time senior leader, and very high levels of funding and decision-making authority. The team should be able to make and implement decisions within hours rather than days, draw a wall of confidentiality around the people who are responding, and protect those not involved from distraction in their day-to-day activities.

A common error is to choose an external expert as leader of the company's crisis response. External hires typically struggle to motivate and organize the company in a crisis situation. The right leader usually will be internal, well known, and well regarded by the C-suite; will have served in an operational capacity within the industry; and will enjoy strong informal networks at multiple levels in the company. He or she should possess a strong set of values, have a resilient temperament, and demonstrate independence of thought to gain credibility and trust both internally and externally.

The ideal crisis organization includes a set of small, cross-functional teams, typically covering planning and intelligence gathering, stakeholder stabilization, technical or operational resolution, recovery, investigation, and governance.

Stabilize stakeholders

In the first phase of a crisis, it's rare for technical, legal, or operational issues to be resolved. At this stage, the most pressing concern will likely be to

reduce the anger and extreme reactions of some stakeholders while buying time for the legal and technical resolution teams to complete their work.

For instance, an emergency financial package may be necessary to ease pressure from suppliers, business partners, or customers. Goodwill payments to consumers may be the only way to stop them from defecting to other brands. Business partners might require a financial injection or operational support to remain motivated or even viable. It may be necessary to respond urgently to the concerns of regulators.

It's tempting and sometimes desirable to make big moves, but it is tough to design interventions that yield a tangible positive outcome, from either a business or a legal standpoint. What usually works is to define total exposure and milestones stakeholder by stakeholder, then design specific interventions that reduce the exposure.

Resolve the central technical and operational challenges

Many crises (vaccines in pandemics, oil wells during blowouts, recalls in advanced industries) have a technical or operational challenge at their core. But the magnitude, scope, and facts behind these issues are rarely clear when a crisis erupts. At a time of intense pressure, therefore, the organization will enter a period of discovery that urgently needs to be completed. Frequently, however, companies underestimate how long the discovery process and its resolution will take.

Companies' initial solutions simply may not work. One manufacturer had to reset several self-imposed deadlines for resolving the technical issue it faced, significantly affecting its ability to negotiate. Another company in a high-hazard environment made multiple attempts to correct a process-safety issue, all of which failed very publicly and damaged its credibility.

It's best, if possible, to avoid overpromising on timelines and instead to allow the technical or operational team to "slow down in order to speed up." This means giving the team enough time and space to assess the magnitude of the problem, define potential solutions, and test them systematically.

Another frequent problem is that the technical solution, mostly due to its complexity, ends up becoming a black box. To avoid this, technical and operational war rooms should have an appropriate level of peer review and a "challenge culture" that maintains checks and balances without bureaucratic hurdles.

Repair the root causes

The root causes of major corporate crises are seldom technical; more often, they involve people issues (culture, decision rights, and capabilities, for example), processes (risk governance, performance management, and standards setting), and systems and tools (maintenance procedures). They may span the organization, affecting hundreds or even thousands of frontline leaders, workers, and decision makers. Tackling these is not made any easier by the likely circumstances at the time: retrenchment, cost cutting, attrition of top talent, and strategy reformulation.

For all these reasons and more, repairing the root cause of any crisis is usually a multiyear exercise, sometimes requiring large changes to the fabric of an organization. It's important to signal seriousness of intent early on, while setting up the large-scale transformation program that may be necessary to restore the company to full health. Hiring fresh and objective talent onto the board is one tried and tested approach. Other initiatives we've seen work include the creation of a powerful new oversight capability, the redesign of core risk processes, increased powers for the risk-management function, changes to the company's ongoing organizational structures, and work to foster a new culture and mind-set around risk mitigation.

Restore the organization

Some companies spend years of top-management time on a crisis, only to discover that when they emerge, they have lost their competitiveness. A large part of why this happens is that they wait until the dust has settled before turning their attention to the next strategic foothold and refreshing their value proposition. By this stage, it is usually too late. The seeds for a full recovery need to be sown as early as possible, even immediately after initial stabilization. This allows the organization to consider and evaluate possible big moves that will enable future recovery, and to ensure it has the resources and talent to capitalize on them.

BE PREPARED

Much of the training top executives receive around crisis management is little more than training in crisis communications—only one part of the broader crisis-response picture. The sidebar (see "Are you prepared for the worst?") lays out the sort of questions about preparedness that companies should be asking themselves.

