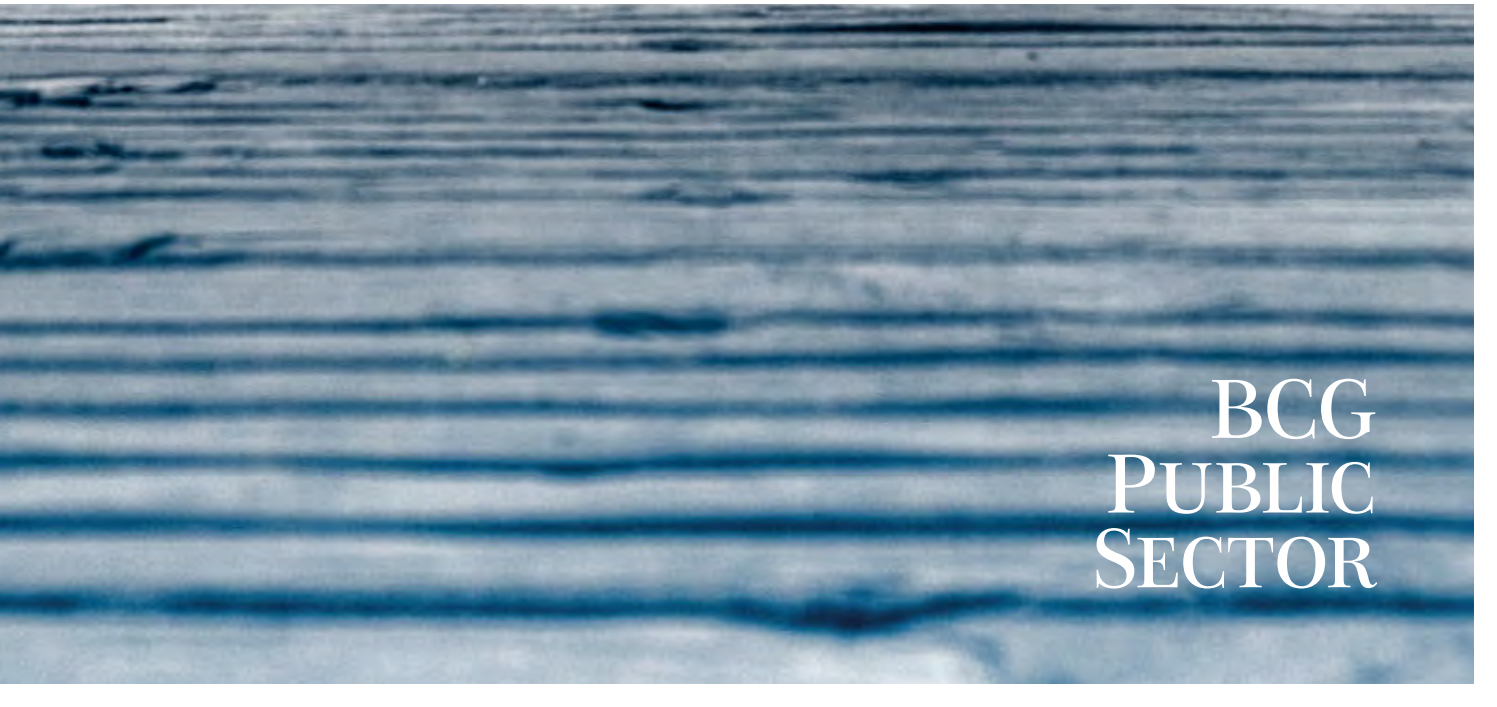
BCG

OCTOBER 2018

THE PATH TO SMART, RESPONSIVE, AGILE GOVERNMENT

- Governing in the Age of Disruption
- Future-Proofing Economic Development
- Organizing the Workforce of Tomorrow
- Transforming Education to Meet Emerging Needs
- Reshaping Health Care and Urban Infrastructure
- Restructuring Government to Satisfy Public Expectations
- Creating Agile Government
- Delivering Citizen-Centric Reform



BCG Public Sector

The Boston Consulting Group (BCG) is a global management consulting firm and the world's leading advisor on business strategy. We partner with clients from the private, public, and not-for-profit sectors in all regions to identify their highest-value opportunities, address their most critical challenges, and transform their enterprises. Our customized approach combines deep insight into the dynamics of companies and markets with close collaboration at all levels of the client organization. This ensures that our clients achieve sustainable competitive advantage, build more capable organizations, and secure lasting results. Founded in 1963, BCG is a private company with offices in more than 90 cities in 50 countries. For more information, please visit bcg.com.

Preface

The Boston Consulting Group has worked with government clients around the world to set them up for success in this disruptive era. "The Path to Smart, Responsive, Agile Government" is a collection of BCG thought leadership publications on some of the most important topics that governments are grappling with today.

We begin with an overview of the most pressing issues that governments currently face, "Governing in the Age of Disruption." Then we examine particular challenges in six topic areas that governments urgently need to address.

The first of these areas, "Future-Proofing Economic Development," focuses on two key themes: "We Need a New Multilateralism for the 21st-Century Multipolar Geopolitical Reality" and "Getting the Best of Both Worlds: Economic Growth and Societal Well-Being."

The second area, "Organizing the Workforce of Tomorrow," looks at "Twelve Forces That Will Radically Change How Organizations Work" and "Why Countries Need New Job Creation Strategies."

Next we address "Transforming Education to Meet Emerging Needs," with articles on "Preparing Today's Students for Tomorrow," "Megatrends in Higher Education," and "The Skills You Need for a Job in the 21st Century."

Our fourth chapter turns to "Reshaping Health Care and Urban Infrastructure," with discussions of "Mobilizing Cooperation for Health System Transformation" and "New Tools in the Battle Against Urban Gridlock."

Chapter 5, "Restructuring Government to Satisfy Public Expectations," comprises three pieces: "Blueprint for Government of the Future," "Mastering Transformation in the Public Sector," and "Four Steps to High-Impact Strategic Planning in Government."

And chapter 6, "Creating Agile Government," explores two themes: "Agile as the Next Government Revolution" and "Agile Starts—or Stops—at the Top."

Our collection concludes with a call to action: "Delivering Citizen-Centric Reform."

We hope that you find our inaugural collection a productive read.

Vincent Chin
Global Practice Leader, Public Sector

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INTRODUCTION

GOVERNING IN THE AGE OF DISRUPTION

By Vincent Chin, Christopher Malone, J. Puckett, and Alexander Türpitz

Global economies are in the midst of unprecedented technological change, including an explosion in automation, the takeoff of artificial intelligence, and rapid advances in fields such as nanotechnology and genomics. This disruption will affect just about every aspect of society—from industrial strategies and competitiveness to the labor market to the way government itself functions.

It is difficult to overstate the magnitude of the impact. Traditional jobs in nearly every industry—manufacturing, agriculture, professional services—will be redesigned or completely eliminated, the degree varying by country. At the same time, there will be continuing shortages in the high-skilled workforce that companies will need in order to compete. In addition, previously winning industrial and economic development policies will become outdated. And governments will need to manage these issues at the same time that they embrace digitization in their own operations, creating new citizen-centric approaches to the design and delivery of services. (See "Digital Government Services by the Numbers," BCG article, April 2017.)

Government leaders must confront this disruption head-on. They must determine the respective roles played by the public and private sectors in forecasting and managing major shifts in the workforce. They must support new approaches in education that will provide students with the skills required in the 21st century. And they must develop industrial policies that support their countries' competitiveness, particularly in the developing world, where the path to economic development is being upended.

Despite the scope of the challenges, there is reason to be optimistic. Countries around the world have tested and embraced new policies and approaches, including some designed to make the workforce more adaptive and to ensure that systems of basic education are adequate to training workers able to learn amid rapid technological change. The experiences of these nations can provide lessons about which policies work best and how other countries can successfully implement them. As governments experiment and explore new strategies, they must be willing to embrace fresh—even radical—thinking.

The Forces of Disruption

In what has been called the fourth industrial revolution, advances in robotics, machine learning, artificial intelligence, and other fields are transforming how companies manufacture products and deliver services. According to the World Bank, about two-thirds of all jobs in the developing world are susceptible to automation, although the extent of job loss will ultimately depend on wage levels

and the pace of technology adoption; in OECD countries, automation could replace nearly 60% of jobs.[1] Separately, a report by Harvard Business Review found that currently available technology has the potential to automate activities that account for 1.2 billion full-time equivalent positions and $14.6 trillion in wages.[2]

On the flip side, the private sector will find it increasingly difficult to recruit enough highly skilled workers to fill new jobs created by this disruption. Between 2020 and 2030, BCG projects significant worldwide labor force imbalances—shortfalls, in particular. One significant implication is the potential aggregate value of GDP squandered, either because nations will not be able to fill the jobs available within their borders or because they will not be able to create enough jobs for the workers they have. The amount at risk is a stunning $10 trillion—around 60% of US GDP and more than 10% of total world GDP. (These projections are based on 2013 data. See *The Global Workforce Crisis: $10 Trillion at Risk,* BCG report, June 2014.)

Technological Change and Industrial Policy

Rapid advances in technology have big implications not only for the workforce, but also for the competitiveness of nations as a whole. In developed countries, the failure of industry to effectively harness new technology could undermine economic health and growth.

In developing economies, the challenge is even more significant. Historically, such countries have followed a path leading from agriculture to low-value-added manufacturing to the manufacture of higher-value-added products. In making the transition from agriculture to manufacturing, they have typically relied on low-cost labor to attract large manufacturers to their shores. For manufacturers, these low costs have more than offset the expenses incurred by shipping and complex supply chain logistics.

But that equation is starting to change. As automation promises to replace an increasing share of the labor required in production, manufacturing in more expensive labor markets becomes more viable. According to BCG research, average manufacturing labor costs in 2025 are expected to be 33% lower in South Korea than they would otherwise have been—and 18% to 25% lower in China, Germany, the US, and Japan.[3] (See *The Robotics Revolution: The Next Great Leap in Manufacturing,* BCG report, September 2015.)

Evidence of the beginning of this shift abounds. Adidas, for example, is piloting automated footwear manufacturing in the US and Germany.

Rapid advances in technology have big implications for the competitiveness of nations.

The Ripple Effects of Disruption

The changing dynamics in the labor market will complicate the task of dealing with aging populations in both developed and developing countries. According to the United Nations, the population of people 60 years and older will double between 2015 and 2050 to nearly 2.1 billion, accounting for 20% of the world's population. The population of those over 80 will grow even more quickly, ballooning from 125 million in 2015 to a projected 434 million in 2050. These longer lifespans will create significant disruption for governments. In many countries, for example, increased life expectancy is occurring alongside declining birth rates. This raises the specter of a "demographic time bomb," a scenario in which future generations struggle to adequately care for large numbers of retirees and to honor mounting pension commitments.

In fact, governments face a potential funding issue of major proportions. In the US, for example, 47% of government revenue comes from personal income tax and 34% comes from the payroll tax. Large numbers of displaced workers, combined with an aging population and declining birth rates, will eat into such revenues and hamstring the ability to cover rising health care and pension costs. This is a major concern for Western governments, particularly those with existing debt issues and unfunded pension schemes.

In addition, these changes in the labor market could exacerbate income inequality in many countries. A report from the White House in late 2016 acknowledged the problem, pointing out that while artificial-intelligence-driven automation will "continue to create wealth and expand the American economy," it could also "push towards reduced competition and increased wealth inequality."[4]

Strategies for Addressing Technological Disruption

Responding to the disruption wrought by advances in technology is a tall order. But some existing workforce training, education, and industrial and economic development policies are beginning to point the way forward.

We need an agile system that can spot signals in the labor market and quickly respond.

Helping Workers Adapt

It is impossible to predict with any reliability the types and numbers of workers who will be in demand five or ten years out. An agile system is therefore needed that can spot signals in the labor market and quickly respond. Such a system requires rethinking worker training so that it is geared around lifelong learning. And all stakeholders—government, employers, and employees—will have to bear some of the cost and responsibility for developing and sustaining the necessary programs.

A number of established approaches could help relieve the looming gaps in the labor market. In Denmark, the system known as "flexicurity"—whose goal is flexibility for employers and security for workers—provides extensive job search and training assistance. Government job centers work with employers to understand the types of training programs needed to meet local labor market demand, and counselors connect unemployed individuals with the programs they need. Unions also play an important role, working with employers to identify the skills required and accommodating flexibility in hiring and firing in return for programs such as paid leave during training.

In Singapore, meanwhile, a three-pronged government effort to adapt the nation to the new industrial revolution supports investments in critical new technologies, promotes companies' adoption of those technologies, and ensures that the workforce has the skills needed to use them. An initiative called SkillsFuture aims to help Singaporeans receive the training or certification required to remain marketable—whether they are just starting in their careers, are in the middle of their work life, or are looking to remain employable in their later years. And with the help of partners from the private sector, the Professional Conversion Programme provides professionals, managers, executives, and technicians with the training needed to transition into new occupations or industries.

Rethinking Education

For retraining to succeed, the workforce must comprise highly adaptive individuals. Adaptability is critical to the ability to move into different roles and even professions as labor demands shift. Of the jobs that today's students will hold in 2030, it is estimated that 85% do not exist today.[5] At the same time, research from the World Economic Forum indicates that core skills such as active learning, creativity, and critical thinking are becoming increasingly important in many industries.[6]

In most developed countries, people rely on the education received through their late teens or early twenties for most of their working life. But as the nature of work evolves, and as people change jobs more frequently and live and work much longer than they did in the past, this path is becoming increasingly obsolete. The emphasis on memorization and rote learning typical of traditional education systems needs to be replaced by methods that foster the development of 21st-century skills.

There is already some evidence of change. For example, Finland is exploring ways to remake its education system to better match the skills that the jobs of the future will demand. Instead of teaching subjects in isolation, educators are taking a more cross-

disciplinary approach, often with students working together in groups. The goal is to develop the ability to problem-solve in a collaborative environment.

But in general, systems of education are not changing fast enough. Employers are increasingly dissatisfied with the workforce readiness of new employees, with 40% reporting difficulty finding people with the communication, critical thinking, and collaborative skills needed in the modern workplace.[7]

Education in many parts of the world must therefore be reoriented. Formal education will continue to provide an important foundation for young people, but it will need to start earlier and be supplemented with continuing flexible and modular learning opportunities throughout people's working life. Education leaders will also need to leverage new technology and learning methods to ensure that students are equipped with the skills and capabilities needed to succeed.

Promoting Competitiveness and Development

Government strategies to ensure industrial competitiveness and development must also evolve. In developed countries, this means supporting and actively incentivizing the adoption of technology by industry. While technology adoption may exacerbate labor market challenges in the near term, it is critical for the health of industry over the long term.

Germany has been a leader in this area, with the Federal Ministry for Economic Affairs and Energy and the Federal Ministry of Education and Research creating a coordinating body that brings together stakeholders to discuss the long-term strategy for Industry 4.0. The government is also funding Mittelstand 4.0 centers of excellence, which provide small and medium-size enterprises with information and training related to new manufacturing technologies.

For its part, the Italian government launched an initiative in 2016 to stimulate industry investments in new technology, including tax incentives such as rapid depreciation schedules, increased tax credits, and deductions for investments in startups. And in Singapore, the government has adopted a comprehensive strategy to advance new manufacturing technology, including a program to support robotics R&D and adoption.

In concert with strategies such as these, governments must rethink their regulatory role. That should include determining how regulations might need to change in order to allow new digital business models to flourish. In addition, as new technologies and business models remake industry, smart regulation will be needed to create the necessary safeguards for workers and citizens without discouraging innovation. In developing countries specifically, government leaders must craft economic development strategies that do not rely on low labor costs to attract manufacturers.

Education must offer flexible, modular learning possibilities throughout working life.

Policy approaches should also be tailored to a country's specific advantages and opportunities. This requires assessing the dynamics of demand—for example, whether domestic consumption or foreign markets are the primary driver of demand for products and services—and supply issues, including the nature of the country's labor force. With an understanding of those factors, governments can determine where investment and support will help drive economic development.

Poland, for example, has prime advantages in its proximity to Western Europe and its relatively low costs, advantages it has leveraged to attract manufacturing. And Indonesia has a young and growing population, an emerging middle class, and a relatively immature technology landscape—factors that could spark a boom in technology startups if the government addresses obstacles such as the country's less-than-friendly regulatory environment. The rise of digital entrepreneurship in Indonesia could allow the country to make huge strides in development, moving well beyond its current base in low-value-added manufacturing.

Two of the world's largest economies are recognizing the need to rethink their economic development strategies. China has outlined a plan that aims to modernize the country's manufacturing with advanced technologies such as robotics, 3D printing, cloud computing, and big data. All told, the government has committed $150 billion to its Made in China 2025 effort. The goal is not only to support high-value-added manufacturing—medical devices and information technology, for example—but also to use technology to improve the competitiveness of low-value-added manufacturing.

The government of India, meanwhile, has taken a hard look at issues related to job creation. This is critical in a nation with the largest number of young people in the world. If these workers do not find satisfactory employment, India could be headed for a demographic disaster. So far, the country has generated only two-thirds as many jobs per unit of economic growth as the global average.

Several countries are testing the effects of universal basic income payments to citizens.

To understand why—and to figure out how to change India's overall economic ecosystem and improve its ability to generate good jobs—the government sponsored an in-depth assessment of such factors as government policy, access to finance, and mechanisms for supporting lifelong learning. It then looked at how various initiatives that adjusted these factors would improve India's ability to create jobs. This kind of scenario analysis can provide a foundation for prioritizing programs intended to improve job creation.

The Need For Bold Thinking

There are undoubtedly some encouraging signs of public-sector innovation when it comes to confronting the challenges posed by technological disruption. But a greater willingness to go further is needed—to consider completely novel and even radical approaches.

Consider the concept of a universal basic income (UBI). In Finland, an unconditional payment to citizens regardless of their work status is being tested in a two-year pilot. Originally conceived as a way to avoid penalizing unemployed people who accept part-time work, it is now being examined as a possible way to manage job losses stemming from automation. Similar pilots are underway in Canada, Brazil, the Netherlands, and sub-Saharan Africa.

There is significant resistance to this concept, however. Voters in Switzerland rejected a UBI proposal in June of 2016, reflecting quite reasonable concerns that it would seriously erode productivity. But what if the UBI were directed toward funding education and training for every citizen? Using a nation's wealth to support and enhance worker training in a way that helps people earn a decent living could be an effective strategy.

Novel approaches to a government's vast and often underutilized assets should also be considered. This does not necessarily mean privatization (although in some cases that may make sense). Rather, governments should make a full accounting of the assets that they own and control—from infrastructure to utilities to valuable data—and determine whether better management of those assets could yield increased revenues. Such funds could be used for critical investments in education and workforce retraining.

Finally, governments need to draw on ideas from outside the public sector, where a lot of forward-looking thinking is taking place. For example, the World Economic Forum has launched an effort to study the shifting dynamics in work and education. And Teach For All—along with a network of education-focused organizations that includes the Asia Society, the Brookings Institute, the Qatar Foundation, and Results for Development—is leading roundtable discussions with more than 100 global education stakeholders on how the world's education ecosystem needs to evolve. Drawing on such thinking can help shape new, more effective government strategies.

CERTAINLY there are no simple solutions to the significant challenges governments face in adapting to disruptive changes in the labor market. But what clearly will not work are old approaches or incremental change. Experimentation and fresh thinking are required. This must include a fundamental rethinking of how government is structured to encourage collaboration across departments, eliminate silos, and create an agile organization. Ultimately, the strategies that prove successful will be those that are focused on the individual. Training will need to be worker centered, education will need to be learner centered, and government services will need to be citizen centric. Only then will people be able to chart their own course in life and work.

NOTES

1 The World Bank, *World Development Report 2016: Digital Dividends,* May 2016.

2 "The Countries Most (and Least) Likely to be Affected by Automation," Harvard Business Review, April 12, 2017.

3 Figures adjusted for inflation and other costs and for productivity-enhancing measures.

4 Executive Office of the President, "Artificial Intelligence, Automation, and the Economy," December 2016.

5 Institute for the Future and Dell Technologies, "The Next Era of Human-Machine Partnerships," 2017.

6 World Economic Forum, "The Future of Jobs Report 2016."

7 Manpower Group, "2015 Talent Shortage Survey."

CHAPTER 1

FUTURE-PROOFING ECONOMIC DEVELOPMENT

By Arindam Bhattacharya and Vincent Chin

WE NEED A NEW MULTILATERALISM FOR THE 21ST-CENTURY MULTIPOLAR GEOPOLITICAL REALITY

By Arindam Bhattacharya

"Globalization has changed. It is no more about multilateralism but bilateralism. It is no more about developing a global strategy but country-by-country strategy. It is no more about maximizing value for the firm for every market—each country is asking what you can do for the development of the country in terms of jobs…"

These are the words of the vice chairman of one of the leading industrial conglomerates in the world, whom I had interviewed as part of my ongoing research on globalization.

These sentiments are a radical shift from the mental model of globalization that has evolved over the last 150 years. Over these years, globalization has been a truly dynamic phenomena. It has weathered several crisis and has emerged from them stronger and transformed. We faced a crisis that began at the onset of World War I and lasted through the years of depression between the two world wars. The next big crisis was triggered by the oil price spike of the 1970s. We faced one again with the great financial crisis in 2008 and are still living through its after-effects ten years later.

> Globalization has weathered several crises and has emerged stronger and transformed.

If we reflect back over this period, we see that geopolitics—one of the building blocks of globalization—remained largely unchanged. Yes, geopolitics did get refined as it faced many challenges along the way, but the principles of multilateralism put in place in the second half of the 20th century reflected a widespread consensus and drove globalization forward. The statements that the leader of one of the largest companies in the world made in the interview with me was a dramatic wake-up call that this geopolitical consensus is undergoing a fundamental shift. We are clearly moving into uncharted territory.

In the months following this interview, I have been reflecting on the underlying forces that are breaking up the half-century-old geopolitical consensus. We read in the Western media about the societal tensions caused by the migration of large number of jobs from the West to the East in search of lower factory costs in the last quarter of the 20th century. These tensions were reflected in the political narratives that surfaced in Europe and the US around themes of anti-trade and anti-globalization. We don't hear the same anti-globalization narratives in developing countries even though they have higher levels of unemployment.

I have wondered whether a deeper transformation may be taking place in the global economic struc-

ture and helping to shape the anti-globalization narratives in these industrialized countries. Ironically, these are the same countries that gave birth to multilateral agencies and the principles of multilateralism that drove the growth of globalization in the second half of the 20th century. These countries also pioneered the new technologies that drove globalization forward and benefited the most from it. After World War II, the development of containerization in the US, which made it dramatically cheaper to ship goods into new markets (by some estimates ten times cheaper), coincided with the spread of mass manufacturing that made these traded goods vastly cheaper. As more developing countries joined WTO and reduced tariff and nontariff barriers, more new markets opened up for these mass-produced goods. The largest manufacturing nations in the world, the G7 countries, saw their share of global GDP of rose to 70% in 1990 from less than 40% in 1900.

These countries then pioneered the next technology—namely, the internet in the 1990s, which transformed globalization again by encouraging the growth of globally integrated supply chains. The internet allowed components produced at different manufacturing steps in a production process to be shipped to a location with dramatically lower factory costs, which happened to be developing countries. Without the internet and its attendant communication strategies, managing these long, complex supply chains was not possible.

So China became the factory to the world, and many developing countries became integral parts of global supply chains, serving as highly cost-efficient production locations. The industrialized countries benefited from importing cheaper manufactured goods. Global trade and global GDP grew rapidly once again.

In retrospect, this shift in globalization pioneered by the companies in the industrialized countries seems to have planted the seeds that sprouted into the anti-globalization movement in the very same countries 25 years later. The impact of this new phase of globalization on the world's economic structure was dramatic. The G7 countries' share of global GDP that took 90 years to climb from 40% to 70% fell back to the 1900 level in just two decades. China became the second-largest economy in the world. The great economic divergence between industrialized and developing countries in the 20th century has turned into a great economic convergence. As this convergence continues, Asia as a continent and emerging countries as a group will become larger than the industrialized nations in coming years.

We need to build a new win-win multilateralism suited to the 21st century's multipolar world.

With this shift, we have moved decisively from a unipolar economic and geopolitical world led by the US (and the other G6 countries) to a bipolar and perhaps a multipolar world—one with different economic and political models, and a diversity of institutions and world views. Perhaps the biggest economic difference that has widened the cracks between the developed and developing world is the role that the state plays in the economic development of developing countries, as opposed to the dominant role of the market in the West.

In this great geopolitical rebalancing, it is easy for the historical leaders who shaped globalization in the 20th century to see the future through the prism of self-interest rather than collective interest. For the recent winners, maintaining status quo is the best strategy. The win-win of globalization has turned into win-lose globalization, and the result is growing economic nationalism. Global companies are treating this growing economic nationalism as the new normal of globalization and are building greater resilience in their business models to deal with the higher risks and uncertainties.

To a neutral observer with no bias shaped by the past, this is our world today and will be tomorrow. Existing multilateral institutions and multilateralism developed in the 20th century has failed to deal with the diversity and complexity of 21st-century conditions, so they must be redefined for the new reality. Perhaps we need global leaders to have a second Bretton Woods moment (the original agreement, signed in 1944 by the victorious allied leaders, led to the setting up of the World Bank, the IMF, and later the GATT/WTO trade body) in order to build a new win-win multilateralism suited to the 21st century's multipolar world.

The same business leader also told me, "I hope our political leaders realize that globalization was never a zero-sum game and never will be, even if the geopolitical game has changed."

GETTING THE BEST OF BOTH WORLDS: ECONOMIC GROWTH AND SOCIETAL WELL-BEING

By Vincent Chin

There was a time when corporate titans were feted for being able to force down costs at every opportunity, to find scale in industries such as steel or car production, and to produce healthy margins year after year. But management science now shows that boosting employee engagement—through a careful mix of benefits and compensation—is a better way to increase productivity and revenues in the long term. For executives, choosing between cutting costs and increasing revenues is a false tradeoff; they can do both. And obviously, companies that do both will be better off.

At the country level, many political leaders—especially those running for office or wanting to placate disgruntled groups—promise a slew of well-being initiatives. Although it is not wrong to put people first, the dilemma in countries that are less economically well off is that government is made to choose between initiatives that grow the economy and those that promise social equity. And because of the mistaken view that "the economy comes first," key social investments such as upgrading access to health care or improving education often fail to materialize owing to a lack of economic means or the inability to prioritize.

But this result, too, is based on a false tradeoff, as evidenced by the most recent analysis from BCG's Sustainable Economic Development Assessment (SEDA).

The SEDA analysis supports the view that economic growth and well-being can and should be achieved simultaneously. The SEDA analysis also reveals the types of well-being initiatives that should be funded, on the basis of a country's stage of development.

SEDA and the Lessons for Well-Being

For a decade, BCG has used SEDA to assess the relative well-being of citizens in 152 countries around the world, and to gauge how successfully they convert their wealth into well-being. To measure the performance of each of the surveyed countries, SEDA uses 40 distinct indicators organized over ten dimensions including health, civil society, governance, environment, employment, equality, and income. (See Exhibit 1.)

SEDA analysis indicates that economic growth and well-being can be achieved simultaneously.

The need to understand the effect of wealth on well-being has become even more important over the past decade, as some countries have struggled to overcome the effects of the global financial and debt crisis, leading them to reassess their entire economic models.

Well-Being to Growth: A Virtuous Cycle

This year, using a decade of in-depth data on countries' well-being scores, the SEDA analysis showed convincingly that governments don't need to trade off polices that promote economic growth and policies that help achieve greater well-being of their citizens.

The same analysis showed that a balanced approach between well-being and growth is advisable not just under normal circumstances, but perhaps even more so in times of crisis. In other words, during a recession or economic downturn, policymakers must resist the temptation to pursue policies that sacrifice well-being, even in the short term.

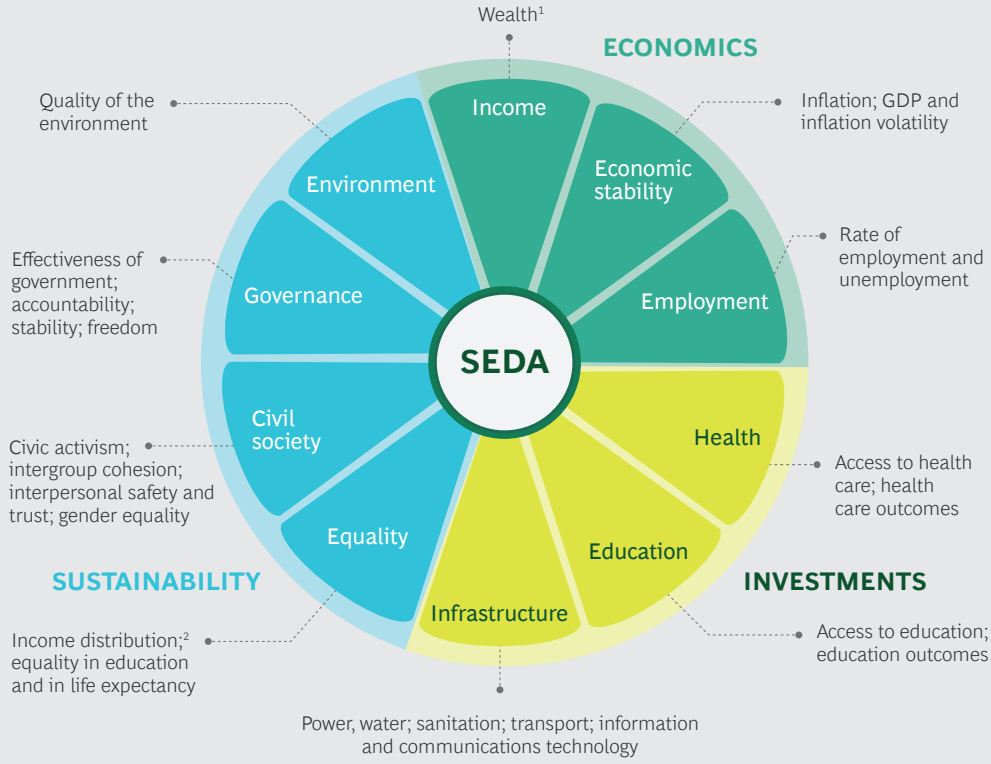
Refusing to bow to this trade-off has been vital for lower-wealth countries such as Vietnam and Morocco, as well as for higher-wealth countries such as Norway, which have pursued both wealth and well-being policies concurrently and have seen their economies prosper and the well-being of their citizens grow. In the past decade, concern for both objectives has been a vital part of the policy mix for the countries that recovered fastest from the economic crisis. (See Exhibit 2.)

Governments that prioritize wealth over well-being exact a major toll on the living standards of their citizens—not only directly through reduced public services, but also indirectly through reduced economic growth.

Lessons for Policymakers

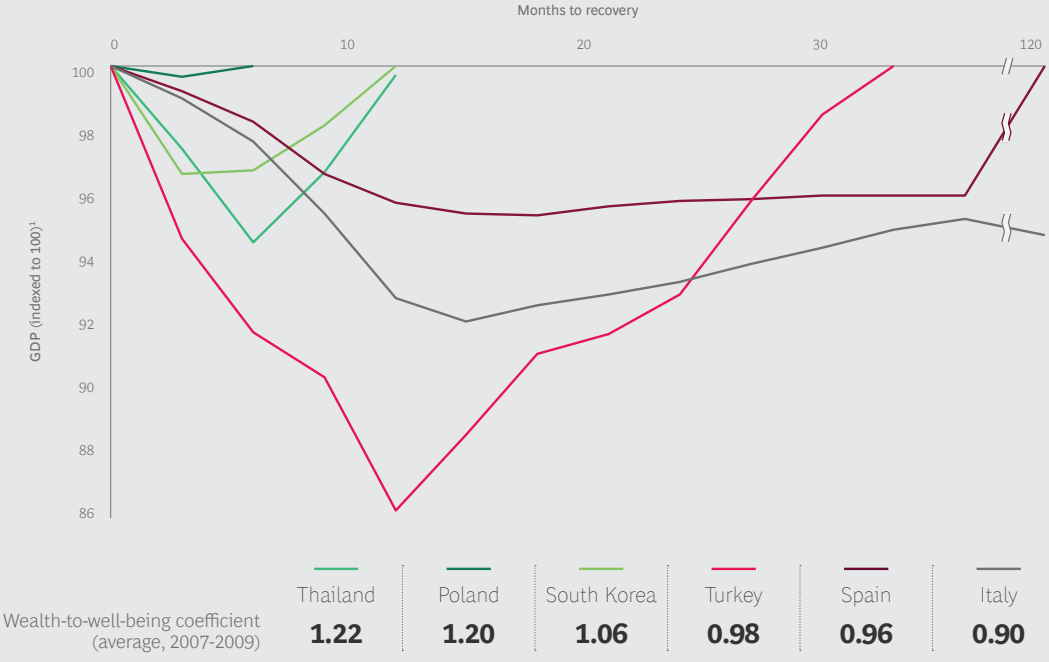
While these headline findings from the analysis are intriguing and instructive, there is no simple formula for improving well-being. That arduous task instead depends on the extent of progress made in all ten of SEDA's dimensions. But high-performing countries tend to score highly on some dimensions at different stages of their typical development path.

Exhibit 1 | SEDA Assesses Relative Well-Being Across Ten Dimensions



Source: BCG analysis.
[1]Wealth is measured as GDP per capita (purchasing-power parity, current international dollars).
[2]Income distribution is based on the Gini coefficient.

Exhibit 2 | Countries Better at Converting Wealth into Well-Being Recovered Faster from the Economic Crisis



Sources: Economist Intelligence Unit; SEDA 2018.
[1]Index 100 corresponds to the peak GDP before the crisis for each country.

Among countries that earned low well-being scores in SEDA's rankings, those that made the most improvements focused on improving their country's education, infrastructure, and governance. And among countries that received high well-being scores, those that performed the best over the past decade made the most progress on employment and education dimensions. This analysis can help government leaders to prioritize and focus on dimensions that will have a far-reaching impact on improving their citizens' well-being.

The Secret to Success: It's in the Balance!

We know that governments that make grand investments in a large and sprawling welfare state soon find it unsustainable and leave the bill to future generations. On the other hand, if countries make great progress economically, but ignore other important well-being dimensions, they can create bottlenecks that hamper their long-term progress. The secret to success is to focus carefully on areas that will give people the best opportunities to succeed in today's dynamic world. This, as SEDA shows, means focusing on policies that boost well-being despite the limited economic means of today.

CHAPTER 2

ORGANIZING THE WORKFORCE OF TOMORROW

By Vikram Bhalla, Susanne Dyrchs, Rainer Strack, Arindam Bhattacharya, Hans-Paul Bürkner, Vincent Chin, and Rajah Augustinraj

TWELVE FORCES THAT WILL RADICALLY CHANGE HOW ORGANIZATIONS WORK

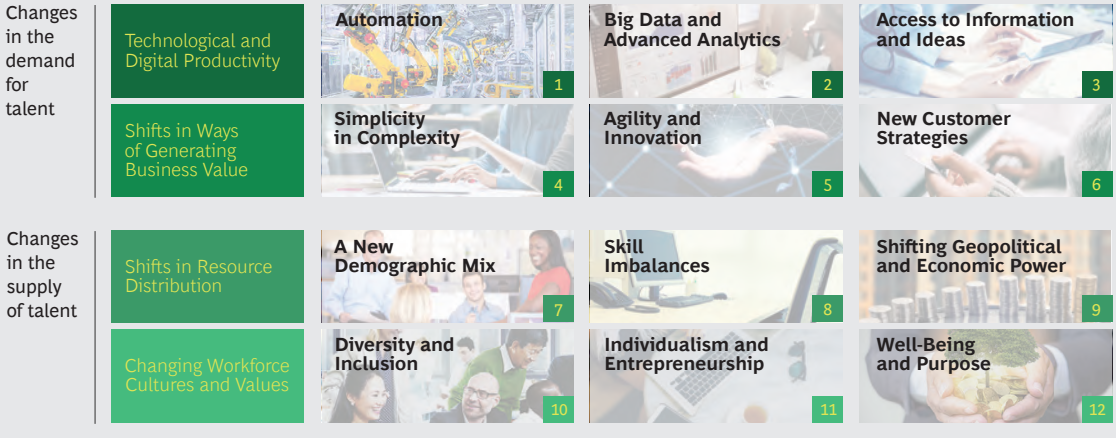
By Vikram Bhalla, Susanne Dyrchs, and Rainer Strack

A tidal wave of change is coming that will soon make the way we work almost unrecognizable to today's business leaders. In an age of rapidly evolving technologies, business models, demographics, and even workplace attitudes—all shifting concurrently—change is not only constant but also exponential in its pace and scope. Companies from startups and online businesses to incumbents in all industries will experience the effects in far-reaching and transformational ways.

During a comprehensive, yearlong analysis of the global work landscape, The Boston Consulting Group identified 60 major trends propelling this tidal wave, which we've grouped into 12 primary forces. These forces, or megatrends, fall into four categories. The first two address changes in the demand for talent: technological and digital productivity, and shifts in ways of generating business value. The second two address changes in the supply of talent: shifts in resource distribution, and changing workforce cultures and values. (See Exhibit 1. For a list of all 60 trends, see the Appendix.)

Together, these forces will revolutionize the way that work gets done in companies and will com-

EXHIBIT 1 | Twelve Powerful Forces Will Revolutionize How Organizations Function



Source: BCG research and analysis.

pel leaders to rethink even the most basic assumptions about how their organizations function. They will need to discover new ways of organizing, performing, and leading, along with new approaches to recruiting, developing, and engaging employees. All this will occur in organizations with limitless data, open boundaries, employees and machines working side by side, and rapidly evolving employee value propositions.

BCG has assessed the impact of these megatrends on organizations. In this report, the first in the New New Way of Working series, we identify several companies that are leading the way. Yet most organizations still have far to go.

Changes in the Demand for Talent

Six of the forces we identified are having a profound effect on the demand for talent. (See Exhibit 2.) We categorize them into two groups:

- **Technological and digital productivity:** automation, big data and advanced analytics, and access to information and ideas
- **Shifts in ways of generating business value:** simplicity in complexity, agility and innovation, and new customer strategies

Technological and Digital Productivity

The three trends in the realm of technological and digital productivity are arguably creating the most significant changes worldwide. Enabling advances deemed unlikely even a decade ago, they are transforming the world of work in unprecedented ways. Automation is replacing jobs; big data and advanced analytics are unlocking vast customer, operational, and employee insights; and increased access to information and ideas is blurring the boundaries of traditional institutions.

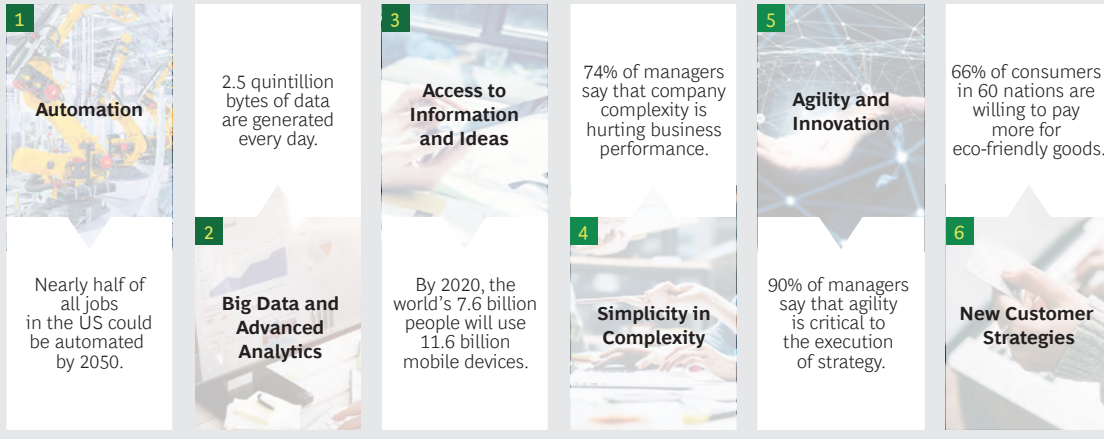
Automation. Although companies have been gradually automating for decades, recent advances in areas such as robotics and artificial intelligence are not only obligating people to work side by side with machines, but also creating replacements for human workers—even in fairly sophisticated jobs.

For example, Amelia, a cognitive agent developed by IPsoft, can assume a variety of service desk roles, including technology support, customer care, and procurement processing. In manufacturing, industrial robots already handle a number of repetitive production tasks. These robots once cost upward of $500,000 and were fairly limited in their abilities. Today's robots, such as Baxter, by Rethink Robotics, cost only $22,000 for a basic model and are flexible and trainable.

Automation will replace assembly line and office workers even as companies require increasing numbers of programmers and other highly skilled digital talent, along with an enormous upgrade in the skills and capabilities of these workers. As machines assume a greater role in the workplace—turning virtual reality into the new reality of the working world—humans will clearly have to adapt.

Companies will need to develop talent in rapidly emerging areas such as data analytics (including data mining and collection), app development, and user experience design. In fact, nearly every organizational role will eventually require the use of sophisticated technology. In response, individuals

EXHIBIT 2 | Six Forces Will Reshape the Demand for Talent



Sources: Oxford; IBM; Broadband Choices; Cisco; Nielsen; BCG analysis.

and organizations will have no choice but to invest in massive, ongoing skill development programs. Similarly, executives will need to become far more comfortable leading in a digital world—a potential challenge given that many people with the best digital skills are often younger than leadership team members and have different working styles.

HR, along with every other business function, enabling the delivery of highly customized and effective service to internal and external customers.

The implication for management teams is clear: companies will need to adopt analytics in every aspect of their operations. Once a novelty, the technology will become a basic competitive requirement. As a result, leadership teams will need mechanisms for capturing, cleaning, aggregating, and analyzing data. They will also need to rely on data, rather than their gut instinct, in decision making.

Leadership teams will need to rely on data, not their gut instinct, in decision making.

Big Data and Advanced Analytics. The past two decades have seen unprecedented gains in the storage, processing, and transmission of data, leading to an explosion in the amount of information available to businesses around the world. An iPhone 7 has more processing power than the entire NASA organization had in 1969. Advanced analytics, in turn, makes it possible to analyze enormous amounts of unstructured data, improving forecasting and decision making as never before. Through the use of big data and advanced analytics, companies are now able to improve marketing, productivity, and other essential aspects of their existing operations; lower costs; and gain real-time insights into promising new approaches and opportunities. BCG estimates that big data and advanced analytics could unlock more than $1 trillion in value annually by 2020.

Moreover, data analytics can be used to improve employee management and engagement. Companies such as VMware, Saberr, and Humanyze are using "people analytics" to predict affiliation and retention and to better understand team dynamics. These and other analytic capabilities will transform

Access to Information and Ideas. The ability to tap information and ideas from anyone, anywhere, is multiplying exponentially, both for individuals and for businesses. And as the cost of technology—including both hardware and data—continues to fall and global internet penetration expands, recent advances in cloud computing and storage are lowering the cost of access and processing. The implications are wide-ranging: people can be continuously connected, access data from any location, work remotely with ease, and collaborate with their global colleagues in real time. They need not even be employees: at several leading IT companies, outside contractors make up almost half of the full-time staff.