Companies—and boards—should consider clearly defining the main "black swan" threats that may hit them, by conducting regular and thorough risk-

ARE YOU PREPARED FOR THE WORST?
TWENTY-FIVE QUESTIONS EXECUTIVES SHOULD ASK THEMSELVES NOW

UNDERSTANDING THREATS

- What are the organization's top ten risks and, relative to these, what are the top five "black swan" threats that could destabilize the organization?
- For each black-swan threat, how might the crisis evolve, including second-order effects by stakeholders and assessments of maximum exposure?

ORGANIZATION AND LEADERSHIP

- What will the crisis organization look like for each threat (in particular, is there a crisis-response leader with the right temperament, values, experience, and reputation), and when will that organization be activated?
- What will be your organization's governing values and guiding principles if any of the black swans hit?
- Have you defined the blueprint for a central crisis nerve center staffed by top executives, with division of roles?
- Do you have a crisis governance structure that involves the board, drives decision making, and isolates the rest of the business?
- Do you have a succession plan in case some of your mission-critical leaders need to step down because of the crisis?

STAKEHOLDER STABILIZATION

- Have you defined key stakeholders, including competitors and influencers, and tested how they might act in a crisis?
- Have you invested in understanding and establishing relationships with regulators and government stakeholders?
- Do you have a plan to protect employees and reduce attrition of your most talented employees?
- Have you established the portfolio of actions to stabilize stakeholders in the event of each scenario, beyond public relations?

OPERATIONAL AND TECHNICAL

- Which critical operations can keep going, and which ones may need to slow or stop?
- Is there a blueprint for an operational or technical war room staffed with the right team and adequate peer review?
- Have you defined ways to monitor and reduce cyberthreats, including dark web scans, during a crisis?

INVESTIGATION AND GOVERNANCE

- How will you scope an investigation, and what level of transparency might you need to provide?
- Do you have a set of options for large governance changes you may need to make after a crisis?

MARKETING, BRAND, AND COMMUNICATIONS

- Have you established a basic communications process, tools, roles, and plan to drive key messages with stakeholders?
- Have you thought how to protect your brand during the crisis and help it recover afterward?

FINANCIAL AND LIQUIDITY

- Are there financial protocols to provide crisis funding, protect liquidity, and maintain the business?
- Have you defined the broad scope of root-cause investigations and how they will be governed?

LEGAL, THIRD PARTY, AND OTHER

- Does the crisis team have a working knowledge of relevant legal provisions, case law, and protocols?
- Have you pre-identified battle-tested third parties, such as law firms, crisis communications firms, coordination, and business decision making?
- Do you have a sense, based on case law, what the overall legal pathways may be to resolve the black-swan event?
- Have you identified critical suppliers and considered how existing terms and conditions will affect you adversely in a crisis?

READINESS

- Have you rehearsed and critiqued all of your biggest crisis scenarios at least once in the past 12 months and implemented improvements to processes or other changes arising from these exercises?

identification exercises and by examining large crises in other industries as well as in their own. Once they do this, they should lay out, for each threat, what the trigger may be and how a hypothetical scenario for a crisis might unfold, based on patterns of previous crises. This allows the company to examine critically areas of weakness across the organization, and to consider what actions could offset them. For instance, should the company consider revisiting terms and conditions for key suppliers and building in a "cooling period," rather than being forced to change the terms of accounts receivable in the heat of the moment? What other measures would provide short-term liquidity and steady the ship financially? Should the company invest in an activist-investor teardown exercise to assess key vulnerabilities that may surface in the midst of a crisis?

Once such an assessment is complete, the company should train key managers at multiple levels on what to expect and enable them to feel the pressures and emotions in a simulated environment. Doing this repeatedly and in a richer way each time will significantly improve the company's response capabilities in a real crisis situation, even though the crisis may not be precisely the one for which managers have been trained. They will also be valuable learning exercises in their own right.

Risk prevention remains a critical part of a company's defense against corporate disaster, but it is no longer enough. The realities of doing business today have become more complex, and the odds of having to confront a crisis are greater than ever. Armed with the lessons of the past, companies can prepare in advance and stand ready to mount a robust response if the worst happens. Q

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A case study in combating bias: How one company overhauled its decision making

Following several disappointing investments, the German electric utility RWE sought to eradicate cognitive biases from its decision making. In this interview, the CFO who spearheaded the effort describes how it worked.

The *Quarterly*: *Tell us a bit about the circumstances that motivated RWE's management to undertake a broad debiasing operation.*

Bernhard Günther: In the second half of the last decade, we spent more than €10 billion on big capital-expenditure programs and acquisitions in conventional power plants. In the business cases underlying these decisions, we were betting on the assumptions of ever-rising commodity prices, ever-rising power prices. We were not alone in our industry in hitting a kind of investment peak at that time. What we and most other peers totally underestimated was the turnaround in public sentiment toward conventional power generation—for example, the green transformation of the German energy system, and the technological progress in renewable generation and related production costs. These factors went in a completely opposite direction compared to our scenarios.