Rapidly expanding access is giving impetus to crowdsourcing and the sharing economy. The most innovative solutions today are being developed by people around the world who come together in online communities, internet platforms, and digital ecosystems that disrupt the traditional models of venture funding, product development, and product life-cycle management.

Crowdsourcing communities such as Kaggle and InnoCentive allow companies to "rent" talent without much upfront investment. Instead of hiring full-time employees, companies can staff projects with the specific expertise needed. And freelancers come with the added benefit of being well-connected to developments in the wider industry, unlike employees, who tend to get caught up in internal dynamics. Allstate, the insurance giant, is using Kaggle to host competitions to solve business challenges. One such competition led to an algorithm for claims predictions that was 271% more accurate than Allstate's existing model.

In this environment of temporary and virtual teams, leaders will need to adapt to increasingly blurry boundaries between employees and contractors. They will also need to rethink the way they engage with talent and how they get their work done.

Shifts in Ways of Generating Business Value

Advances in digital productivity have many benefits, but they also increase complexity and accelerate business cycles. In response, companies need to put a premium on simplicity, agility and innovation, and understanding the needs of customers.

Simplicity in Complexity. Organizations tend to respond to new challenges by adding teams, functions, and departments. As organizations grow, their structure becomes increasingly complicated. New silos develop, the number of

stakeholders involved in decision making increases, and interdependencies between functions multiply. The plethora of stakeholders, decision rights, processes, and policies slows down every decision and hinders collaboration across departments, reinforcing the silo effect.

Not surprisingly, organizational complexity imposes a tremendous cost, both in terms of managers' ability to meet their goals and employees' engagement and productivity. It is often at the root of a company's inability to make quick decisions and innovate rapidly. A BCG survey of business leaders found that three-quarters believed complexity was making it harder to meet business goals. Yet only 17% thought that their current efforts to simplify would resolve the issue.

Organizations must learn how to manage complexity in entirely new ways if they hope to thrive, understanding how to get results without adding more layers, processes, and silos. BCG's Smart Simplicity helps organizations deal with complexity. The central premise of the approach is that rather than adding organizational elements, leaders need to understand desired employee behaviors and then reshape the context in which employees work so that they make the right decisions on their own.

Agility and Innovation. A number of innovative approaches that began in software development are now being adapted by organizations for non-IT products and processes—including agile, scrum, kanban, design thinking, and other creative methodologies. For example, Bosch, one of the largest automotive suppliers in the world, recently employed flexible organizational structures and agile methods to halve its usual development time for calibrating hardware and software components for electric vehicles.

Bringing such approaches to day-to-day work beyond IT requires organizations to become far more fluid than the traditional rigid structures allow. In addition, companies must create room for experimentation, rapid prototyping, the testing of new ideas, and the introduction of a fail-fast innovation culture.

Most important, new, agile work processes call for entirely new skills, attitudes, and knowledge on the part of employees. Nonetheless, such measures can increase employee satisfaction because they empower widely autonomous teams and treat all opinions as equally valuable.

Organizations must learn how to get results without adding layers, processes, and silos.

ING, one of the world's largest banks, has overhauled its operating model in the Netherlands to create a scaled agile organization. The company began this multiyear transformation by focusing on changing employees' behavior. It introduced a new way of working, breaking up internal silos and creating small, interdisciplinary teams with members from IT, marketing, product management, business units, and other functions. These "squads" had the authority to develop a new product or process from start to finish and then focus on a new mission. Over time, the model was scaled up and rolled out across the organization. Already, the move has significantly increased the pace of development in several areas, boosting speed to market and reducing the size of the workforce by up to 30% in some departments.

New Customer Strategies. Boundaries between companies and consumers are fading as people, informed and enabled by the internet, become more aware and demanding. They want personalized offerings and will collaborate with companies to help develop the products and services they desire. Procter & Gamble, for example, is now getting information about the shelving of its products in major retail chains directly from individuals in the stores. The company works with Gigwalk, a startup with a network of more than 1 million paid "Gigwalkers," who check up on product displays and availability. In this way, P&G can easily track its execution in retail stores and quickly make changes to improve performance. (Even as companies encourage customers to share information, they must protect the privacy and data of those customers.)

People also want the businesses they frequent to provide more than just value: they want to see socially and environmentally responsible behavior as well. Organizational goals, then, must go beyond profitability to include the subjective aspects of corporate responsibility across the value chain. In response, many companies will need to adopt an entirely new approach to engaging customers, continuously evolving their value propositions to stay ahead of the competition.

Changes in the Supply of Talent

As these six forces propel a variety of changes in the demand for talent, six social, economic, political, and technological forces are shaping the supply. We have divided these forces into two groups. (See Exhibit 3.)

- **Shifts in resource distribution:** a new demographic mix, skill imbalances, and shifting geopolitical and economic power
- **Changing workforce cultures and values:** diversity and inclusion, individualism and entrepreneurship, and well-being and purpose

Shifts in Resource Distribution

An increasingly dynamic global economy has led to shortages of skilled, knowledgeable employees in some markets and may create a surplus of less-skilled workers in others. As Baby Boomers age, the demand for scarce and specialized talent grows, and as talent disperses as a result of various geographic, economic, and political factors, companies will be increasingly challenged to attract and retain the highly skilled people they need.

A New Demographic Mix. The global population is aging. After rapid population increases during the 20th century, birth rates have stalled—and even reversed—in many regions. By 2035, one in five people worldwide will be 65 or older. On the basis of several simulations using demographic data and global trends, BCG projects a global workforce crisis within the next 15 years, with a labor deficit in most of the 15 largest economies, including in three of the four BRIC nations. Given that these 15 economies make up 70% of global GDP, the crisis will affect almost every large multinational company.

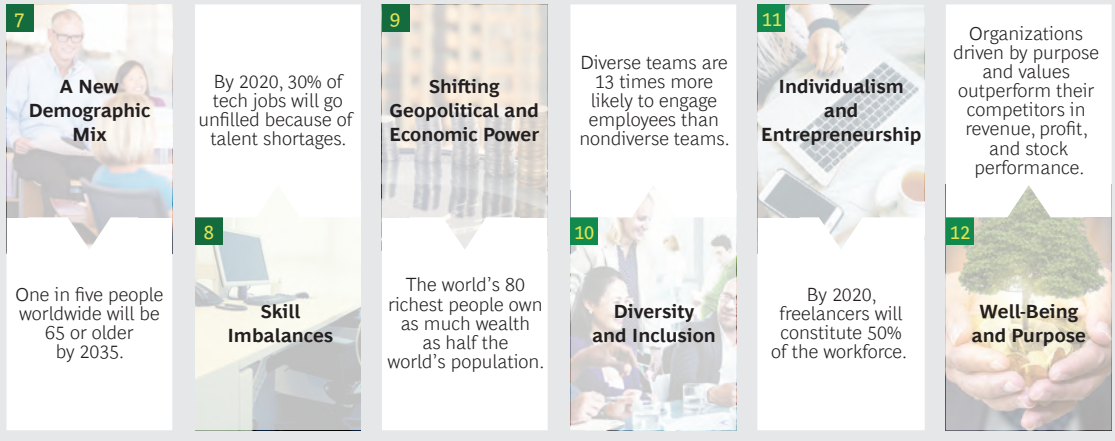
At the same time, in some emerging markets, the number of young people is still increasing rapidly. But many of them do not acquire the skills that would make them employable. The challenge is to help them develop those skills, or—for some young people—to increase their mobility so that they can find jobs elsewhere.

Meanwhile, millennial and Generation Z digital natives are entering the global workforce with new expectations and orientations. In their search for a healthy work-life balance and opportunities for self-expression, they are harder to please than their predecessors. They are also harder to retain.

These demographic shifts will put pressure on companies to devise entirely new ways to attract, retain, and develop talent across locations and age groups. They will need to hold on to experienced older workers and find ways to facilitate the transfer of those workers' deep knowledge to incoming generations. For example, Bosch has started an initiative in which older and younger employees from different divisions (with at least a ten-year age difference) meet on a regular basis in order to learn from each other. The young employees learn best practices and get career advice, while the older workers gain insight into new technologies and the use of social media.

Skill Imbalances. The skills and capabilities businesses require are rapidly evolving. Even as automation may yield a surplus of unskilled and semiskilled labor, the digitization of products and services is creating an enormous

EXHIBIT 3 | Six Forces Will Reshape the Supply for Talent



Sources: United Nations Population Division; IDG; Oxfam; American Express Open Network; Forbes; BrightHouse.

demand for skilled digital talent. Nearly half of US and German companies in a BCG survey cited the lack of qualified employees as the biggest constraint to a full digital transformation. In addition, according to a Gartner study, a third of all technology jobs will go unfilled by 2020 because of talent shortfalls. Perhaps that's why some US colleges now offer majors in programs that didn't even exist five years ago, such as robotics engineering, game design, cybersecurity, and data science.

Udacity, edX, and Coursera, which allow people to receive training while working full-time.

For many companies, incubating talent internally is more likely to pay off than depending on the marketplace. To that end, GE has introduced a mobile application that prompts employees to work on development areas and provides real-time feedback. The company expects this app eventually to replace traditional performance management.

Talent is more mobile than ever, with workers willing to cross borders and cultures.

Companies are trying a variety of unconventional methods to bring in digital talent. Facebook, for example, has "acquihired" the employees of more than a dozen companies—buying these companies at least as much for the employees as for the business itself. Meanwhile, Citigroup and others are introducing online gaming apps, either as recruiting tools or to identify hidden skill sets among employees.

Others are attempting a more sustainable remedy for skill shortages: developing them among the existing workforce, including among many of the employees potentially displaced by automation. Given that many universities are already overwhelmed with demand, the responsibility for this radical retraining will likely fall into the hands of business.

Moreover, programs designed for the academic domain are increasingly ineffective in building the skills required in the modern workplace. Instead, companies are turning to organizations such as

Regardless of their current talent situation, companies should systematically analyze future supply and demand for various jobs under different scenarios and then plan accordingly. This approach, known as strategic workforce planning, helps businesses ensure that they will have enough people with the appropriate skills.

Shifting Geopolitical and Economic Power. Talent is more mobile than ever, with workers willing to cross borders and cultures to improve their career prospects. Yet a number of geographic, economic, and political developments are blocking the smooth flow of talent to areas of demand, thereby compounding the overall talent shortage.

The first such development is the emergence of "digital hot spots," such as Silicon Valley, where a high concentration of capital, universities, and entrepreneurial enterprises draws disproportionate numbers of technologically skilled candidates. Of the more than 60 hot spots worldwide, nine out of ten are in the United States. Companies will need to learn how to compete for talent in these locations while developing talent in other areas.

The second is growing protectionism and rising anti-immigration sentiment in many regions of the world today, exemplified by Britain's vote to leave the European Union. This trend is forcing global companies to grow their operations or find talent elsewhere—even in markets where they have no existing interest.

Third, income disparity is increasing, especially in developed and rapidly developing regions. The top 1% of the global population currently owns 48% of the wealth and is projected to own 54% by 2026. As a result, the migration of workers from the poorest and most rural areas to the richest and most urban areas is accelerating, as is the desire of employees to work virtually. Yet, more worryingly, the rising disparity also means that more and more people are being left behind on the education front, unable to afford the ongoing training or reskilling they need to compete.

Large organizations can address these pressing talent issues by establishing a presence in digital hot spots or helping new hot spots emerge. They can take full advantage of cloud computing and other technologies to create virtual teams and mechanisms for collaboration across regions. Finally, they can think about how to address the growing income gap: providing training and educational opportunities to some of the world's poorest populations would help to reduce the talent shortage worldwide while creating a socially responsible environment that attracts and retains highly skilled employees.

Changing Workforce Cultures and Values

As the skill shortage increases, new attitudes among talented people are also changing the workplace—in particular, the growing preference for independent work instead of dedicated corporate careers. Many people are also stressing the importance of three areas: diversity and inclusion, individualism and entrepreneurship, and well-being and purpose.

Diversity and Inclusion. As values change across the business landscape, diversity and inclusion, often seen as "nice to have," are increasingly becoming a necessity, and for good reason. The business case has never been stronger, as studies show that diverse teams are much more likely to foster employee engagement and improve business performance.

At American Express, women make up more than half of the workforce and 21% of the board, while 48% of senior management team members are women and/or minorities. The company uses diversity to improve innovation and productivity and to reach customers in various demographic segments.

Kimberly-Clark increased the proportion of women at the director level and above by 82% from 2010 to 2014 by building a diversity analytics team assigned to "hardwire" diversity into the business. As Sue Dodsworth, the company's chief diversity officer, explained in Fortune, "We want to look, think and behave like the people who use our products. If we don't represent them, we're not necessarily making all the right decisions."

Some companies are turning to technology to help them improve diversity. For example, the use of new technology and online communities can help prevent a high bias rate in recruiting. Apple uses a blind recruiting application that hides candidates' names, photos, and dates in order to mitigate unconscious bias in hiring decisions. Pinterest and American Express are using Jopwell, a career advancement platform for black, Hispanic, and Native American students and professionals.

Companies can achieve significant business outcomes from diversity only if they make it a part of their core strategy. Not only will they improve performance, but also they will position themselves as a force for economic and social equality.

Individualism and Entrepreneurship. Independence is becoming the dominant motivator for a large section of the population, particularly for millennials (born from the early 1980s to the mid-1990s) and Gen-Zers (born in the mid- to late 1990s and after). These younger people tend to get bored doing the same kind of work for long stretches, and they are especially interested in independent careers. Empowered by digital platforms and ecosystems, many of them are choosing entrepreneurship and self-employment over traditional corporate employment.

> Independence is becoming the dominant motivator for a large section of millennials.

Among those still interested in corporate jobs, many are keen to experiment with new ideas, take long career breaks, and even work part-time as a volunteer or freelancer in entirely new fields. A recent survey found that 79% of Gen-Zers want to integrate education with work and 42% expect to become entrepreneurs. In addition, one study estimates that freelancers will make up half of the full-time workforce by 2020.

As organizations begin to rent rather than hire talent, they will have to make do with a lower level of commitment. They will need to create career paths and roles to serve the entrepreneurial aspirations of the highly skilled talent they seek. And leaders will have to tailor their leadership style to the hyperindividualized environment, finding new ways to empower and inspire individuals and teams in dispersed organizations.

Well-Being and Purpose. Millennials and Gen-Zers, who are taking on an ever-increasing role in the workplace, want more from their jobs than just competitive compensation: they are looking for well-being. In a recent survey, 62% of millennials said they want a career with social impact, and 53% said they will work harder to increase that impact. Companies such as Sony are tapping into these aspirations by making social work a part of their internship curriculum.

And the benefits go both ways. A recent study by BrightHouse, an ideation and branding company within BCG that helps companies become more purpose driven, found that companies with a culture based on shared values outperformed their competitors in revenue, profit, employment growth, and stock performance.

Moreover, one in five employees said they would be willing to give

up 5% of their salary in exchange for working from home one or two days a week. Offering flexible schedules and investing in the health of employees—with initiatives such as improving indoor air quality and providing ergonomic furniture and fresh food—are ways that companies are meeting this need. Businesses such as Google, Chevron, and JPMorgan Chase are already implementing such programs and realizing benefits, including fewer sick days, lower insurance premiums, and more-productive employees.

In the future, organizations will be judged in relation to their customers and employees.

As a result of these powerful attitudinal shifts, companies will need to begin making job offers that go far beyond traditional compensation and perks, offering instead a comprehensive set of flexible work and development opportunities that appeal to the personal aspirations and values of their employees. Moreover, they will need to begin defining their organizations in terms of a unique purpose and work to ignite a passion for that purpose. In the future, organizations will be judged not just for the quality and price of their products but for who they are—in relation to their customers, their employees, and society as a whole.

The New Age of Work

What changes will these trends bring? As companies respond to the 12 forces, we expect several key developments in the next few years:

- Companies will develop a more fluid sense of what is inside and what is outside their boundaries. They will move beyond rigid distinctions between employees, outside suppliers, and customers, developing platforms to promote collaboration among all stakeholders. Eventually, as value chains break up into networks and platforms, the role of the organization will shift from that of a controller of resources to that of a facilitator of ecosystems and a conduit for realizing individual aspirations.

- Speed and agility will be essential to competitiveness. Many companies will look to break up entrenched departments and reporting lines, opting to organize work in smaller and more agile interdisciplinary teams. These teams will learn to work in short "sprint" cycles to produce minimal viable products and services, solicit feedback on them, and refine them through rapid iterations. Individuals will rotate among projects, training, internal incubators, and even social impact initiatives. These agile and innovative approaches, along with design thinking and other related methodologies, will soon become the norm, not just in IT (where they originated) but also across functions and practices.

- Companies will continually develop (and redevelop) their people, so that they are equipped to deal with the tidal wave of change. They will also inculcate diversity, inclusion, and flexibility in their corporate DNA. They will shift from HR processes, policies, and systems to problem-solving interactions. And as flexible, cloud-based software replaces traditional documentation and controls, HR will customize its interfaces with employees to better support individual needs and desires.

- The increased prevalence of digital technology and artificial intelligence will lead to new job functions and categories—but also to shortages of people with the skills needed to fill those roles. Many companies will need to focus more on developing digital skills among their current workers or identifying and recruiting potential new hires. In addition, companies will need digital bridge builders: intermediaries between employees with specialized digital talent and those in nontech roles.

Smart leaders will monitor these changes and experiment with new ways of working that align with their company's context and capabilities. In addition, they will define their businesses not in terms of their competitive advantages but in terms of the purpose that makes them relevant in a rapidly evolving world.

These 12 powerful trends are complex and interrelated. To cope with them, companies need to devise a well-thought-out strategy that can translate into concrete interventions. Companies that do not develop such a strategy may soon find themselves bumping up against nimbler rivals, unable to adapt to the disruption in time.

Appendix

Our yearlong analysis revealed 60 trends, which we consolidated into 12 megatrends in four areas.

Technological and Digital Productivity

Automation: Industry 4.0; artificial intelligence, machine learning, and wearables; digital channels; augmented reality; and robotics

Big Data and Advanced Analytics: Predictive technology, integrated tools to optimize performance, social media insights, behavioral sensors, and big data

Access to Information and Ideas: Cloud-based technology and the "Internet of everything," open-source software and processes, open innovation and peer-to-peer technology, decreasing degrees of separation, and new capital and infrastructure platforms

Shifts in Ways of Generating Business Value

Simplicity in Complexity: The value of simplicity, lean methodologies, the evolution from silos to more holistic organizations, specialization, and organizational complicatedness

Agility and Innovation: An accelerating pace of change, increasing uncertainty and black-swan events, exponential organizations, agile development, and digital stakes and subsidiaries

New Customer Strategies: Personalization and premium products and services, the sharing economy, data security, ethics, and the environment

Shifts in Resource Distribution

A New Demographic Mix: The "demographic dividend," talent scarcity, aging populations, multiple generations in the workforce, and talent imbalances

Skill Imbalances: New skills, waning skill life, formal curricula and development, digital late-comers, and skills education and reach

Shifting Geopolitical and Economic Power: Disparity in wages and economic growth rates, multiple centers of power, urbanization and resource depletion, migration, and the rise of the middle class in developing countries

Changing Workforce Cultures and Values

Diversity and Inclusion: Multiculturalism, racial and ethnic diversity, gender equality, value pluralism, and equitable economic development

Individualism and Entrepreneurship: Freelance work versus employee loyalty, risk taking and entrepreneurism, multidisciplinary pursuits, talent renting and freelancing, and individualized aspirations

Well-Being and Purpose: Desire for personal, social, and communal impact; reflection and purpose; self-expression; appreciation and respect; and physical and mental health and balance

WHY COUNTRIES NEED NEW JOB CREATION STRATEGIES

By Arindam Bhattacharya, Hans-Paul Bürkner, Vincent Chin, and Rajah Augustinraj

In many parts of the world, governments are grappling with a vexing puzzle. Even though economic growth appears to have recovered since the financial crisis of 2007–2008, job creation has been mixed. While global GDP increased by 2.7% from 2010 through 2016, global employment grew by only 1.3% per year during that time.

The story is even more complex upon a closer look. China continues to report robust urban job growth that outpaces growth in the country's labor force—despite a slowdown in economic expansion. By contrast, employment in India grew by only 1.4% per year from 2000 through 2016—despite a compound annual growth rate of 7.2% for the country's GDP. And in some countries, including Germany and the US, millions of skilled positions remain vacant while millions of workers continue to search for work. Economists have hypothesized that this mixed jobs picture is a result of skills mismatches, changing expectations of the workforce, and mobility limitations.

This uneven job growth, combined with disparity in income growth in some parts of the world, has created differing narratives about the benefits of an integrated, global economy. Unequal wealth distribution and inequity in opportunities, which have been exacerbated by technological and socioeconomic changes, have helped fuel a backlash against globalization. This reaction has been amplified in recent years by populist rhetoric arguing for protectionist policies as a panacea and by a renewed focus on traditional job-creation strategies.

The reality however, is that the strategies for generating jobs and prosperity that worked in the past are no longer sufficient to deliver inclusive prosperity to economies around the world. The already significant impact of digital technologies and rising economic nationalism is further magnified by profound societal changes as the world's population becomes even more connected, more mobile, and more aware of global trends. At BCG, we call the confluence of these megatrends the new globalization. (See "The New Globalization: Going Beyond the Rhetoric," BCG article, April 2017.)

> Millions of skilled positions remain vacant, while millions of workers search for work.