Conventional power generation in continental Europe went through the deepest crisis the industry has ever seen. This ultimately led to the split of the two biggest German players in the industry, E.ON and RWE. Both companies

separated their ailing conventional power-generation businesses from the rest of the company.

The *Quarterly*: *Was it difficult to convince members of the executive and supervisory boards to scrutinize your decision-making practices?*

Bernhard Günther: Actually, it was the supervisory board asking, "Where has the shareholders' money gone?" and we in the executive board wanted to learn our lessons from this experience as well. So we embarked on a postmortem analysis to understand what went wrong and why, by looking at a sample of these €10 billion investments. We asked ourselves, "Is there anything we could have done differently, and if so, how can we learn from this in the future?" The spirit of it was not about shaming and blaming, but about learning from our own mistakes.

The *Quarterly*: *What were the main contributing factors that you identified in your investigation?*

Bernhard Günther: There were a few outright areas of managerial underperformance such as some time and cost overruns on the €10 billion investments, totally unrelated to external factors. There were also exogenous factors that were not in our base-case assumption but that should have been within our solution space—the most obvious being the political intent to push renewables into the market, which was publicly known at the time our investment decisions were made. There was also at least one unforeseeable factor—the Fukushima disaster. The German government reacted by rushing into a sudden exit from nuclear-power generation. Roughly half of the nuclear plants were switched off immediately, significantly shortening the economic lifetime of the remaining plants. But even if you discount for Fukushima, I think the ultimate end game wouldn't have looked much different from today's perspective; it just speeded the whole thing up.

The *Quarterly*: *As you analyzed the decision-making dynamics at work, what biases did you start to see?*

Bernhard Günther: What became obvious is that we had fallen victim to a number of cognitive biases in combination. We could see that status quo and confirmation biases had led us to assume the world would always be what it used to be. Beyond that, we neglected to heed the wisdom of portfolio theory that you shouldn't lay all your eggs in one basket. We not only laid them in the same basket, but also within a very short period of time—the last billion was committed before the construction period of the first billion had been

finalized. If we had stretched this whole €10 billion program out over a longer period, say 10 or 15 years, we might still have lost maybe €1 billion or €2 billion but not the amount we incurred later.

We also saw champion and sunflower biases, which are about hierarchical patterns and vertical power distance. Depending on the way you organize decision processes, when the boss speaks up first, the likelihood that anybody who's not the boss will speak up with a dissenting opinion is much lower than if you, for example, have a conscious rule that the bigwigs in the hierarchy are the ones to speak up last, and you listen to all the other evidence before their opinion is offered.

And we certainly overestimated our own abilities to deliver, due to a good dose of action-oriented biases like overconfidence and excessive optimism. Our industry, like many other capital-intensive ones, has had boom and bust cycles in investments. We embarked on a huge investment program with a whole generation of managers who hadn't built a single power plant in their professional lives; there were just a few people left who could really remember how big investments were done. So we did something that the industry, by and large, hadn't been doing on a large scale for 20 years.

The *Quarterly*: *On the sunflower bias, how far down in the organization do you think that went? Were people having a hard time getting past their superiors' views just on the executive level, or all the way down?*

Bernhard Günther: Our investigation revealed that it went much farther down, to almost all levels of our organizational hierarchy. For example, there was a feeling within the rank and file who produced the investment valuations for major decisions that certain scenarios were not desired—that you exposed yourself to the risk of being branded an eternal naysayer, or worse, when you pushed for more pessimistic scenarios. People knew that there were no debiasing mechanisms upstairs, so they would have no champion too if they were to suggest, for example, that if we looked at a "brilliant" new investment opportunity from a different angle, it might not look that brilliant anymore.

The *Quarterly*: *So, what kind of countermeasures did you put in place to tackle these cultural issues?*

Bernhard Günther: We started a cultural-change program early on, with the arrival of our new CEO, to address our need for a different management mind-set in light of an increasingly uncertain future. A big component of that

was mindfulness—becoming aware of not only your own cognitive patterns, but also the likely ones of the people you work with. We also sought to embed this awareness in practical aspects of our process. For example, we've now made it mandatory to list the debiasing techniques that were applied as part of any major proposal that is put before us as a board.

It was equally important for us to start to create an atmosphere in which people are comfortable with a certain degree of conflict, where there is an obligation to dissent. This is not something I would say is part of the natural DNA of many institutions, including ours. We've found that we have to push it forward and safeguard it, because as soon as hierarchy prevails, it can be easily discouraged.

So, for example, when making big decisions, we now appoint a devil's advocate—someone who has no personal stake in the decision and is senior enough in the hierarchy to be as independent as possible, usually a level below the executive board. And nobody blames the devil's advocate for

RAPID REFLECTIONS
FROM BERNHARD GÜNTHER

1 IN YOUR EXPERIENCE, WHAT PIECE OF COMMON LEADERSHIP ADVICE IS WRONG OR MISLEADING?

People development based on weaknesses—or gaps versus "ideal candidate" profile—instead of building on strengths

2 WHICH HISTORICAL FIGURES DO YOU ADMIRE THE MOST?

Nelson Mandela and Martin Luther King Jr.

3 WHAT'S THE BEST BOOK YOU'VE READ IN THE PAST YEAR?

Freedom, by Jonathan Franzen (fiction)

You! The Positive Force in Change: Leveraging Insights from Neuroscience and Positive Psychology, by Eileen Rogers and Nick van Dam (nonfiction)

4 WHAT SKILL DO YOU THINK IS MOST UNDERVALUED IN LEADERS TODAY?

Listening

making the negative case because it's not necessary for them to be personally convinced; it's about making the strongest case possible. People see that constructive tension brings us further than universal consent.

The *Quarterly*: *How did you roll all this out?*

Bernhard Günther: There were two areas of focus. First, over a period of two years, we sent the top 300 of our company's management to a two-week course, which we had self-assembled with external experts. The main thrust of this program was self-awareness: being more open to dissent, more open to a certain amount of controlled risk taking, more agile, as with rapid prototyping, and so forth.

Then we also launched a training program for managers and experts, especially those involved in project work—for example, the financial controllers that have to run the models for big investment decisions. This was a combination of a training course, some desktop training you could do on your own, and some distributed materials.

This program explicitly focused on debiasing. It started with these typical examples where you can show everybody how easily we fall into those cognitive traps, framing it not as a personal defect but as something that's just there. Secondly, it emphasized that debiasing can be done much more easily within a group, because it's a collective, conscious effort. And not some kind of empty ritual either. We taught very specific things that people could apply in their daily practices. For example, you can do a kind of premortem analysis and ask your team, "Imagine we are five years into the future, and this whole project we're deciding on today has turned out to be a complete disaster. What could have happened in the meantime? What could have gone wrong?" This is something that we are now doing regularly on big projects, especially when there are uncertain environmental factors—whether macroeconomic, technological, ecological, or political.

The *Quarterly*: *Could you tell us about an example or two where you made a different decision as the result of debiasing practice, where it went the other way from what you initially thought was the right answer?*

Bernhard Günther: Two examples immediately come to my mind. The first one came up in the middle of 2015, when it became obvious that our company was in a strategic deadlock with the power-generation business—the cash cow of the company for years but now with a broken business model. There was a growing awareness among senior management that trying to cure

the crisis with yet another round of cost cutting might not be good enough, that we needed to consider more radical strategic options. We established a red team and a blue team to come up with different proposals, one staffed internally and one with externals. We wanted an unbiased view from the outside, from people who were not part of our company or industry; in this case, we brought in external people with backgrounds in investment banking.

The internal team came up with the kind of solution that I think everybody was initially leaning toward, which was more incremental. And the external team came up with a more disruptive solution. But because it was consciously pitched as an independent view, everybody on the board took their time to seriously consider it with an open mind. It planted the seedling of the strategy that we adopted to split the company into two parts, which now, a good year later, has successfully concluded with the IPO of Innogy. If we hadn't taken this approach, maybe months later or years later, somebody would have come up with a similar idea, but it wouldn't have happened that fast, with that kind of momentum.

The second example is a recent potential investment project in renewable energy that carried high reputational value for us, so there were emotional issues attached to winning the project. We were bidding for a wind park that was to be built, and the lowest bidder wins by offering the lowest electricity price. We knew it would be a very competitive auction for that project, and we had already decided in the run up to the decision making that we wanted to have a devil's advocate involved.

We had the project team make the case first in the board meeting. Then we had the devil's advocate put forward analysis of the risk–return trade-offs. All of this was in written form, so everybody had to read it before the meeting. This certainly helped our discussion a lot and made it much easier to have a nonemotional debate around the critical issues. And we came out of it with a different and I think better decision than we would have if we had just taken the proposal of our internal project team at face value.