Amidst such change, job creation strategies that rely on growing world trade in physical goods and cross-border capital investment will be less successful going forward 0than they have been in the past. Nations will need to devote more attention and more resources to increasing employment by promoting digitally enabled services, nurturing local expertise, enabling small and midsize enterprises (SMEs) to participate in global value chains, digitally empowering the self-employed, and boosting personal consumption.

A Changing Economic Environment

Structural shifts that are already visible in many economies underscore the need for such a change in focus. China, for example, has relied for decades on exports, particularly of manufactured goods, to power its growth. Yet exports as a percentage of GDP have already declined from 37% in 2006 to less than 20% in 2016. In Indonesia during the same time frame, exports dropped from 31% of GDP to 19% and are projected to account for just 11% in 2030. Personal consumption is the chief economic contributor in the so-called BRIC economies—Brazil, Russia, India, and China; indeed, it is on pace to account for half of China's economy by 2020 (compared with 35% in 2010). The contribution of services to GDP has surpassed that of manufacturing in China, Indonesia, Malaysia, the Philippines, and Thailand.

These trends will accelerate in the coming years as digital technologies continue to transform the global business landscape. The falling costs of gaining access to and transacting business with customers in distant parts of the world are fundamentally altering traditional notions of scale and global competitiveness.

Consider a digital platform that aggregates buyers and sellers globally, for example. Once a company builds a platform, the cost of serving an additional customer or adding a new supplier is close to zero. Such zero marginal cost enables members—especially SMEs—to operate at a large scale and compete globally. They can take advantage of the platform to reduce unit costs, enter new and distant markets, and meet trade and regulatory requirements. Similar examples illustrate the chang-

ing nature of global competition and a greater reliance on data-enabled services and digital goods.

In the new globalization era, growth around the world will be driven increasingly by services, personal consumption, and trade in digital goods. We see five key strategies that nations should pursue to enhance their competitiveness and create jobs:

- Promote digitally enabled services and solutions to all sectors of the economy.
- Nurture global centers of expertise and ecosystems of highly skilled workers.
- Enable SMEs to participate in global value chains.
- Digitally empower the self-employed to participate in the so-called gig economy.
- Stimulate domestic consumption by broadening the scope of the formal economy and promoting greater social and financial inclusion.

Promoting Digitally Enabled Services to All Sectors of the Economy

Some of the fastest-growing services are those enabled by digital technologies. The explosive growth in e-commerce—with an estimated $22 trillion in global annual revenue—is the clearest evidence. In China, for example, e-commerce currently accounts for 15% of consumption, compared with just 3% in 2010, and is projected to account for more than 40% of growth in consumption through 2020. As the world's population becomes more sophisticated in all things digital, and more of the world's machines and devices are connected through the Internet of Things, surging demand for value-added services and solutions of all kinds will continue to transform sectors as diverse as industrial goods, home appliances, and medical care.

Services, personal consumption, and trade in digital goods will increasingly drive growth.

This explosive growth is not limited to domestic demand for digitally delivered services. Even though exports of services, overall, have declined globally in constant dollars over the past few years, exports of digitally enabled services, such as communication and information services, have been growing steadily.

In the BRIC economies, exports of digitally enabled services have increased by about 30% over the past decade to approximately $100 billion, according to data provided by the United Nations Conference on Trade and Development. Exports of digitally enabled services by developed economies have doubled, to more than $1 trillion.

As digital technologies continue to transform the competitive landscape, we expect to see greater reliance on both domestic and cross-border digital value creation. To translate this trend into jobs in digitally enabled services and solutions, governments must prioritize development of digital infrastructure stacks—software-defined service platforms built on high-speed broadband networks—just as they did physical infrastructure during the previous era of globalization.

To promote wider usage, governments must provide incentives to companies that invest in digital infrastructure, develop necessary regulatory mechanisms, and ensure information security and transparent pricing.

The importance of digital infrastructure is particularly evident in India. Even though its physical infrastructure continues to lag behind world standards, India has leapfrogged other nations in digital terms, thanks to innovations in the telecom sector that have resulted in the lowest prices, worldwide, for mobile connectivity. Further, through the Digital India initiative, the government has promoted bank accounts for all and created a personal identity system called Aadhaar. Under the program, all Indian residents are given unique identity numbers, issued on the basis of their biometric and demographic data, that enable them to receive public services and that help the government to better formulate policy.

On top of this infrastructure, the government has built layers of applications that provide a universal payment gateway, electronic signatures, and a secure document locker that allows Indians to safely store documents in the cloud. These "public goods" enable consumers to make electronic payments, help merchants authenticate signatures, and facilitate the exchange of digital documents. Such features have already allowed utilities to offer electronic bill payment—and other businesses to offer new services, such as wireless value-added services—to Indian customers.

Nurturing Global Centers of Expertise and Ecosystems of Highly Skilled Workers

As the global economy becomes more digitally connected, businesses are creating immense value by analyzing the vast quantities of information traveling over data highways. Advanced data analytics is being used to identify new segments of customers who are defined by their buying preferences rather than by geographic boundaries, for example. Data analytics will become increasingly important in areas such as product design, pricing strategies, marketing decisions, and the operation and maintenance of equipment. Teams of data scientists and other specialists in diverse fields, working in global centers of expertise, will perform much of this analysis. Real-time communication will make their analysis accessible to technicians and frontline personnel all over the world.

Businesses create immense value by analyzing information traveling over data highways.

One such global center of expertise is Rolls-Royce's global analytics center in Derby, England. Rolls-Royce gathers terabytes of real-time data from more than 4,500 of its engines in service on civilian aircraft. In order to maximize engine uptime, an advanced analytics team of about 45 people monitors the data to proactively plan for maintenance and repair. Once a need is identified, the regional service network moves into action. Spare parts are sent. In some cases, the fixes are performed remotely by experts from around the world.

Countries can create high-paying knowledge jobs by identifying the shifting nature of skill needs and promoting the development of such centers of expertise within their borders. They can support the development of globally competitive knowledge ecosystems by boosting investments in higher education and training for highly skilled professionals in the service sector. Countries can also support investment in R&D centers and global corporate hubs for data analytics.

As advanced manufacturing technologies, e-commerce, and artificial-intelligence software replace human beings in traditional jobs in factory, retail, and back-office work, significant numbers of workers are being uprooted. Experienced and older workers will therefore need access to retraining programs that are geared to their needs. Traditional curricula and teaching methods will have to be replaced with skills training, short-term microlearning, and experience-based content curation. Continuous learning should be a national priority; companies, educational institutions, and government agencies should collaborate to identify rapidly changing skill needs and offer programs to produce workers who are employable in the new global environment. Government services will need to provide licensing and certification platforms to enable the authentication of skills and ensure that they are portable from one employer to the next. Managing the transition of workers to the new types of jobs created will not be a trivial endeavor. But the effort will be necessary to bridge the gap between the available skills and those that will be needed in the new globalization.

Enabling Smes to Serve Global Markets and Global Value Chains

As digital technologies continue to reduce the costs of collaborating across borders and reaching customers, SMEs are able to compete on a more equal footing with large companies for global business opportunities. The growth of global platforms that bring together vast communities of buyers and sellers, combined with the aggregation of distribution and logistics services, has made entering new markets and serving remote customers much more cost effective. As a result, SMEs can now compete with large companies on costs when serving global markets or parts of global value chains. Such markets and customers used to be primarily the domain of large companies that could build global logistics operations and coordinate the delivery of products or services.

Because of these developments, global value chains will continue to disaggregate. This will further enable SMEs to provide value-added products and services on a global scale through digital platforms. For instance, the success and reach of the Taobao marketplace, a Chinese digital platform, has led to the emergence of so-called Taobao villages—rural clusters of online entrepreneurs that are able to sell to global markets. As reported in a well-known case study by the World Bank Group, for example, the town of Shaji in Jiangsu province has transformed itself into a thriving manufacturing cluster for wooden furniture by using the Taobao platform to

sell its products to buyers around the world.

In many nations, however, starting and expanding small businesses to engage in the global economy can be costly and complicated. Governments can foster more supportive environments for SMEs by easing regulatory requirements for starting small businesses, particularly in the service sector. Governments can also help by increasing access to credit for small businesses and offering them financial incentives for creating jobs in the value-added services and solutions sectors.

Digitally Empowering the Self-Employed

The new globalization is also opening opportunities for entrepreneurs everywhere to participate in the rapidly expanding sharing economy and the gig economy. Despite some concerns that sharing-economy and gig economy jobs provide low wages and only part-time employment, both trends appear to be accelerating.

Uber Technologies' ride-sharing service and Airbnb are two of the most visible examples of the sharing economy. To expand its business worldwide, Uber provides a platform to connect independent drivers with customers on demand. Due to Uber's scale, the cost of the asset—in this case the car—is distributed across customers. In most cases, paying Uber per mile is much more affordable than owning the car outright. The service is also more convenient than trying to hail a cab at a moment's notice in a busy city. This business model has fueled Uber's rapid growth. Similarly, Airbnb allows homeowners to monetize their assets (houses and apartments) when they are not using them. Global sharing-economy revenue is projected to reach about $500 billion by 2025, compared with a total of less than $100 billion now, according to the BCG Center for Sensing and Mining the Future. In the US alone, the number of individuals working on demand in the sharing economy is projected to surpass 9 million by 2021, up from 3.7 million in 2016.

Sharing-economy workers typically are not full-time employees of a company. Rather, they work on a part-time basis in the gig economy. Digital platforms enable part-time freelancers to connect with customers when their services are needed. On-demand services—for domestic help, construction projects, handymen, delivery, and pickup, for example—essentially represent the digitization of the informal sector. They are being enabled by digital platforms such as TaskRabbit, Upwork, and Sittercity, which authenticate the history and quality of providers through customer reviews or validation by third parties. They also provide payment processing and guarantees.

Governments can facilitate growth in the sharing and gig economies by easing regulatory requirements, such as by making it easier for handymen, drivers, construction workers, and designers to obtain the licenses and accreditation they need to work on their own. Governments can also open these new modes of job creation to a wider array of industry and personal needs by facilitating identification and authentication mechanisms through public-domain technology stacks.

Stimulating Domestic Consumption

As economies mature, exports and government spending will no longer be enough to power job creation and growth. But private consumption will fill the void,playing an increasingly dominant role. Some of the strongest growth in consumption will occur in service sectors, such as health, finance, education, transportation, and entertainment.

> Governments should explore providing citizens with universal public services as basic goods.

One factor limiting consumption, especially in developing countries, is the high proportion of the population that subsists in the informal sector. Because many people at the bottom of the economic pyramid are undocumented, they have little access to credit to invest in housing, education, or business ventures. Governments should place a high priority on documenting and authenticating everyone within their borders, as India has done with its Aadhaar system.

As connectivity and access to information increasingly become prerequisites to growth and private consumption, governments should actively explore providing their citizens with universal basic services, including internet access and mobile digital connectivity, as public goods. Removing barriers to social and financial inclusion is also imperative for governments to promote broad-based inclusive growth. Engaging state, social, and commercial stakeholders to deliver microlearning, flow-based lending, and social safety nets will further expand the pool of economic participants and create jobs.

The underlying shifts in the global economy will take decades to fully unfold. But countries should start taking bold action now to prepare their economies and workforces for the challenges and opportunities that lie ahead. Governments should reimagine their approaches to creating jobs. They should capitalize on the digitally integrated global economy by placing greater policy emphasis on digitally enabled services, building expertise, encouraging SMEs, supporting self-employment, and stimulating domestic consumption. They should move forcefully to address the root causes of joblessness, underemployment, and rising income inequality—challenges that are expected to intensify as employers deploy next-generation digital technologies.

Globalization's next phase will bring disruptive changes to economies and societies worldwide. Countries that understand the underlying forces of change and move decisively to adapt will ensure that their citizens find fulfilling jobs, enjoy better living standards, and build broad-based, inclusive economies in the decades ahead.

CHAPTER 3

TRANSFORMING EDUCATION TO MEET EMERGING NEEDS

By J. Puckett and Leila Hoteit

PREPARING TODAY'S STUDENTS FOR TOMORROW

By J. Puckett

We are facing a global learning crisis. The current state of education is far from where we want it to be, and macro forces—such as advances in technology and significant inequalities—are shaping what learning must look like in the future.

Around the world, 38% of children leave primary school unable to read, write, or do basic math. In 2016, 263 million children and youth were not in school at all. Twice as many girls as boys never start school; women make up two-thirds of the world's illiterate adults.

In conflict zones, 27 million children are not in school. Only 50% of refugee children are enrolled in school. Forty percent of employers cite difficulty in recruiting employees with the communication, critical thinking, and collaborative skills needed for the 21st-century workplace.

Macro Forces Shaping the Future of Education

The current state of global education is far from where it should be, with many areas that need improvement. In addition, the world is changing quickly, so the target—what "good" looks like—is always moving. These macro forces are shaping the ideal state of education, and the gaps that must be closed.

85% of the jobs that today's learners will be doing in 2035 haven't been invented yet.

Technological Change: New Skills Needed, New Ways to Learn

New technology such as advanced robotics, 3D printing, and AI is resulting in new jobs; 85% of the jobs that today's learners will be doing in 2030 haven't been invented yet. These new jobs will require a broader set of skills than those we currently teach in our classrooms. Technology is also changing the way we engage with content. With the advent of big data and predictive analytics, information is accessible—and more personalized to our needs and interests.

A Changing Workforce Needs Continuous Learning Opportunities

The world's older population continues to grow at an unprecedented rate. Today, 8.5% of people worldwide (617 million) are age 65 or older. This percentage is projected to jump to nearly 17% of the world's population by 2050 (1.6 billion).

As the population ages, career lifespans are increasing as well. Among global workers today, 72% plan to keep working after retirement and 58% expect to enter a new line of work to have more flexibility. (See *Industry 4.0: The Future of Productivity and Growth in Manufacturing Industries*, BCG report, April 2015.) In order to remain employable, the aging population needs continuous learning

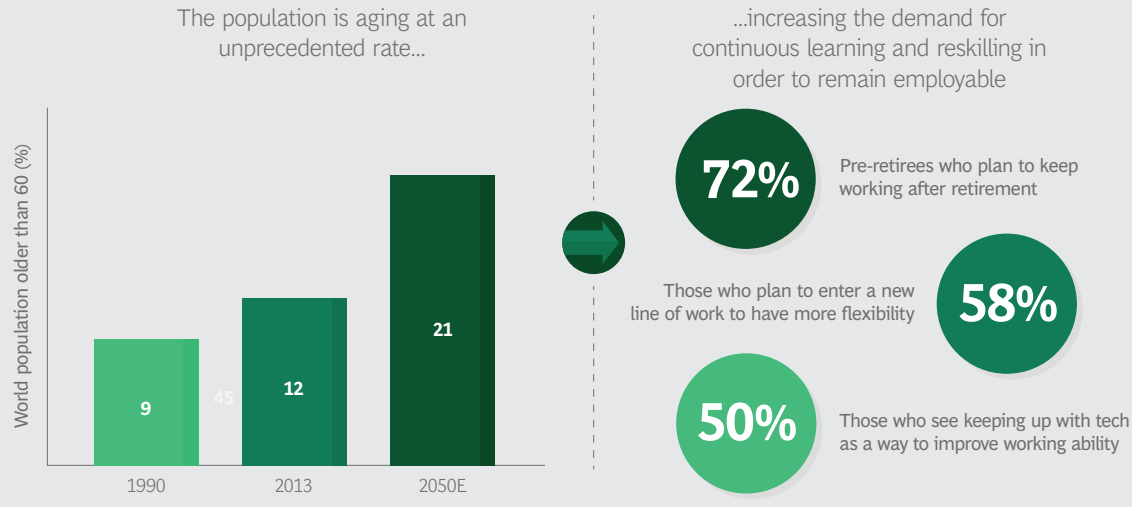
and reskilling opportunities. (See Exhibit 1.)

Millennials will comprise more than one of three adult Americans by 2020 and 75% of the workforce by 2025. And 79% of millennials expect to switch jobs six or more times in their lives—a trend that will require them to "learn to learn" new skills in order to be successful.

Persistent Inequalities, Lopsided Outcomes

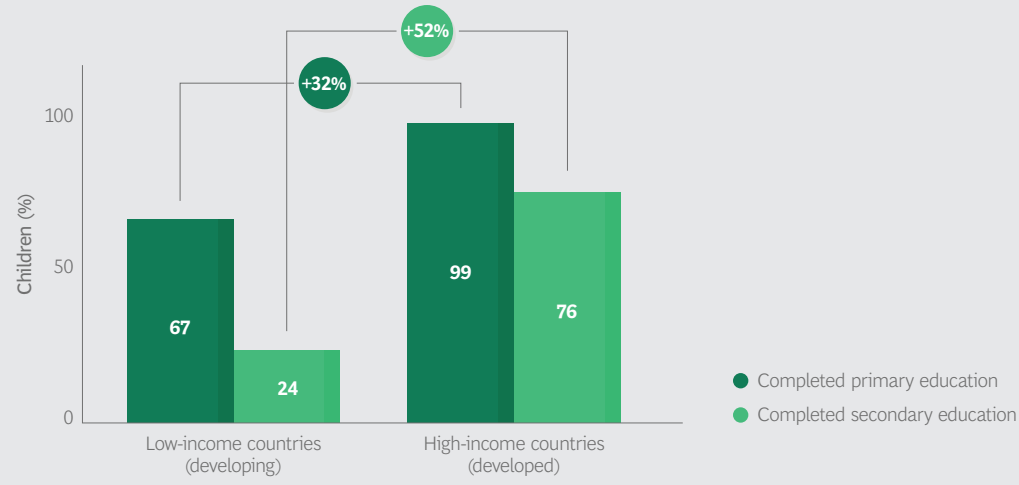
Intercountry inequality remains a persistent issue. There is a gap of 32 percentage points between children completing primary school in low- versus high-income countries, and a gap of 52 percentage points for secondary school. (See Exhibit 2.) Intracountry income inequality also remains a global concern, especially in OECD countries, where the gap between rich and poor is increasing. A high-income student living anywhere in the world scores an average of 39 points higher on the PISA—an international exam—than a low-income student. Other marginalized groups, including women, children with disabilities, people in conflict areas, and refugees, also face significant challenges in obtaining a high-quality education.

Exhibit 1 | An Aging Population Is Interested in Continuous Learning



Sources: Merrill Lynch Work in Retirement report, 2014; "World Population Aging Report," United Nations, 2014.

Exhibit 2 | Global Divides in Education Have an Impact on Achievement



Sources: "Worldwide Semiannual Big Data and Analytics Spending Guide," International Data Corporation, 2015; "Forecast: Internet of Things—Endpoints and Associated Services, Worldwide," Gartner, 2016.

Three Key System Gaps to Overcome

We need to bridge three key gaps in the global education ecosystem to ensure that all learners have access to a high-quality education that prepares them for the future:

- **Perspective Gap.** We need to change the way we think about when and where learning happens. The education ecosystem today focuses primarily on learning within schools—kindergarten through college—instead of on learning as a continuous process that extends from birth through multiple careers.

We need to create responsive systems that are wired for continuous improvement.

- **Capability Gap.** We need to transform how and what we learn. Only isolated pockets of the system are teaching the skills that are needed for the 21st-century workplace. In addition, lecture-based learning continues to be a primary mode of instruction today, despite the availability of new, innovative technology.
- **Agility Gap.** We need to rethink how we support learning. Despite many efforts at reform, the education sector remains one of the most difficult in which to make sustainable local and systemic change. We need to create systems that are responsive to changing contexts and are wired for continuous improvement.

MEGATRENDS IN HIGHER EDUCATION

As the world enters the fourth industrial revolution, the education needs of the future workforce are drastically changing. But the structure of higher education has remained static for decades. By incorporating future-focused thinking into their strategic plans—and adopting trends that can provide the greatest impact—leaders of higher-education institutions can head fully prepared into a changing world of work and learning.

BCG recently conducted a global megatrend analysis for a private, liberal arts university to help it form a new strategic plan. We identified more than two dozen megatrends, from which we focused on five that would be particularly relevant for the university and for education institutions worldwide. By focusing on these megatrends, university leaders can pivot their strategic planning and not only accommodate the students of the future, but also ensure their institutions' lasting growth.

Demanding Soft Skills

Part of the evolution of higher education must be a response to the consistent demand for soft-skills training within the curriculum. Teamwork, decision making, communication, and the ability to plan, organize, and prioritize work are at the top of the list of soft skills sought by employers. Soft skills can be embedded in the curriculum or taught in standalone courses, while online platforms such as Coursera are already incorporating soft-skills content into their offerings, with hundreds of courses on topics such as communication skills and problem solving.

Reinventing the Learning Experience

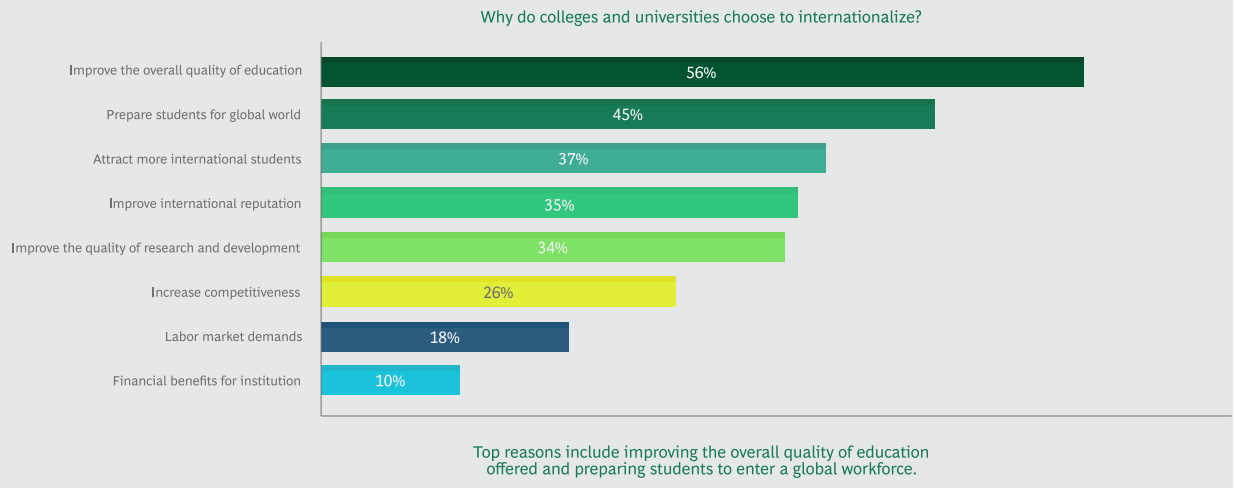
Students increasingly want to be able to transition between structured and unstructured learning modes—a trend that redefines professors' roles and can lead to better learning outcomes. There's a growing demand for "deep learning," an approach that encourages students to have a more complex engagement with materials. There has also been a call for "blended learning," which combines in-person and digital modalities, most often by using classroom time for discussion and practice and providing students with lectures in video format that they can watch on their own time.

Further, mobility is changing the rules of the education game, increasing value for all stakeholders. Students seek international experiences, employers want workers with international exposure, and educational institutions can further their global reach—a win for all parties. (See Exhibit 1))

Students as Consumers

Many students today see themselves as consumers in the context of their education. They want to define the experience they have as well as the degree they earn, in order to identify where they can best use their talents and interests. For example, many students want the flexibility to design their own major and make greater use of electives. Universities will have to adjust and grow to meet the new needs and demands of students.

EXHIBIT 1 | The Benefits of Internationalization in Higher Education



Source: European Association for International Education.
Note: Answers from a 2015 survey with 1,501 respondents asked their top reasons for internationalizing (multiple answers permitted).

Lifelong Learning

Research from Pew suggests that 74% of adults are lifelong learners. Education technology can play a large role in accommodating a wide range of lifelong learners, whether they have deferred entry into university, want an additional degree, want to refresh their skills through continued education, or hope to pursue personal growth in a particular subject later in life. (See Exhibit 2.)

Whatever the underlying reasons, lifelong learning is becoming the norm, and universities must introduce programs for nontraditional audiences.

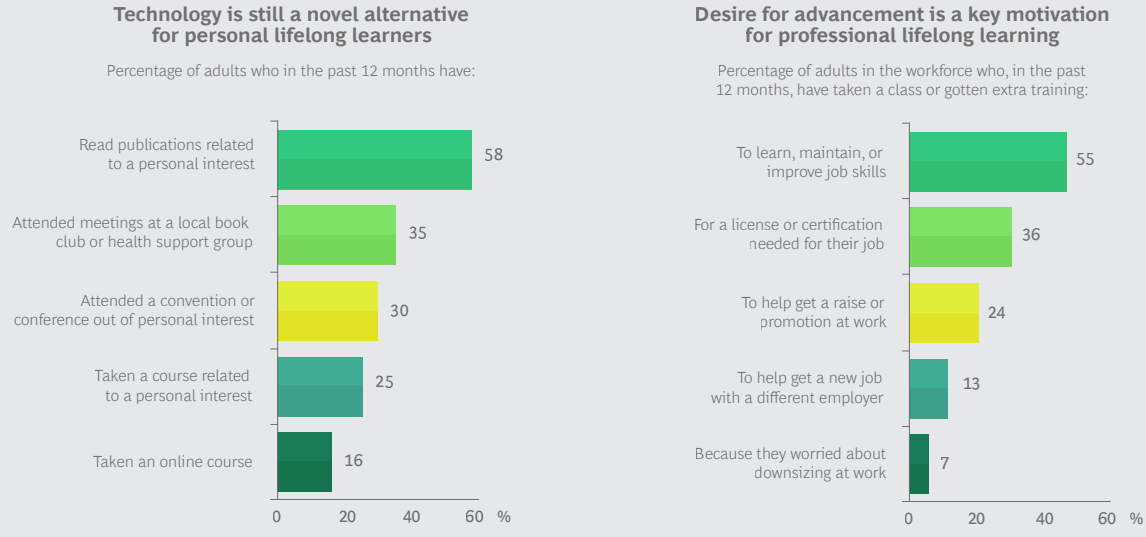
The Rise of Collaborative Research

Universities are finding it crucial to partner with the public, private, and social sectors, and with other universities—sharing resources and tackling larger problems through collaborative research.

For example, the State University of New York Polytechnic Institute (SUNY Poly) formed in 2014 through the merger of two SUNY institutes—the College of Nanoscale Science and Engineering and the Institute of Technology—as part of a concerted effort by the state of New York to create a global, high-tech educational ecosystem.

SUNY Poly is a research institution that offers traditional degree programs in fields such as nanoscience and nanoengineering and has leveraged more than 300 corporate partners and $20 billion in investments to create a state-of-the-art nanotech center in Albany, New York, that houses over 3,000 faculty, students, and researchers.

EXHIBIT 2 | Lifelong Learners Have a Range of Objectives and Pursue Learning Through a Variety of Delivery Methods



THE SKILLS YOU NEED FOR A JOB IN THE 21ST CENTURY

By Leila Hoteit

I'd like to think I'm pretty digitally savvy. On the rare occasions I'm not awakened by one of my kids, I can count on the alarm on my iPhone to prevent any chance of oversleeping. Our house in Dubai hums with wireless Wi-Fi, I stay online in my car and office, and I've come to rely on streaming services like Spotify and Netflix, not to mention the myriad benefits of smart air conditioning technology, especially in the summer months.

It's certainly a different lifestyle from the one I grew up in. But I'm sure that as adults, my sons and daughter will be using technology that is light years ahead of what we use today. Exactly what that will be remains to be seen, but irrespective of its shape or form, we need to ensure that the next generation will be equipped for this changing world—starting in school.

Wanted: Higher-Order Skills

Do you have good analytical and interpersonal skills? If so, you're in luck. Today's industries are crying out for job candidates with these abilities—far more so than in the past, when industries focused on manual labor and had a different set of requirements.

Our research has revealed that students need to learn 16 skills in three broad categories: foundational literacies, competencies, and character qualities. Foundational literacies encompass literacy, numeracy, and scientific literacy—all of which can be applied to everyday tasks. But although these have shaped classroom lessons for generations, digital advances mean that kids today must now supplement these basic skills with the necessary competencies and character qualities that employers want and need.

Today's app developer is very different from yesterday's production line worker, for example. Rather than developing people to perform the same task day after day, we now need individuals who can think independently, change direction, and contribute insights and ideas that will lead to breakthrough products. And let's not forget that in many cases, today's students will be working in the future in jobs that don't even exist yet. So as career opportunities emerge over time, those who are curious and adaptable are more likely to thrive than those who simply obtain technical skills.

> We need people who can think independently, change direction, and contribute insights.

Education systems, which have long focused on foundational literacies, now need to pivot toward building competencies and character qualities. Fortunately, technology can help.

Tapping into Technology

Thankfully, the days of relying purely on textbooks are long gone. Students, many of whom are accustomed to technology at home, can now hone their digital skills and learn new ones at school. Such skills range from coding to online research to basic data analysis, and students will find all of them useful in the world of work.

Digital technology can also help teachers deliver personalized learning, something that was far harder before the advent of the internet. Now students can study at their own pace, proceeding to the next level when ready.

Online instruction also allows a much broader population to access education than ever before. Because teaching and learning can extend far beyond classroom walls, students can take courses no matter where they live or how busy they may be with other commitments. This is particularly important for students who live in remote parts of the developing world. Thanks to technology, they can select online courses to help unlock a far brighter future.

How Governments Can Help

Although teachers, technology leaders, and technology developers are front and center in this new approach to education, government, too, has a critical role to play.

Governments could start by investing in teachers' development in order to help them learn how to effectively use technology in their classrooms. Although professional development requires investment, many digital online tools are available to help teachers on their way.

Another priority is to use the curriculum itself to help promote technology education. With an abundance of traditional companies developing digital tools, and with many new entrants to the market, governments could inject

some much-needed clarity by setting standards, endorsing products, or making purchases for the institutions they run. In a fragmented market, they could support high-quality smaller companies that lack the capability to scale, either by investing in them directly or by helping them access a larger audience in order to test and accelerate development.

And finally, governments could become more flexible about funding. Although education funding has traditionally been term based—which limits students' ability to progress at an advanced pace—governments should consider more flexible funding mechanisms that support students as they progress from one course to another based on demonstrated mastery, rather than on adherence to rigid spring and fall terms.

Time to Seize the Opportunity

Closing the 21st-century skills gap won't happen overnight. It requires a fundamental realignment of deeply rooted education systems, as well as a concerted effort from teachers, technology developers, students, and policymakers.

We all want the best for the next generation. We all cherish their futures. And we all want them to succeed. But this won't happen without tapping into the vast potential and power of digital technology. In many countries this is already happening. But there's much more to be done.

It's time to move from steps to strides—starting now.

CHAPTER 4

RESHAPING HEALTH CARE AND URBAN INFRASTRUCTURE

By Stefan Larsson, John Wenstrup, Rich Davey, Charlie Davis, Christoph Rothballer, and Simon Weinstein

MOBILIZING COOPERATION FOR HEALTH SYSTEM TRANSFORMATION

By Stefan Larsson

As the theme at this week's World Economic Forum Davos meeting indicates, we live in an increasingly fractured world. Just as communities at large are fragmenting, health care systems, too, have become siloed due to accelerating complexity. It is too easy to lose focus on the patient as we optimize the parts of the system.

However, there is a paradigm shift underway. Value-based health care puts the sustainable delivery of health outcomes for patients or population groups at the center of care delivery.

This shift requires measuring health outcomes that matter to patients and the resources required to deliver those outcomes across the full cycle of care. These measurements need to be done systematically across different population segments— the frail elderly, for example, or patients who have suffered heart attacks. We can then compare results between organizations, regions, or nations to identify clinical or operational best practices, motivate improved outcomes, and develop increasingly precise treatments. This ongoing cycle of continuous improvement ultimately leads to what some clinical experts term "precision medicine."

Four enablers support the development of health systems that focus on patient value:

- Integrated health informatics that permit the routine capture, sharing, and analysis of health outcomes and other relevant data while securing full integrity of patient data
- New analytical tools for benchmarking and research, including sophisticated decision-support tools for clinical teams and patients
- New payment models that reward prevention, coordination along the care chain, and continuous improvement in patient value
- New roles and organizational models that allow networks of providers and suppliers to deliver better access to appropriate care, engage clinicians in continuous improvement, and adapt to innovations and new opportunities

The value-based system requires coherent public policies and a legal and regulatory environment that supports and accelerates the transformation.

Although leading stakeholders around the world are embracing elements of this value-based model, the challenge and the opportunity lie in unlocking its potential at the level of entire regional, national, and international health systems. The model requires significantly higher levels of cooperation and alignment among stakeholders than is the rule today.

The second World Economic Forum report from the Value in Healthcare project, *Mobilizing Cooperation for Health System Transformation,* was released at the January 2018 Davos meeting. The report outlines three critical

mechanisms for accelerating the required stakeholder alignment:

- **New models for multiple-stakeholder cooperation.** Improving health care value requires system-wide transformation. To begin this transformation, we have initiated a series of pilots around the world, working with local stakeholders to transform their abilities to jointly deliver improved health care value. Our report describes one such pilot in detail: the Atlanta Heart Failure Pilot. Launched under the leadership of former Atlanta mayor Kasim Reed, the pilot brings together about 40 health care stakeholders operating in the Atlanta metropolitan area—providers, payers, patient advocacy groups, public-sector organizations, academic institutions, and pharmaceutical and medical device companies—to focus on congestive heart failure (CHF) patients. Nearly 6 million people in the United States suffer from CHF, and about half of them die within five years of the initial diagnosis. The pilot has an ambitious goal: "to create a continuously improving value-based health care system that positions Atlanta as a national leader in heart failure patient survival rate by 2022 while significantly improving quality of life and reducing the average cost per patient." We draw lessons from the Atlanta pilot for organizing similar initiatives in other parts of the world.

Transformation to a value-based health system demands integrated capture and use of data.

- **New standards for health informatics.** Transformation to a value-based health system demands an integrated approach to the capture and use of health data. If we are to realize the promise of value-based health care and precision medicine, we need comprehensive and interoperable data from large numbers of individuals. This requires defining global standards for data capture, mapping, and access. Global standards will make it possible to access disparate sources of health-related information from systems around the world so that providers, payers, researchers, and policy-makers can learn from each other about what works and what does not. Setting standards may sound like a technical topic, but it is also a critical mechanism for encouraging cooperation across health care.

- **New directions for leadership.** System transformation requires transformative leadership. Health care leaders need to actively inspire their own organizations to focus on what matters to patients. This, however, is only the first step. They also need to articulate a vision that looks beyond the walls of their individual organizations and takes a system-wide perspective. Politicians and policy makers similarly need to have a long-term view, bring stakeholders together, and create the policy, regulatory, and legal environments necessary to make it easier for stakeholders to cooperate. Global leadership can create public-private partnerships and ultimately a health care community committed to continuous improvement and innovation.

There is no doubt that better health and health care creates a shared future for us all. Many are stepping up to the opportunities offered by value-based health care. Let us all continue to do more. Cooperation enables us to overcome the barriers and challenges of a fractured world to benefit not just the health of individual organizations, but the health of patients, customers, and citizens around the world.

NEW TOOLS IN THE BATTLE AGAINST URBAN GRIDLOCK

By John Wenstrup, Rich Davey, Charlie Davis, Christoph Rothballer, and Simon Weinstein

Smart sensors, ridesharing apps, big data, and other technologies are widely recognized as keys to unlocking congested urban transportation systems. Yet even with many of these tools in use, we're stuck with gnarled city freeways and overstretched transit systems.

Technology alone is not the solution. Harnessing the real power of innovation lies in deploying the agile approach. Holistic, collaborative, and driving change through the rapid piloting of ideas, the agile methodology—which has proved successful in industry—should now be applied to easing our transportation system's worst bottlenecks.

The urgency of doing so is undeniable. The world's urban population is expanding rapidly. By 2045, it will have grown (by a factor of 1.5) to 6 billion, according to the World Bank. And as urban populations expand, so does the demand for mobility. The World Bank expects passenger traffic to exceed 80 trillion passenger-kilometers by 2030—a 50% increase over the 2017 figure. Ensuring the safe, sustainable, and efficient movement of people—and the goods they rely on—is essential to healthy societies and economies.

This will not be easy. Building more roads or buying more buses is not a viable solution. The challenge is to rethink how and when roads and buses are used, and what tools could optimize the system and reshape the way people travel—or make it easier for them to avoid traveling altogether. To shift demand, create viable alternatives to travel, and provide data that informs smarter decisions, we must tackle mobility in its entirety. An agile approach to transportation can save governments money, future-proof urban-mobility networks, and create transportation choices that underpin economic and social success.

Congestion and Megatrends Demand a Rethink

Urban mobility is already significantly limited and problematic in many cities and regions. Congestion means employees waste time either because they are stuck in traffic or because they must leave earlier and earlier simply to arrive at work on time. This waste of time not only lowers productivity. There are other economic costs as well. In 2017, according to transportation analytics company INRIX, congestion cost US drivers almost $305 billion, an average of $1,445 per driver.

> The challenge is to rethink what tools could optimize the system and reshape travel.

Public health suffers as congestion heightens stress levels, increases carbon emissions, and exacerbates air pollution (the fourth-highest risk factor in deaths worldwide). With insufficient supplies of affordable housing near job centers, low-income workers are forced to live far from employment opportunities and spend more time commuting. In addition, when a city gains a reputation for gridlock, it risks a negative impact on tourism.

Moreover, new technologies generate new problems. E-commerce is driving up the number of delivery vehicles on roads. If not actively managed, autonomous vehicles (AVs) and ride-hailing services could lead to an increase in single-occupancy vehicle use and prompt a shift away from public transit. A BCG-supported impact study of an AV pilot launched in Boston in January 2017 found that AV shuttles could reduce the number of vehicles on the streets by 28%. However, if this change were to be counterbalanced by people moving from public transportation to personal AVs, the reduction would be only 11%.

Governments must also be prepared for shifts that will mean lower revenues and higher costs. Electric vehicles and more efficient cars will drive down gasoline tax revenues, and parking revenues are expected to fall with increases in ridesharing and the use of AVs.

At the same time, the costs associated with repairing and maintaining aging infrastructure are rising, and expanding cities are seeing growing demand for transportation. Such worldwide megatrends will exacerbate existing problems and intensify the pressure to rethink approaches to urban mobility.

Reshaping the Urban Journey

Conventional fixes—for example, adding capacity—are not sustainable solutions for addressing the growing pressure on urban mobility networks. Collaboration among the government agencies that operate and maintain the various

Five Aspects of Transformation

MOBILITY DEMAND
- Reduction of travel needs through land use
- Alternatives to travel through new business models and technologies
- Exciting choices and incentives for altering demand

TRANSPORTATION MODES
- Connected, cooperative, and autonomous mobility
- Public transit
- Personal mobility for short trips and first- and last-mile options
- Aerial vehicles
- Adaptive technologies
- Electric vehicles

DIGITAL PLATFORMS
- Multimodal trip planning
- Integrated ticketing and payment
- Shared mobility models
- Freight management tools

SYSTEMS AND INFRASTRUCTURE
- Data collection and sharing
- Real-time analytics
- Intelligent steering and traffic management
- Incident response
- Roadway infrastructure
- Enforcement
- Asset preservation

CULTURE AND MINDSET
- Leadership and vision for the future
- Innovative thinking pushed from the top down
- Collaborative agile mindset
- Willingness to test new ideas
- Partnership across sectors and jurisdictions

Source: BCG analysis.

parts of the system will be critical, as will partnerships with the private sector. To address these challenges and identify solutions, public agencies need to test ideas quickly, and their solutions should incorporate the lessons learned from both successes and failures.

In the exhibit, "Five Aspects of Transformation," we illustrate the five aspects of the transportation ecosystem that must be considered together to address urban congestion.

- **Mobility Demand.** For what reasons do people and goods need to travel?
- **Transportation Modes.** Which transportation modes—cars, bicycles, and public-transit systems—do people use?
- **Digital Platforms.** Which online platforms—including websites and mobile apps—and devices do people use to plan and access transportation?
- **Systems and Infrastructure.** What sort of physical and digital structures underlie the world in which people travel?
- **Culture and Mindset.** How can an agile approach—with pilots we can learn from—be applied to upgrading the transportation ecosystem?

Mobility Demand: Finding Alternatives to Travel. The sustainable alternative to adding capacity is managing demand. This means not just asking people to travel earlier or later to avoid peak travel hours, but also creating new ways of working and consuming that inspire people to change where, when, and how they travel—or decide not to. Achieving this will require the collaboration of partners, including urban planners, property developers, and employers.

Schools, health care providers, employers, and real estate developers can work together to reduce travel time by offering such alternatives as mobile clinics at schools, telemedicine services, and home-based or remote office space. On-demand shopping and deliveries can reduce the number of vehicles on the roads if deliveries are coordinated and routes are optimized. In Queensland, Australia, for example, a flexible work center pilot program offered government employees a telecommuting option. Individual participants' travel time was reduced by more than an hour a day, and 83% of users reported improvement in their sense of well-being.

Smart land use policies can reduce the need to travel. For example, transit-oriented and mixed-use developments cluster housing, shopping, and jobs around public-transit networks. Appropriate incentives and support are crucial for encouraging providers, such as mini-malls and banking facilities, to locate their facilities close to residential areas and for employers to rethink the way employees perform their responsibilities.

Leisure is another area of focus. Recreation facilities such as parks, gyms, and jogging paths ought to be located near residential areas. Copenhagen's Finger Plan concentrates growth along suburban, regional, and metro and light-railway routes, leaving green space undeveloped between the "fingers"—the transportation corridors that extend from the city center. The "station proximity principle," which requires large new offices to

be located near metro or railway stations, has resulted in more than 61% of jobs and 56% of residences being within walking distance of the stations.

Transportation Modes: Traveling Smarter. Combined with well-designed incentives, cutting-edge technologies can reduce congestion and move people around in environmentally sustainable ways. Using data from various sources, a tailored approach to public-transit planning is possible with, for example, services offered to specific regions at specific times and service frequency adjustments based on demand. This makes public transit smarter and more attractive, leading to less road traffic. Meanwhile, data analytics can optimize routes and schedules, enabling transportation networks to maximize the number of people they move.

tion even if their home is not near a transit hub. In March 2018, for example, the Vélib system (which has since been taken over by the Smovengo consortium) provided some 20,000 bicycles at more than 1,400 strategically positioned stations across Paris.

Digital Platforms: Creating Seamless, Shared Mobility. Technology—including websites and apps, as well as smartphones, laptops, and other devices—underpins reliable cooperative transportation. Digital services provide access to timetables, service updates, and disruption alerts and allow users to plan trips, make payments, and receive tickets across multiple operators and modes. Meanwhile, technology generates aggregated data that informs policy and operational decisions.

Digital services can relieve pressure on transportation infrastructure. For example, in Helsinki, regional authorities created a single digital interface that gives travelers open access to data on traffic, maps, and transit schedules. This paved the way for Whim, a private company, to develop a hassle-free alternative to car ownership. The company's subscription offering provides a seamless service across public-transit, taxi, and rental-car options.