The *Quarterly*: *Now that these decision-making changes have taken hold, how do you see things running differently in the organization?*

Bernhard Günther: Looking back at where we were three or four years ago, I'd say that this practice of awareness and debiasing has now become almost a part of our corporate decision-making DNA. But it's something you have to constantly force yourself to practice again and again, because everyone at some point asks, "Do we really need to do it? Can't we just decide?" It's a very

time-intensive process, which should be utilized only for the most important decisions of strategic relevance. About 30 percent of our board's decisions fall into this category—for example, major resource-allocation decisions—and it's similar elsewhere in the company.

Also, people's general awareness of the complex set of issues around cognitive biases has grown dramatically. Before this, things easily degenerated into blaming exercises going both ways. The naysayers were critiquing the others for wanting to push their pet projects. And the people promoting these projects were saying that the naysayers were just narrow-minded financial controllers who were destroying the company by eternally killing good business ideas. But now there's more mutual respect for these different roles that are needed to ultimately come up with as good a decision outcome as possible. It's not just about debiasing; it's given us a common language. It's now routine for somebody to say in a meeting, "I think we need some debiasing here." And then everybody can agree to this without any need to get emotional. When in doubt, we just go through the process.

The *Quarterly*: *Do you have any recommendations for other senior leaders who might be reading this interview?*

Bernhard Günther: I think when you read about these issues, it can seem a bit esoteric. You might say, "Well, maybe it's just their problem, but not mine." I think everyone should just do it; just start with it even on a pilot basis. You don't have to start rolling it out across 1,000 people. You can start with your own board, with a few test examples, and see if you think it helps you. But if you do it, you have to do it right; you have to be serious about it. Looking back, there were a few key success factors for us. For one, top management has to set an example. That's true of any kind of change, not just debiasing. If it's not modeled at the very top, it's unlikely to happen further down the hierarchy. Second, everyone has to be open to these ideas or it can be difficult to really make progress. At first glance, many of the tools might seem trivial to some, but we found them to have a very profound effect. Q

Bernhard Günther joined RWE in 1999 and served as the company's chief financial officer from 2013 until the 2016 spin-off and IPO of Innogy, where he is now CFO. This interview was conducted by **Sven Heiligtag,** a partner in McKinsey's Hamburg office, and **Allen Webb,** *McKinsey Quarterly*'s editor in chief, who is based in the Seattle office.

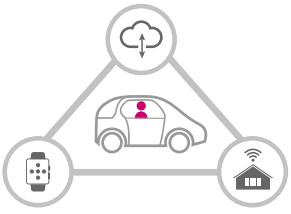
CHECKLIST FOR A COMPLEX WORLD

New work by McKinsey shines a spotlight on nine global forces that demand bold responses and contain the seeds of opportunity. Significant tension runs through each of them, so much so that we would characterize them as "crucibles," or spaces in which concentrated forces interact. Collectively, they are reshaping the context in which leaders set strategy. More specifically, these forces are contributing to global growth shifts, accelerating industry disruption, and shaking the social fabric—thereby creating the need for a new societal deal.

Leaders can convert complexity into opportunity by rethinking their strategies in the context of these forces. That is likely to mean questioning core assumptions and imagining remote possibilities. Those who do won't just compete more effectively, they will be better able to contribute to broader solutions, and ultimately to a new and more inclusive narrative of progress.

Master global growth shifts

- ☐ Balance local precision and global scale
- ☐ Harness the power of billions of consumers in India, China, Africa, and Southeast Asia
- ☐ Question your assumptions about resources, scarcity, and growth



Embrace accelerating disruption

- ☐ Exploit the combinatorial power of technology
- ☐ Operate as if your customer is in the driver's seat
- ☐ Learn to compete in the era of new business ecosystems

Forge a new societal deal

- ☐ Confront the risks of the "dark side"
- ☐ Contribute to middle-class progress
- ☐ Embrace economic experiments

For more on the forces at work in the global economy, see "The global forces inspiring a new narrative of progress," on page 32.

Highlights

The global forces shaping your strategic context

Thriving in the C-suite: Lessons for setting strategy, making deals, avoiding blind spots, and boosting leadership effectiveness

Are you prepared for a corporate crisis?

Three cases of digital reinvention: How a bank, the insurance industry, and the G&A function are responding to change

Mapping the benefits of a circular economy

GE's vice chairman on what it takes to build a truly global network

Three tips for keeping performance transformations on track

How a German utility tackled the cognitive biases that undermine decision making

Disruptions in the global energy system

Industry 4.0: A digital upgrade for Chinese manufacturing