Technology allows groups of people to coordinate their travel. Ridesharing, carpooling, and shuttle services to and from their destinations encourage people to leave their cars at home. In Boston, users of the Skedaddle bus service can crowdsource routes that other users can join, and they can travel routes that other users have created.

Digital services cut costs for travelers and increase the number of people using the same transportation modes. These services also meet the demand of consumers who want the same kind of access to transportation that they have to shopping and online entertainment—anytime, anywhere, and in a form that they can tailor as they like.

Systems and Infrastructure: Giving Data Purpose. Information is key to coordinating complex transportation ecosystems. Real-time data collection, aggregation, and analysis can help promote efficiency across the system, particularly if information is shared between the public and the private sectors. This information builds a foundation for intelligent infrastructure and smart solutions, such as route optimization and dynamic tolling, for road and traffic management.

High-occupancy vehicle (HOV) lanes increase road use efficiency, as do express toll lanes (ETLs). ETLs help accelerate travel times by adjusting pricing in response to demand and by controlling the number of cars. Intelligent steering and management tools—such as ramp meters, variable message signs, dynamic pricing, and access restriction—facilitate real-time adjustments that maximize efficient road use.

Singapore, for instance, is using a wide variety of these tools, including dynamic road pricing (which allows for charging fees on the basis of factors such as vehicle location, time of day, and congestion levels) and smart parking solutions (such as real-time parking-spot-tracking apps with integrated payment functions).

Real-time data collection, aggregation, and analysis promote efficiency across the system.

In the long term, new forms of shared transport, such as AV vanpools for schools, will offer options that are more efficient than many current modes of transportation. But if they are made more convenient and can accommodate diverse user needs, even existing modes can reduce reliance on single-occupancy vehicles. For example, if ridesharing services provided children's car seats, parents would be able to avoid using a personal vehicle for trips with their children.

Expanding first- and last-mile options is also important. The convenience of shared and electric bicycles provided at bus stops and railway stations would encourage people to use public transporta-

Meanwhile, open data gives users accurate, real-time information that lets them optimize their public-transit use, increases train and bus reliability, and encourages developers, transit authorities, city planners, and logistics players to improve the travel experience. In London, a policy of open data has paid off: more than 11,000 app developers have registered for the data, and 42% of Londoners are now using more than 600 travel apps.

Culture and Mindset: Agile Approaches for Driving Meaningful Improvement. New technologies and innovative transportation solutions are emerging rapidly, but these should not be implemented in isolation. Each is part of a coordinated approach to upgrading the transportation ecosystem. It is crucial to drive change by starting small, evolving over time, and building various capabilities—both human and technological—to support this.

Leaders across the public and private sectors need to promote agile, innovative thinking and encourage the rapid piloting and testing of ideas. They should empower their teams and organizations to set ambitious goals and then track progress toward those goals. Cities such as Detroit have recognized this and are actively addressing it. (See the sidebar, "Detroit: Office of Mobility Innovation.") They are examining new and existing solutions critically and, when necessary, abandoning them. Piloting ideas—not just talking about them—lies at the heart of agile. Some pilots may not be successful, but a focus on user impact allows quick learning, iterating in cycles, and scaling.

A collaborative mindset is essential. Success will require breaking down public-sector silos and promoting cross-functional thinking. The agile approach should prompt the formation of partnerships across sectors, including private-sector organizations that have the ability to develop innovative solutions at scale. Collaborative working calls for clear frameworks and protocols for the governance of data privacy and information exchange, as well as for open communication, which ensures mutual understanding of success. In these crucial cross-functional collaborations, both the public and the private sectors need to be empowered to contribute.

DETROIT
Office of Mobility Innovation

With its roots in automotive innovation, Detroit is well placed to advance the mobility revolution. As part of a three-year journey, the city is launching an iterative process that will use scalable pilots to improve vehicle and pedestrian safety, increase mobility in low-density areas, and reduce curbside congestion caused by drivers searching for parking spaces.

Recognizing the need for a framework that will enable it to roll out and test pilots quickly and efficiently, Detroit has created the Office of Mobility Innovation to integrate new technologies and services with traditional public transit and infrastructure.

Moreover, Detroit is working collaboratively with corporate and philanthropic partners to shape strategy and investments, develop pilots, construct the business case, and measure results. As the city supports pilot execution, corporate partners will contribute both financial assistance and internal resources to help develop and implement pilot projects, and the community will be involved throughout the process.

No Need to Wait

Transforming an ecosystem as complex as the urban mobility network is tough. And in the US, the need for change comes as uncertainty rises over the extent to which municipalities and states can count on federal resources. However, the advantage of an agile approach is that it does not rely entirely on large-scale capital investments. Applying agile approaches to mobility challenges, decision makers can move quickly. Instead of planning for perfection, they can pilot ideas and learn from small-scale projects that can be improved over time. And the time to start is now.

Leaders should encourage a variety of stakeholders—including government agencies, corporations, and citizens—to meet on a regular basis, delegating responsibility and empowering colleagues throughout their organizations to innovate and experiment. The collaboration of peers in the government and the private sector will ensure that solutions are integrated across jurisdictions.

By promoting transparency and soliciting the views of the public (users who have genuine interest in transportation services) on what does and what does not work, leaders can incorporate solutions

quickly and support a shared vision. Both government and citizens will welcome pilots and understand if some fail. Still, to build public trust, it is critical to track whether experiments are adding value.

Of course, to do all this, governments must build up their capabilities. They may need to acquire new talent and work with private-sector partners not only to supplement their financial resources but also to help introduce agile tools and accelerate the process of innovation.

DECISION makers must be ambitious in setting goals and must prepare for the future before it rolls over them. Efforts that succeed will alleviate the pressure that has been mounting on transportation systems, enhance the economy, increase the ability to compete, and improve the health and well-being of citizens. There is no reason to delay or postpone action. By deploying an agile mindset, cities and regions can accelerate the pace at which innovation is translated into solutions and demonstrate that—in a matter of weeks or months, rather than years or even decades—the transportation ecosystem can be transformed.

CHAPTER 5

RESTRUCTURING GOVERNMENT TO SATISFY PUBLIC EXPECTATIONS

By Christopher Daniel, Joerg Hildebrandt, Martin Manetti, Adeel Ikram, Vincent Chin, Agnès Audier, Rodolphe Chevalier, and Lucie Robieux, Matt Boland, Troy Thomas, and Danny Werfel

A BLUEPRINT FOR THE GOVERNMENT OF THE FUTURE

By Christopher Daniel, Joerg Hildebrandt, Martin Manetti, Adeel Ikram, and Vincent Chin

Powerful forces are transforming society—and creating challenges for governments around the world. Citizens, now accustomed to the ease of buying products from Amazon or hailing rides from Uber, have greater expectations about the way their government should deliver services. In addition, as technologies such as artificial intelligence (AI) advance at a breakneck pace, government must respond to both the opportunities and the disruptions that result. (See *Destination Unknown: Exploring the Impact of Artificial Intelligence on Government,* BCG Centre for Public Impact, September 2017.) Meanwhile, globalization is increasing the interconnectedness of countries and economies, creating a host of new "wicked problems"—complex and daunting challenges such as the refugee crisis and rapidly spreading infectious disease outbreaks—that require coordinated action from a large number of stakeholders.

So far, however, governments are not responding to these societal shifts. They continue to operate the way they have for centuries, with structures that are hierarchical, siloed, and bureaucratic. But the speed of social change is too great for most governments to handle in their current form. And the pace is likely to accelerate. The time has come to fundamentally reexamine and remake the structure of government.

We have identified four fundamental changes that governments should make to better meet today's complex challenges. First, they should move away from silos and create priority clusters. These would span a number of traditional ministries and agencies and manage specific issues that affect citizens directly. Second, they should establish functional accelerators that build expertise in critical areas—advanced analytics or AI, for example. Third, they should adopt agile ways of working, using cross-functional teams to drive innovation through rapid experimentation and learning. Fourth, governments should redesign the way they interact with citizens, creating a streamlined, one-stop shop where people can access the services and assistance they need.

Governments that fail to adapt will be ineffective at providing solutions to the problems and concerns of their citizens. The solutions that are needed include a system for lifelong education that helps workers remain competitive in a rapidly changing labor market; clear and easy access to critical government services; and adequate safeguards and regulations in new or transformed industries. Ultimately, governments that come up short in such areas will see their legitimacy suffer; citizens will be more inclined to limit government resources and less willing to engage with their government. Governments that are able to transform will deliver more impact for citizens—and strengthen their credibility and standing with the public they serve.

Forces of Change

Rapid change is the norm today. The shifts outlined below have sig-

nificant implications for governments and how they operate. (See "Governing in the Age of Disruption," BCG article, January 2018.)

Rising Consumer Expectations

Mobile phones are ubiquitous—a fact that has completely altered what people expect in customer service. Consumers expect everything from their bank account to their transportation to be available at the touch of a smartphone. But as companies continue to up their game in customer service, the public sector is not keeping pace. BCG's 2016 Digital Government Satisfaction Survey found that citizens in only 4 of the 22 countries surveyed were highly satisfied with the overall quality of government digital services.[1]

As they aim to meet rising customer expectations, governments should ensure that five basic characteristics of digital service in the private sector guide their efforts:

- **Digital First.** Services like Airbnb and mobile-only banks are built from the bottom up, with digital as their core channel.
- **Integrated Service Offerings.** Companies like WeChat in China and Amazon in the US win customers by offering a broad range of services in a single place. Think about this in terms of retail, for example. Consumers have moved well beyond the shopping mall concept; they now prefer to go to a central app or website to get just about everything they need.
- **Simple and User-Centric.** Services like TurboTax in the US take a complex and tedious process and render it highly intuitive using great design. Amazon's new brick-and-mortar grocery store in Seattle similarly offers consumers a seamless, easy-to-navigate experience.
- **Omnichannel.** Zappos is a common example of a company that is great in every channel. In the e-commerce market, companies focus in large part on website design. Zappos has excelled there—but it has also built a top-notch call center for customers who have questions or complaints.
- **Personalized.** From hotel pillow menus to Netflix recommendation lists, services are becoming more and more customized. Customers expect companies to know what they want and to tailor service offerings to their specific needs and preferences.

Rapid Technology Advances

We've seen stunning technological progress over the past two decades. The emergence of the internet. The mobile revolution. The power of big data. But these innovations are likely just a prelude to radical technological changes now on the horizon. These include the takeoff of AI and rapid advances in fields such as nanotechnology and genomics.

In particular, AI, which encompasses machine learning, robotics, computer vision, and natural-language processing, is poised to transform society in seismic ways. It will alter everything from how factories operate to how health conditions are diagnosed and treated to how people travel from point A to point B.

Governments must respond to technological change in two ways. First, agencies, departments, and ministries must fully harness the power of these technologies to improve their operations, policymaking, and service delivery. Second, they must develop regulations and policies that protect citizens from the nefarious use and adverse impacts of new technologies—think of fraud, for example, or job losses—while still establishing a framework that allows these technologies to flourish. Striking that balance will be difficult, given the pace of innovation and the far-reaching impact in all corners of society.

Increasing Complexity

Traditionally, government has taken a straightforward approach to societal problems, one that breaks a problem down into its component elements and designs policies to address each piece. Today that approach is often doomed to fail because the problems at hand—and the potential solutions—are more complex than ever before.

Globalization is one of the drivers of that complexity. Problems in one corner of the world can quickly spread to other regions. The most intractable and complex of them—the wicked problems—have multiple causes, are constantly evolving, have significant ripple effects, and do not fit neatly under one government discipline or function. To address such problems, governments must design policies that cover multiple disciplines and that can be adapted as circumstances change—something they frequently struggle to do.

The Cost of Failure

As the forces of change gain momentum, both government and citizenry will pay the price if the public administration does not adapt.

Governments that fail to meet rising citizen expectations will dimin-

ish the reservoir of goodwill they have with constituents. Over time, that erosion in legitimacy can pose a significant risk to government.

Governments that fail to respond to technological change will likewise face major challenges. Unable to fully utilize the new tools, they will miss major opportunities to improve their own impact. In addition, they are likely to fall behind on the regulatory front. Case in point: the business models of companies in the sharing economy (such as Uber and Airbnb) became immensely successful before regulators could decide how to address them, precipitating social upheaval in some cities as workers in more traditional industries reacted.

At the same time, citizens will pay a steep price if their government does not adapt to technological change. According to the World Bank, about two-thirds of all jobs in the developing world are susceptible to automation, although the extent of job loss will ultimately depend on wage levels and the pace of technology adoption; in OECD countries, automation could replace nearly 60% of jobs.[2] If government policy does not help workers adjust, significant numbers of people may be left behind.

Finally, governments that do not recognize and address globalization and increasing complexity will expend resources in ways that do not get to the root of the wicked problems they face. They will not be much help with their citizens' most pressing concerns.

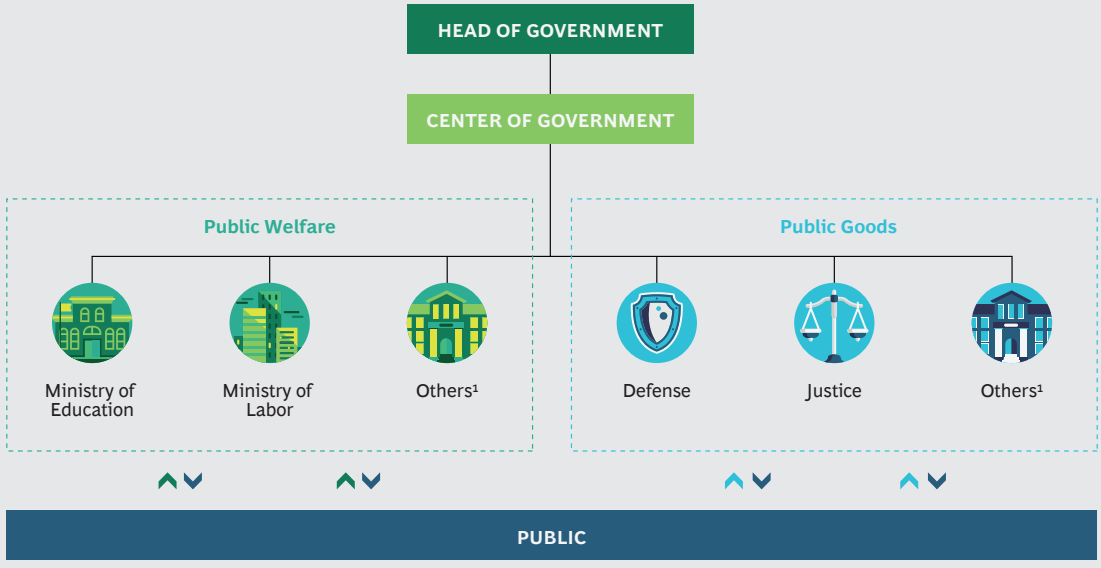
Four Powerful Shifts

To understand how the structural blueprint of the public sector needs to change, it is important to know the starting point for most governments.

Government traditionally has three principal components. The first is the head of government, such as the president, monarch, or prime minister, who presides over the entire structure. The second component is the center of government, which comprises all the groups that provide policy and administrative support to the government head, as well as policymaking bodies such as parliaments or legislatures. The third piece is the public administration, which is typically organized into ministries or departments that are responsible for policy areas such as education, health, and defense. Despite periods of reform, including shifts toward outsourcing or public-private partnerships, these entities frequently function much as they did 100 years ago. They are built largely around silos and their culture is hierarchical, process driven, and risk averse. (See Exhibit 1.)

We focus our recommendations on the public administration component of government. While the head and the center of government can vary considerably by country, the composition and function of public administration are similar throughout the world. In addition, public administration typically employs significantly more people and consumes signifi-

EXHIBIT 1 | The Current Government Structure Remains Siloed



Source: BCG analysis.
[1]Represents the many other ministries/agencies that exist in each category but are not relevant to our examples.

cantly more resources than the government center. Consequently, changes to its structure and operation can have a sizable impact.

So how can public administration adapt to higher expectations, rapid technological change, and mounting complexity? We see four powerful shifts that can help. (See Exhibit 2.)

Organizing Around Priority Clusters

Public administration should be reorganized into priority clusters—policy areas that are connected or have significant overlap. These clusters should be defined by the everyday lives and needs of citizens. Education and employment are one example of a priority cluster. Health and welfare—comprising health care, nutrition, social support, and retirement—are another. Certainly not all departments or ministries are candidates for a priority cluster. Some, such as defense or justice organizations, services that we call "public goods," might continue to operate best as distinct entities. But as complexity grows, the number of areas with overlap and linkages—as well as the strength of those interdependencies—will increase.

To understand how a priority cluster could function, we took a close look at education and employment. Policies, regulation, and public services in these areas are typically managed through separate departments or ministries—an approach that made sense for most of the 20th century. Over that period, people generally trained, entered a field, and then worked in that field for their entire life.

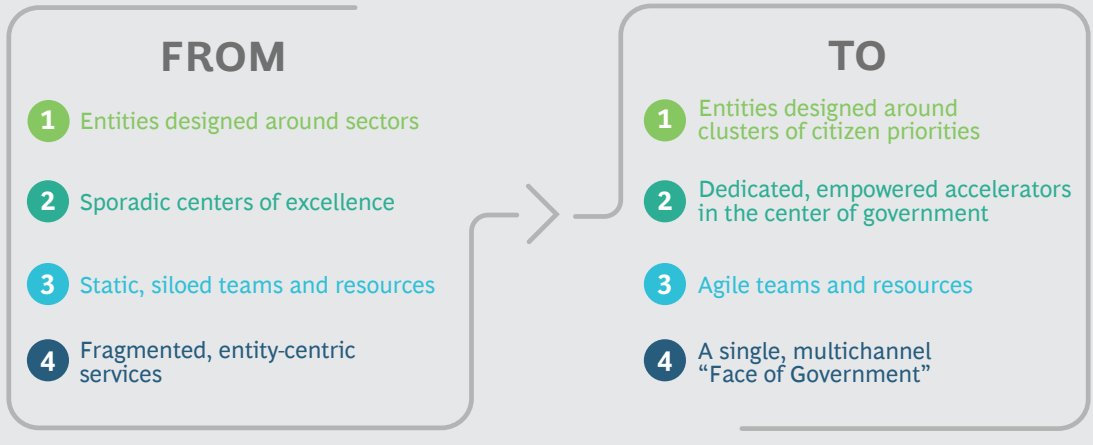
But the world has changed. As advances in robotics, machine learning, and AI accelerate, it is no longer realistic to think that people can work productively for decades after being trained to do a particular job. Of the jobs that today's students will hold in 2030, it is estimated that 85% do not exist today.[3] This has two major implications. First, education must evolve to focus on capabilities that strengthen adaptability. Second, education and labor policy will need stronger coordination. This will help ensure that the system produces people with the skills employers need while establishing a path for lifelong learning and skills building so that workers can adapt as those needs change.

In education and employment, the priority cluster could be called "human capital," an entity responsible for setting policies that guide a citizen's education and working life from cradle to grave. This cluster would focus on skills building for the modern workplace, encompassing early education, vocational training, lifelong learning, and services for linking people to jobs based on their skill set.

Although no country has yet made a structural overhaul to create priority clusters, a number have made reforms that encourage better cross-functional collaboration. To date, most rely on coordination committees or task forces. In some cases, governments have created dedicated positions designed to foster collaboration.

In the US, "czars" have been appointed to serve as policy advisors to the president on certain topics. President Obama, for example, appointed an energy and climate czar to advise him on those two

Exhibit 2 | Four Shifts Can Transform the Government



Source: BCG analysis.

related areas. The UK government recently made headlines with its announcement of a Minister of Loneliness to support the 9 million people who say that they always or often feel isolated from society. The minister is expected to draw on resources from across the UK government, while the Office of National Statistics, in parallel, develops a concrete method for measuring loneliness.

Creating Functional Accelerators

The technology explosion has major implications for the skills required in government. More and more functions can now be automated, reducing the need for staff in purely administrative functions. At the same time, higher-level skills and greater expertise will be required across the entire government organization.

Governments can attack this problem by creating functional accelerators—centers of excellence that bring together talent and expertise in critical emerging areas such as big data and advanced analytics, behavioral economics, AI, and robotics. Accelerators plug in to other government functions or departments to help those groups master these new topics and build their own skill sets. Once the accelerator succeeds in embedding particular skills or technology know-how into all government units, it closes down or shifts to another topic.

Accelerators fill three important roles:

- **Concept Incubator.** Through their work at the cutting edge of their field, accelerators are familiar with emerging opportunities. They filter and refine those opportunities to ultimately propose the most viable ones for implementation.
- **Technical Advisor.** Accelerators act as talent pools from which teams across government can draw resources for developing new programs or policies.
- **Research Hub.** Accelerators leverage their experience to produce studies and reports, and conduct additional research, to advance their field or topic. This activity can be critical in ensuring that a country keeps pace with technology.

Some governments are already experimenting with the accelerator model. The UAE, for instance, has created a Ministry of Artificial Intelligence, charged with promoting AI both within and outside government. In 2015, Canada set up an Impact and Innovation Unit within the center of government to help transform the operations of the public administration. The group works with government agencies and departments, as well as outside organizations, to develop innovative policies and programs, sometimes through the use of new financing approaches and partnerships. And the UK and the US have set up functional accelerators—the Government Digital Services unit and an operation called 18F, respectively—to advance their digital expertise.

Because the success of these accelerators will hinge in no small part on the expertise within government related to new technology, governments will need to more aggressively recruit talent from outside the public sector and to prioritize training in emerging technologies.

Introducing Agile Ways of Working

Keeping pace in an era of massive change requires new ways of working. One powerful tactic: the creation of cross-functional teams that can come together for a limited period to develop, test, and refine new programs and policies.

This agile way of working has its roots in software development in the 1990s. The philosophy is simple: give a team the space and autonomy to innovate, and organize the process around short cycles, or "sprints," that focus on getting to a "good enough" solution—rather than perfection.

The agile approach has spread far beyond software. Tech startups and corporations, from Spotify to GE, have scaled agile across their organizations. And even traditional industries like banking have embraced its potential. (See "Taking Agile Way Beyond Software," BCG article, July 2017.)

In government, the agile approach would typically be best suited to complex problems whose solution requires expertise from a variety of groups. The team members would be drawn from functions or departments across the organization. And the duration of the effort would be anywhere from weeks to years.

The approach can be particularly powerful when used in the context of priority clusters. In an education and employment cluster, for example, a key objective might be to expand government's role in retraining workers who lose their jobs to automation. Educators, job counselors, external industry experts, and professionals from the government's big data and analytics accelerator could form an agile team. The team's mission: develop a national campaign that identifies workers in at-risk jobs and provides them with retraining options. In parallel, a related agile team

could work with private training companies and experts in emerging fields to create curricula.

Governments should design service delivery to serve users' needs, not providers' convenience.

Of course, many employees within public administration would continue to operate as they have. Police officers, nurses, and teachers, for example, would not be required to adopt agile ways of working, even if the nature of their jobs continues to evolve thanks to technology and other factors.

Establishing a Single Face of Government

The shifts described so far focus on improving the internal operations of government. The face that government presents to citizens, however, need not mirror the internal organization. In fact, citizens are often confused by government silos and don't know how to manage them. And the teams within those silos typically struggle to communicate effectively with citizens.

Governments must rethink how they deliver services to their citizens. They should design service delivery on the basis of users' needs, not the convenience of service providers. And as citizens increasingly expect integrated offerings, governments must move from providing services through a plethora of separate departments, agencies, and ministries to a single, one-stop-shop approach—what we call the single face of government.

The single face of government does not mean that all services should be offered through a monolithic website. Quite the opposite. This approach allows for the streamlined offering of many standard services—and the customization of services that require it.

To understand how this works, let's look at two types of service. The first is the straightforward transaction (obtaining a building permit or opening a restaurant, for example). Many of these services are currently automated or in the process of being automated. And although most of them still require some human oversight, advances in AI will eliminate much of that human role in the future. Through the single face of government, these transactional services can be offered end to end, mainly via digital tools.

Government must also establish mechanisms to provide these services to all members of society—including those without access to digital channels. The right model depends on the characteristics of the region in question. In areas with concentrated populations that are not digitally savvy, it may make sense to establish a brick-and-mortar government service center—one that can help people conduct all government transactions. In places where the population is spread out over a large area, other approaches will be better. The government in Taiwan has created a corps of roaming civil servants who travel to rural areas to help people who lack access to or knowledge of digital tools.

Services of the second type are more complex. They involve a longer-term relationship between government and citizen, they do not follow a fixed process, and they require the expertise of highly specialized employees. These services include long-term unemployment assistance, drug addiction treatment, and prisoner reentry support. AI can improve decision making in such services, but a significant human element will likely remain. For example, AI may be used to create better matches between job counselors and job seekers, provide a more thorough screening of professional skills and needs, and identify training opportunities. But the job counselor will still be critical in providing motivation and guidance—though he or she may use AI-driven information and insight to provide tailored support. For complex services, the single face of government can connect citizens to the right departments or agencies. But specialists within those entities would manage the relationships.

Some forward-thinking governments have already begun to make the overall shift toward the single face of government. In the UK, for example, the websites of 25 ministerial departments and 385 other agencies and public bodies have been merged into a single website, Gov.uk, which has begun offering e-services. At the same time, recognizing that not all citizens will be comfortable engaging via digital channels, the UK government is also transforming how it delivers services through other channels, including phone and face-to-face interaction.

Bringing It All Together

The four shifts work interdependently to create a more effective, adaptive government. (See Exhibit 3.) The establishment of priority clusters helps government identify critical issues. Functional accelerators cultivate government expertise in rapidly advancing areas. Agile teams help harness that

expertise to create new solutions to high-priority challenges. And the single face of government delivers those solutions efficiently to the people who need them.

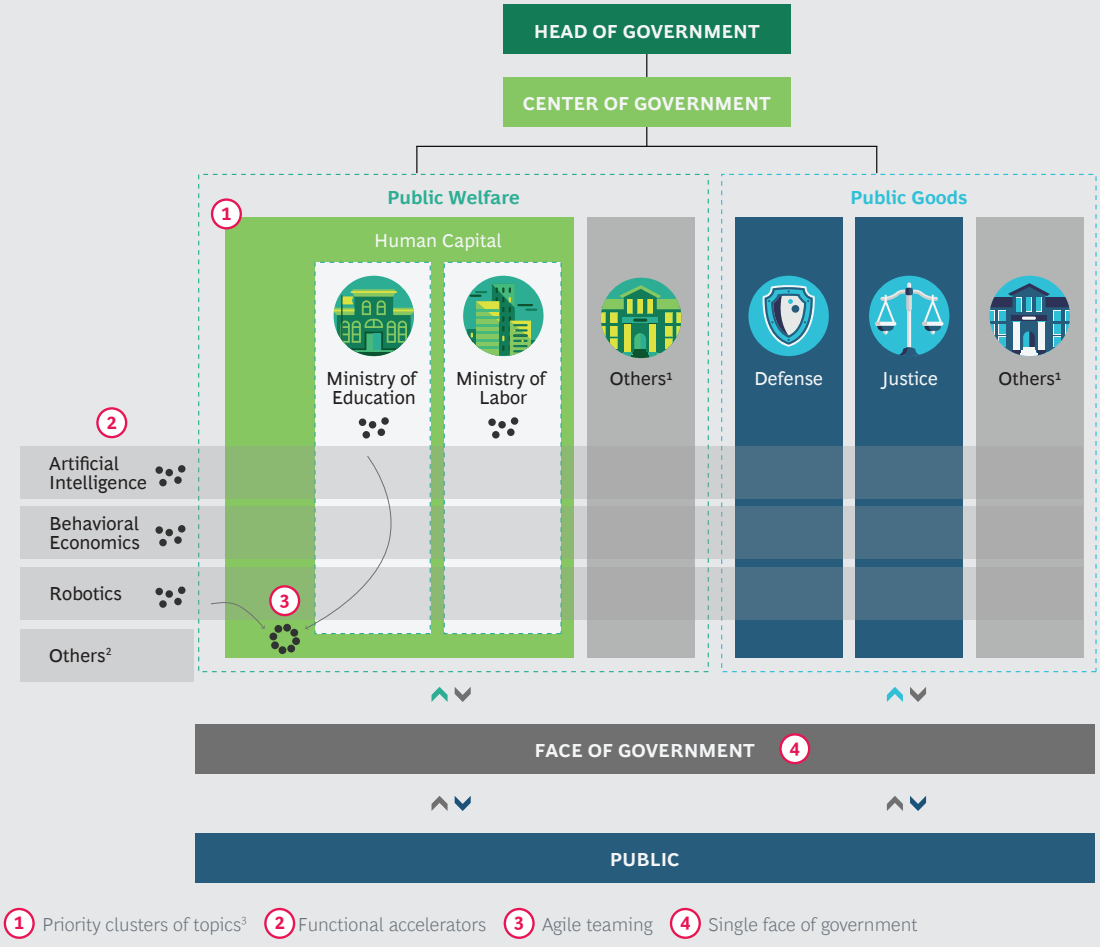
Although these shifts can create a step-change improvement in the way governments operate, they are by no means the only adjustments required. Governments the world over are already making, and will continue to make, other important changes. They are becoming leaner through the adoption of shared services across functions and through the use of digital tools that improve efficiency and reduce headcount. They will increasingly leverage third-party, private-sector providers to deliver some government services. And they will continue to strengthen ties with local governments, which enjoy a closer connection to citizens and have, in many cases, proven adept at coming up with innovative solutions. Stronger ties between federal and local governments will benefit both.

How to Get There

Governments need to think strategically about laying the groundwork for change. The foundation must include broad political consensus and some early evidence of success. Public leaders can take three concrete steps to establish that foundation.

Step one: Establish the vision. Government must establish a vision that articulates both a strong case for transformation and the outlines of the new structure. The vision should identify which areas have significant overlap and are candidates for clusters, the types of accelerators needed, and the areas in which agile ways of working will be most useful. It should also spell out clearly the

EXHIBIT 3 | A New Government Blueprint



Source: BCG analysis.
¹Represents the many other ministries/agencies that exist in each category but are not relevant to our examples.
²Represents the other accelerator topics that are possible but are not relevant to our examples.
³In Some priority clusters, the original ministries are eliminated and combined into a new entity.

challenges and inefficiencies of the current government structure. Making a strong case for change can galvanize the civil service and build public support for the transformation.

The broad outlines of the new structure will differ according to a country's politics and culture. The transformation is a long-term effort, and unforeseen developments are bound to arise. Painting a picture of the end state as a set of behaviors and principles—close coordination among related topic areas, for example—rather than as a detailed, predetermined architecture will allow flexibility in the process.

Step two: Assign clear ownership of the restructuring effort. One group or entity must be tasked with driving the redesign, and must be able to submit proposals directly to the head of government. To avoid conflicts of interest, it should be independent from other entities in the existing public administration and be empowered to request information from them.

There are a number of proven approaches to creating such an entity. Many countries already have units responsible for improving the structure and operations of the civil service. Others have created temporary structures to assist in large public-sector transformations, such as the Transition Planning Office in the US, which managed the launch of the Department of Homeland Security in 2002. Still others have established "delivery units" to drive the execution of key government priorities.

Step three: Build momentum. Many excellent ideas in government stall in the face of complex bureaucratic obstacles. To prevent that from happening, governments can take three actions:

- **Create an initial set of priority clusters.** Plans should be developed and executed early to create two or three high-priority clusters. These efforts will be in areas where tough challenges exist and where the impact on citizens is direct and significant. The vision-setting process identifies the areas that are the best candidates for combining into clusters. In some cases, the overlap between departments or ministries will be so extensive that it will make sense to merge them into a single new entity. In other cases, the overlap will not be as obvious or extensive, but grouping into a new cluster will improve communication and coordination on critical shared topics.

- **Begin the move to a single face of government.** Governments should do some preliminary research to understand what citizens need from their government and how they currently go about accessing those services. Armed with these insights, governments can identify where service offerings can be consolidated and simplified. Creating a single government hub along the lines of the Gov.uk website is a good starting point. The work of integrating all data and systems on the back end can follow once that single face of government is established.

- **Plant the seeds of agile across government.** An agile functional accelerator, an entity that can help government build expertise and talent in agile approaches, should be quickly established. A few departments or agencies should pilot agile approaches; their efforts can be powerful test cases for other government units. In these pilots, teams address important issues or problems (improving a particular service or program, for example). Each team should include agile professionals from the accelerator, as well as other relevant public- or private-sector experts from fields such as technology, innovation, or behavioral economics. The accelerator should ensure that all top managers in the units that are running pilots have been trained in agile so they can use the principles on an ongoing basis.

REMAKING the government structural blueprint is an ambitious undertaking. But government leaders need not attack the problem all at once. They should view the process as a journey and take some initial steps, quickly creating some priority clusters and launching pilots that can build government expertise in critical new areas. Experiment, get proof of concept, and build buy-in for the overall effort. The time for discussion is long past—it is time for action.

NOTES

1 The four countries are Australia, Estonia, India, and the US.

2 The World Bank, *World Development Report 2016: Digital Dividends,* May 2016.

3 Institute for the Future and Dell Technologies, "The Next Era of Human-Machine Partnerships," 2017.

MASTERING TRANSFORMATION IN THE PUBLIC SECTOR

By Agnès Audier, Rodolphe Chevalier, and Lucie Robieux

Public-sector actors—no less than private sector ones—now confront a world of unprecedented disruption. Environmental dangers, demographic and cultural shifts, rising expectations of efficiency in government, and, of course, rapid and ceaseless technological innovation continue to upend familiar paradigms. This circumstance makes transformation—achieving a fundamental change in strategy, operating model, organization, people, and processes—as much an imperative for the public sector as for the private sector.

But public-sector entities find transformation particularly daunting, especially when it comes to creating and communicating the case for change and ensuring sustainable delivery of results for stakeholders. BCG's "three peaks" framework for transformation in the public-sector guides organizations through every phase of the end-to-end transformation process. (See the exhibit, "The Three Peaks of Transformation in the Public Sector.")

Why Is Transformation in the Public-Sector Imperative?

While the public and private sectors face some common challenges, many differences demand an approach to transformation geared specifically to enable the public sector to address several critical issues:

- **Waning Trust.** Even though global public opinion surveys reveal low levels of trust in business, discontent with the political status quo is creating genuine upheaval: Witness the backlash against liberal economic and immigration policies evident in the Brexit vote in the UK as well as in the recent elections in the US, France, Germany, Italy, and Austria. Even among more moderate voters, skepticism about the effectiveness of public policy and government's ability to deliver on its promises runs high.
- **Rising Expectations.** Yet the public's skepticism about the efficacy of government action isn't slowing its demand for more public solutions to critical problems. How should countries manage border protection and immigration policy in an era of mass migration? What should they be doing to mitigate climate change? How can they protect their citizens against terrorism? What steps should they take to provide public services to both depopulated rural areas and burgeoning megacities? How should they gear their economies to be globally competitive in the age of Industry 4.0 without leaving large segments of their workforces behind?
- **Budget Constraints.** Even as expectations for government rise, many countries have

The Three Peaks of Transformation n the Public Sector

VISION
Defining and communicating the "why"

- Assess citizens needs and expectations
- Anticipate possible obstacles and identify the main barriers to change
- Align decision makers at the highest political and administrative levels
- Draw lessons from past failures
- Build stakeholder consensus on the need for action
- Define digital disruption and the goals and expected gains of digitizing processes
- Define and communicate measurable goals, with timelines for reaching them
- Explain expected results

DESIGN
Creating policy and action plans

- Design value-based public policy that is implementable and scalable
- Identify achievable short-term victories that can demonstrate that change is possible
- Allocate financial and human resources across the transformation effort
- Define digital mobilization plan that allocates IT resources and embeds agile methodologies in the ways of working
- Design detailed roadmaps with prioritized pilots or steams, risk management, governance, deliverables, and KPIs

DELIVERY
Ensuring sustainable results

- Engage active process monitoring by setting up a PMO to ensure the timely rollout of the roadmap
- Enable and train key resources to help navigate the change
- Design and implement IT-enabled tools to track progress
- Communicate successes
- Design incentive scheme to bolster success

Source: BCG analysis.

reached the ceiling of tax rates the public is willing to accept. Virtually all countries are experiencing a demand for greater efficiency in the use of reduced public funds. And this is pushing some public services and entities to the very brink of operational failure.

- **Employee Frustration.** Many civil servants have become frustrated and disillusioned in the aftermath of previous transformation efforts that failed. To make performance improvements possible, they must be reengaged.

- **New Opportunities and Demands Unleashed by Digitization.** Through the ability, for example, to design value-based, data-driven public policies, create new delivery models based on citizens' input, or streamline internal processes, digitization offers enormous opportunities for the public sector to transform the way it serves the public. It can simultaneously boost the quality and lower the costs of services delivered to citizens.

Public-sector organizations must climb three distinct 'peaks': vision, design, and delivery.

Acute Challenges to Public-Sector Transformation

In projects and discussions with dozens of politicians and civil servants in countries around the world, BCG has uncovered several acute challenges that public-sector actors face in undertaking transformation. Most prominent among them: defining the "why" of their transformation efforts, and delivering concrete and effective results from these efforts in the form of improved services for all their citizens.

Because public-sector entities find it challenging to define the why—that is, to create a vision for a transformation effort and what it should achieve—and bring about concrete results, they too often focus their attention on designing new policies and planning for their implementation.

The result is transformation efforts that fail because they lack buy-in from political and administrative leaders, employees, and citizens or because they fail to deliver on their promises. Such failures only fuel the skepticism about government that transformation is intended to overcome and make future successes more difficult to achieve.

Further challenges arise from the complexity and enormous size of the transformations that pubic sectors must undertake. First, whereas all corporate transformations set profits as their ultimate goal, the objectives of a public-sector transformation can't be broken down as simply. Second, cities, provinces, and nations must engage a large number of citizens. These populations are of course much bigger than a group of employees in a factory, division, or enterprise. Third, the public sector must engage all of their citizens in their transformation—across geographic locations, cultural and sometimes language differences, and diverse desires and needs.

With these challenges in mind, and based on our experience with both private and public-sector transformations, BCG has created a systematic approach to transformation in the public sector, refined with the input of government clients, to ensure attention to all components of an end-to-end transformation process.

BCG's Three Peaks Framework for Public-Sector Transformation

For public-sector organizations to have a successful transformation journey, they must climb three distinct "peaks": vision, design, and delivery. Government officials and top civil servants need to invest sufficient time and energy in all three phases.

These three peaks overlap and are intertwined over time; they are not linear. Consequently, a successful transformation must be adaptive and iterative, with feedback loops and prioritized waves of initiatives that are regularly redefined. In short, an organization's work on the three peaks runs in tandem and overlaps throughout a transformation process.

Peak 1: Vision—Defining and Communicating the Why

Defining the why of public-sector transformation efforts can be tricky because public-sector organizations serve many masters that have many different goals.

Although for-profit companies may have multiple stakeholders, public-sector actors tend to have especially large and heterogeneous assortments of constituents. In public education, for example, stakeholders include students and families, teachers and teachers unions, school administrators, private suppliers, public and private

funders, political parties, and local authorities.

Likewise, while private, for-profit organizations are typically oriented toward a single, ultimately monetary objective such as "sustainable value creation" or "cash," the public sector must address multiple, sometimes conflicting objectives that can be subject to rapid, politically driven change.

Establishing a transformation vision is harder in the public sector than in the private sector.

In the face of these challenges, establishing the vision for a public-sector transformation requires a great deal more effort than establishing one for a private sector transformation.

Ensuring Legitimacy and Building the Case for Change. Employees need to be convinced at the outset both that the case for change is compelling and that the change effort enjoys support from the top levels of the organization. In the public sector, a transformation effort must have legitimacy with the public as well. Building both the internal and the external cases for change entails a number of steps:

- Assess social needs and citizen expectations by drawing upon a full range of quantitative and qualitative sources—such as public data and reports, benchmarks, academic studies, press reports, and feedback from citizens and from other ministries and/or levels of government. In its work with public-sector clients, BCG uses its proprietary MindDiscovery approach to move beyond traditional focus groups to capture customers' needs, desires, and attitudes. ("France's Discovery Channel: How to Learn What Public Service Users Will Not Tell You")
- Anticipate possible obstacles and identify the main barriers to change.
- Align decision makers at the highest political and administrative levels to gain visibility and help maintain commitment over the long term.
- Draw lessons from past failures of similar reforms and policies.
- Build employee, citizen, and other stakeholder consensus on the need for action.
- Define the ways digital disruption is affecting service delivery and the goals and expected gains of digitizing processes.

Setting, Prioritizing, and Communicating Clear Objectives. With legitimacy established, public-sector leaders need to address their internal and external constituencies, in two steps:

- Define and communicate clear and ambitious but tangible, measurable goals, with timelines for reaching them.
- Explain expected results.

Peak 2: Design—Creating Policy and Action Plans

In the next phase of a public-sector transformation, organizational leadership must translate the vision into action.

Crafting Policies. In transforming the way government delivers services, public-sector actors must focus on delivering value for citizens, a concept that involves both the quality of service and its cost. One example of value-based public policy is value-based health care, which taps existing data on health treatment outcomes to identify and disseminate evidence-based best practices proven to work. Such an approach unites all the stakeholders in medicine around a shared objective and transparent goals.

The same value-based lens for public policy could, for example, be used to measure and improve outcomes in education, public safety, and social policy, among many others.

Policies should also be designed for short- and long-term impact. Short-term results are especially important for convincing both citizens and public employees that it is indeed possible to transform the way government provides public services.

Policies must be designed from the start for both sustainability and scalability, with internal and external constraints kept clearly in mind.

Finally—and critically, given the special challenges that the public sector faces—the policies must be designed to be implementable.

Allocating Resources. In this action-planning step, organizations define the required resources. The following are particularly important during transformations:

- Financial resources—budget, nature of financers, financing models and timetables

- Human resources—staff and teams, required seniority, governance, formal and informal collaborations

- Functional resources—HR departments, information systems, communication

Creating Detailed Roadmaps. Plans must provide a level of detail proportionate to the time span they cover. More specificity is need for shorter projects because creating opportunities for short-term victories not only brings credibility, as noted above, but also creates momentum and is useful for designing the dedicated structures that will deliver the most lasting and dramatic changes.

Many public-sector transformations in which BCG has participated demonstrate the usefulness of a testing phase before full deployment. Such a pilot phase focuses on selected beneficiaries, territories, or sets of services to help identify roadblocks from, for example, operational inconsistencies or unexpected side effects.

As with the vision phase, the design phase need take only a few months.

Peak 3: Delivery—Ensuring Sustainable Results

A major element contributing to the success of transformation programs is the implementation phase, where the policy takes shape in the field in a structured and sustainable way and change is achieved. BCG experience shows that in the private sector, the costs of supporting and implementing a transformation amount to about 10% of the expected gains.

Essential tasks for delivering sustainable results include the following:

- **Active Process Monitoring.** An entity should continuously monitor the launch and progress of the policy actions undertaken in the field, with dedicated and experienced staff. Such a project management office (PMO) helps avoid crises and bottlenecks and enables adjustments to initial plans as needed. The PMO should be led by people with adequate levels of seniority, empowered by access to top management, and armed with the ability to make and push decisions and change existing rules and regulations. The team must take a problem-solving approach that manages risk rather than avoiding it at all costs. The PMO must foster trust throughout the organization and work closely with it to allocate resources in order solve problems—including unexpected ones.

- **Enabling/Training Key Resources.** During this phase, training the people in the field—service providers as well as service recipients—is necessary to help them navigate the change. The key is innovative approaches that stimulate beneficial behavior changes among the citizens while maintaining their freedom of choice.

- **Designing and Implementing IT-enabled Tracking Tools.** Effectively evaluating the strategic and operational success of the policy requires implementing IT tools and systems for collecting data and tracking and analyzing outcomes.

- **Recognition and Rewards.** Departments and agencies should highlight and communicate success stories to recognize civil servants who have played key roles in achieving positive outcomes. Financial and symbolic rewards bolster success.

While the vision and design phases of a public-sector transformation should take only a few months each, the delivery phase requires resources and support all along the mandate timeline—typically for a few years.

Climbing Onward and Upward

In a world of incessant disruption, the public sector must envision, design, and implement any transformation effort as part of a continual process of improving its service to citizens. This approach to and mindset of transformation will enable organizations to build new capabilities and continuously adapt to evolving contexts and priorities.

FOUR STEPS TO HIGH-IMPACT STRATEGIC PLANNING IN GOVERNMENT

By Matt Boland, Troy Thomas, and Danny Werfel

How do governments fare when it comes to strategic planning and execution? Consider a recent session BCG conducted with a group of government leaders. To kick off the discussion, we asked for a show of hands: Who among you knows exactly what your agency's priorities are? A few raised their hands. We then asked, Who among you believes that your agency's strategic-planning process has had a real impact on your work? Again, just a few. Our final question: How many of you think that your agency can—and must—do better in this area? To that, everyone raised a hand.

Smart planning and sustained execution are needed to anticipate and navigate the increasing complexity and challenges facing government leaders around the world. Governments must make the best use of limited resources and mitigate the risks of economic and political turbulence. Despite these imperatives, public-sector agencies commonly fail to value strategy, and they rarely excel at strategic planning and execution. The result: government leaders struggle to change their organization's behavior and to drive progress toward the most important policy outcomes.

The key to upping government's game on this front is to understand what prevents effective strategic planning and execution and then to attack those challenges head-on. On the basis of its more than 50 years of working as a leader in strategy, BCG has developed deep insight into the barriers that confront the private sector and an understanding of how these obstacles also challenge the public sector. These hurdles include a planning system that is too focused on bureaucratic processes at the expense of outcomes. In the public sector, such challenges are compounded by the frequent changes in leadership that are tied to election cycles, entrenched hierarchies and regulations, and a culture of risk avoidance.

> The key is to attack head-on whatever prevents effective strategic planning and execution.

Drawing on 31 interviews with current and former public-sector leaders around the globe, we have identified four steps that governments can take to eliminate obstacles: promote a strategic culture, leverage the organization's purpose to catalyze action, transform the operating model, and build a system for execution and learning.

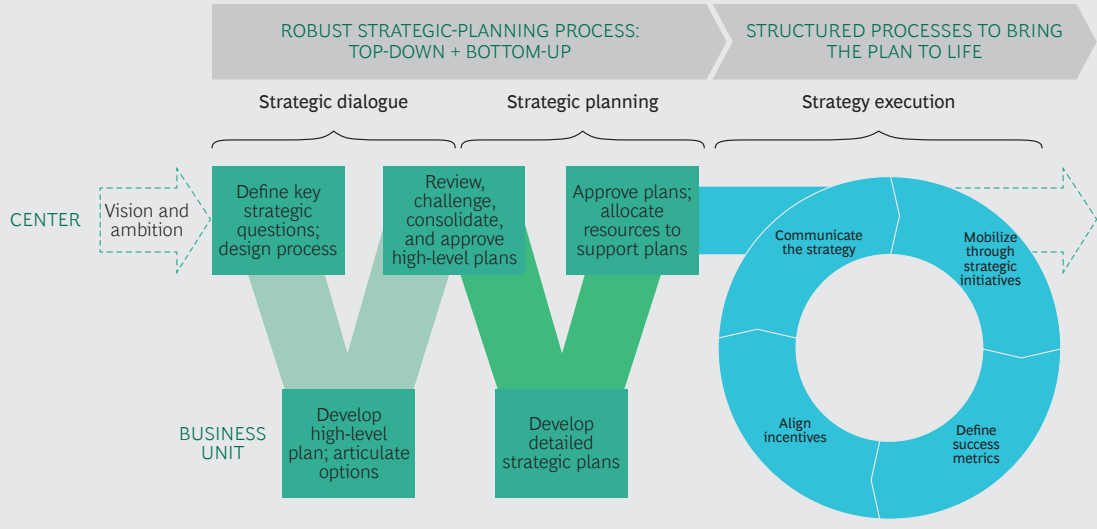
Remaking the strategic-planning process is not about creating optimal meeting schedules, metrics, or mission statements. It is about building a system that allows agency and department heads to determine priorities, put adequate resources behind those priorities, and then hold people accountable for results. It is about solving real problems. When they achieve this, government leaders find that they are fighting the right battles and delivering lasting value for their citizens.

Government's Strategic-Planning Imperative

It is through strategic planning and execution that both private- and public-sector organizations develop and implement strategies, whether for corporate growth or for achieving a federal mandate. Through this process, organizations reconcile their responsibilities with their resources and set strategic priorities. When done well, strategic planning and execution can effectively account for and manage the numerous variables that affect their plans and programs and make the important connections within and among stakeholders, allowing them to work in concert toward critical goals. Sustainable and flexible execution of the strategy promotes the likelihood that government will deliver on its promises, improving citizens' confidence and promoting their trust.

Exhibit 1 illustrates one highly effective approach to strategic planning: the W-shaped model. (See *Four Best Practices for Strategic Planning*, BCG Focus, April 2016.) This approach starts with leadership's definition of the organization's vision and strategic ambition. Next, the division, field unit, or function heads are asked to respond to a series of pointed questions about the organization's big challenges relative to this vision. Answering these questions, the unit or function heads suggest concepts or proposals for meeting the challenges. On the basis of their subsequent discussion, management selects proposals and assigns the unit or function heads responsibility for developing detailed plans for putting those proposals into action. Management drives execution of the plan, as well as a

EXHIBIT 1 | The W-Shaped Approach Can Drive Effective Strategic Planning and Execution



Source: BCG analysis.

system for learning and adapting that is based on new information.

Mounting Public-Sector Challenges. The need for this sort of effective strategic-planning and execution process in government is intensifying in the face of four difficult realities.

First, owing to the scale and pace of change, including changes driven by advancing technology, today's operating environment is more complex than ever before. Case in point: the democratization and proliferation of advanced technologies is upending the way governments manage risks to security and their economies. Second, finding solutions to most public-sector challenges requires the involvement of more stakeholders—in and out of government—than in the past. For example, responding effectively to the risks posed by infectious diseases such as the Zika and Ebola viruses required international collaboration within and across government agencies as well as the private sector. Third, many governments are facing ongoing erosion of public confidence. A 2017 Pew Research Center survey, for example, found that only 18% of Americans trust the national government to do what is right. A 2015 survey by the Organization for Economic Cooperation and Development, meanwhile, found that just 43% of citizens in its member countries trust their government. Fourth, many governments are feeling the squeeze on discretionary spending due to rising deficits, aging populations, and the increasing cost of government services.

Obstacles to Effective Strategic Planning. Amid such challenges, strategic planning becomes more important than ever before. However, in many public and private organizations, such planning is frequently undervalued and poorly done.

Many of the obstacles are common to both government and the private sector. In numerous situations, the process is too bureaucratic, requiring multiple iterations and consuming too much time. It can also be too internally focused, failing to account for external factors or to learn from the experience of other sectors or similar organizations. Furthermore, in all too many cases, strategic planning excludes key stakeholders who are needed both for diagnosing challenges and for delivering outcomes. The failure to involve mid-level managers is particularly problematic because it can mean that the right issues are not elevated to the attention of senior leaders as they set strategy and that there is limited buy-in among the rank and file, weakening execution. Finally, there is a disconnect between the strategy and the incentive structure that is meant to promote follow-through on the strategic plan.

Public-sector organizations are, of course, quite different from private-sector companies. Some challenges seen in the private sector may be magnified in the public sphere while other additional issues that exist in government have no presence in the private sector.

For one thing, government leaders, especially political appointees, generally have a more limited window of time for action than do

private-sector leaders. That's because many countries have high turnover among government leaders in. In the US, for example, not only does a considerable majority of the federal government's most senior political leaders turn over every four to eight years, but the average tenure of a federal government, Senate-confirmed appointee is only 18 to 30 months.

At the same time, although many government leaders have solid policy expertise, a large number have little of the strategy and management expertise that comes from running a large and complex organization. As a result, it's not unusual for them to delegate responsibility for the strategic-planning process, and they are not always personally invested in execution. This lack of engagement at the top filters down, leading to marginally engaged staff members who are not optimally committed to developing and implementing the organization's strategy.

Finally, many government organizations don't view risk as private-sector companies do. Public-sector organizations often focus on short-term outcomes and compliance with rules and regulations rather than on long-term strategic results. Consequently, creating a strategy that can be adapted in the face of changing environments or new information is difficult.

Building a Strategic-Planning Process That Delivers Impact

To improve their strategic planning and execution track record, government leaders should focus on steps that leverage four critical areas: culture, purpose, operating model, and execution. (See Exhibit 2.) Steps taken in these areas affect all stages of strategic planning—and can enhance the entire process. Of the four, culture is the most critical. It shapes and is shaped by the other three major levers for change. Changing an organization's culture will unlock opportunity in the other three areas and help embed change in the organization.

Promote a Strategic Culture

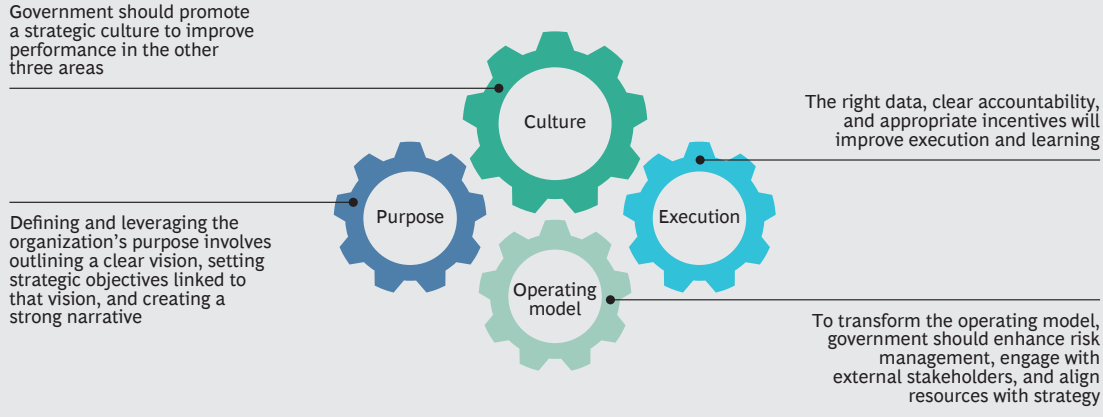
Certainly, there are pockets of robust strategic planning in government, particularly within the defense sector: it is ingrained in the military profession. But in too many public-sector organizations, either the culture does not embrace the value of strategic planning or the organizations' leaders aren't committed to that process.

To ensure a successful culture shift, the head of the agency or office must take a leading role in strategic planning, middle management must be involved from the start, and the risk-averse mindset inherent in government organizations must be addressed.

"Strategy is ultimately the top leader's responsibility," according to one former senior government official. "You can't delegate responsibility for leading change." Public-sector leaders must personally drive the effort to set strategic priorities, build buy-in, align resources, communicate the strategy consistently, and hold people accountable for executing the plan. And they should make it clear to everyone in the organization that the unit responsible for strategic planning has a clear mandate from the top.

To draw midlevel management into the strategic-planning process from the start, senior management

Exhibit 2 | Action in Four Areas Can Improve Strategic Planning and Execution



Source: BCG analysis.

must identify key staff throughout the organization who have responsibility for implementing policies and programs and bring them into the process through cross-functional teams.

In addition, leaders should link the day-to-day work of frontline staffers to the strategy by highlighting specific ways that their roles and responsibilities—and the strategic-planning system itself—can help eliminate the obstacles to achieving important objectives and directly contribute to solving citizens' real-world problems. Such steps will develop strategic thinking in personnel who are likely to be the next generation of leadership. And just as important, those steps will build buy-in for the strategy, making successful execution more likely.

clear sense of where we were going, why, and the role each group played in achieving our goals," she reported.

The conservative mindset that some government organizations cultivate in employees can be a serious impediment to execution of the strategy. It's important to find ways to reward and protect—not punish—those who take reasonable risks and achieve less than positive results.

The head of a large transportation department understood that risk aversion could seriously undermine the progress of an extensive infrastructure project that the department was managing. The staff knew that rather than confine traffic to one lane during the many months of construction, the most

> It's important to reward and protect those who take reasonable risks but fall short of success.

The former head of a major operational directorate within a large government tax authority told us, "If a team is closely involved in developing the strategy, they will feel ownership of it. If they feel ownership, then they will want to make it work."

For the head of one large government diplomatic organization, ensuring commitment to the strategy among the rank and file was critical for delivering results. She initiated and personally led a strategic-planning process when she took the helm of the organization a few years ago and involved managers from across the organization in the effort. In addition, goals were designed to drive agency-wide cooperation across various functional and regional silos. "This created a

cost-effective way to manage one element of the project would be to completely shut down traffic for several weeks. The head of the department knew that shutting down all traffic would generate short-term public outcry, but he was willing to take that risk. He understood the long-term public benefit and cost-saving opportunity that could be achieved in expediting the project, and he made it clear to his staff that he would own the decision should public backlash be directed at any of them.

Leverage the Organization's Purpose

A key element in effective strategic planning is a clear sense of purpose, which consists of an organization's timeless reason for being—its mission—and the strategic goals for fulfilling this mission within a set period of time. Strategic planning and execution allow organizations to deliver on that purpose by setting priorities, aligning resources, and mobilizing and measuring action.

The following three actions help overcome the barriers to effective strategic planning and execution that stem from the organization's overall sense of purpose:

- **Reinforce the core mission of the organization.** In addition to reinforcing the core mission, which is generally rooted in law, leaders must articulate a compelling vision for advancing the mission over a three- to five-year period. This will provide critical direction and energy for the organization and ensure that all staff members understand where the organization is moving.

- **Set clear strategic priorities to achieve the vision.** This step may seem obvious, but it is rarely easy. "Deciding among top priorities is a challenge," a former senior advisor in the US executive branch told us. "Not everything can be a priority. You need ruthless prioritization." Staff will play a key role in this area, helping to frame the inherent tensions and tradeoffs among these priorities.

- **Communicate the strategy throughout the organization.** Organization leaders must make strategy come alive by providing their staff a consistently vivid strategic narrative that is relevant to their day-to-day activities. This story should be related energetically throughout the organization: the top leaders communicate the strategy to their direct

reports, who then communicate it to the people they manage, and so on. The cascading narrative should show workers how their actions, driven by the new strategy, directly contribute to improving the organization's performance. Such clarity can go a long way toward improving the odds of successful execution of the strategy.

Consistent messaging was a powerful tool for mobilizing staff behind a large government defense agency's new strategy. To help drive change, a variety of carefully drafted messages were developed to communicate the strategy, including a short "bumper sticker" message, a three-minute elevator pitch, a series of videos from top leaders, and detailed documents and presentations. One senior leader recalled that the head of the agency "joked that the strategy bumper sticker message would end up on his tombstone." Still, consistent communication was critical. "Absent that kind of commitment to messaging of the strategy," she noted, "it is difficult to overcome the cultural resistance to change."

Transform the Operating Model

Typically, the public-sector operating model—the governance, structure, and processes of a government agency—is hierarchical, rigid, and not adaptable to changing circumstances. Action in three areas can eliminate those impediments and, in so doing, enable a more effective and efficient operating model:

- **Communication and Engagement with External Stakeholders.** Government leaders should create a clear process for working with, for example, appropriators, authorizers, budgeting agencies, the office of the president or prime minister, citizens, and industry in order to secure the necessary resources and support for the strategic objectives.

- **Integrating Risk Management in the Strategic-Planning Process.** Strategic planning and risk management must be integrated so that the organization can anticipate and prepare for the full spectrum of potential problems and opportunities that could arise during execution. In many cases, the chief risks relate to insufficient statutory authority, resource constraints, and weak or unwilling external partners. And effective risk management requires looking at the organization's entire interrelated portfolio of programs, rather than addressing only risks that are within silos or that are perceived as external to the organization.

- **Adapting Processes to Support the Strategy.** New programs, policies, and the ways that their success is tracked and that resources are allocated should be directly linked to the organization's strategic objectives. The use of agile teams—groups composed of members from functions throughout the organization and designed for rapid experimentation and adjustment—can provide powerful support in the design and development of these programs and policies. (See "Taking Agile Way Beyond Software," BCG article, July 2017.) Such teams can generate quick insight on which initiatives are working and which are not. In addition, what success will look like for each strategic objective should be clear, with specific performance goals, indicators, and milestones identified for assessing progress. Furthermore, leaders must ensure that the disposition of resources and talent and the decision-making process are driven by the organization's strategic priorities. The head of the large diplomatic organization mentioned previously says that more often than not, this is the exception in government. In many cases, she noted, "the strategy is not viewed as something that helps us get resources. There's very little correlation between the strategy and budget requests."

Leaders within the large defense organization described earlier not only created multiple ways to communicate the strategy, but also built a process to ensured that strategic priorities were supported with the necessary resources. During the budgeting process, one military department cut back on orders for equipment that was needed to support a crucial strategic objective. The aim was to trim purchases in order to invest in modernizing other conventional capabilities. Armed with a clear understanding of the priorities, senior defense organization leadership directed the department to fund strategically important equipment while allowing the department to determine how to offset the costs by spending less on other, less critical programs.

Develop a System for Execution and Learning

Agencies that lack critical tools and data that can be used to measure progress cannot adjust course on the basis of new information. In addition, when strategy is not integrated into the day-to-day actions of frontline staff, employees can focus too much on programs that are not relevant to the organization's strategic priorities.

Doing an effective job of executing and adjusting the strategy hinges on three elements: the right data, a system that values accountability and aligns incentives, and the ability to adapt where necessary. The involvement and commitment of frontline managers is critical to success in all three areas.

The data required includes not only upfront information about what works in terms of programs and initiatives—data that can drive the initial strategic-planning process—but also timely and action-promoting data during the execution phase. Such information can come from both internal and external sources. Internal data may be the result of monthly strategy "pulse checks" with staff, quarterly or annual strategic reviews with senior managers, and evaluations of specific programs. External data can and in many cases should include information on the impact of certain programs in the real world. If the data is to make a difference, it must be available, reliable, and timely. A senior executive in a large finance and tax agency told us that it's important to "measure what matters—and movement will happen on things you measure."

The second element noted above—accountability and incentives—is critical to successful execution. Leaders should hold regular evidence-based progress reviews with key managers, including officials who have direct oversight of programs that support each strategic objective. The sessions should focus on performance data for each program and allow in-depth discussions that include suggestions related to improving performance and mitigating risk. These sessions must be held more frequently and cover more detail than the annual or quarterly strategic reviews that many government departments and agencies already conduct. At the same time, the organization should create clear and valued incentives, including formal and informal awards and recognition for those who adopt new behaviors and contribute most to achieving objectives.

Without accountability and incentives, even the best strategic plan may never become reality.

The most effective government organizations understand that without accountability and the right incentives, even the best strategic plan will likely never become reality. One large agency responsible for managing much of the government's real estate holdings held biweekly meetings at which staff reported progress on strategic priorities. According to the agency administrator, that "repeatable rhythm" of reporting kept the team focused on those priorities. A public-housing-and-finance organization, meanwhile, tied management's performance evaluations to the accomplishment of the agency's strategic objectives. This required identifying the right metrics for tracking progress against the objectives and instituting a credible and timely review process that integrated that information.

The third element—the ability to monitor performance in a way that helps the organization adapt—can result in two types of adjustments. First, data on the progress of key strategic objectives can help the organization alter the way it is executing its existing strategy. The strategic objectives may not change, but the way in which the organization tries to achieve them may. The second involves revision of the strategy itself. The need for such a shift can become evident only if the organization steps back periodically to assess whether things have changed in the overall operating environment. Such analysis may reveal that the assumptions underlying the original strategy have changed, making it necessary to revisit the strategy.

GOVERNMENT agency and department heads worldwide can confirm that, as public-sector leaders, they are struggling to be successful in a uniquely challenging period. Political upheaval is the norm, and technology continues to alter the ways that society functions.

In such an environment, government institutions must up their game or risk becoming irrelevant to the citizens they serve. Because confidence has slipped and must now be rebuilt, governments will be forced to take a major leap in the ways that they plan and execute strategy. Government leaders must institute a strategic-planning process that identifies the right priorities and drives decision making that supports those priorities. Taking steps in the four areas we've outlined—culture, purpose, operating model, and execution—can move governments from endless rounds of planning to delivery of results.

CHAPTER 6

CREATING AGILE GOVERNMENT

By Miguel Carrasco, Peter Geluk, Kyle Peters, Deborah Lovich, Vikram Bhalla, Elizabeth Lyle, and Vinciane Beauchene

AGILE AS THE NEXT GOVERNMENT REVOLUTION

By Miguel Carrasco, Peter Geluk, and Kyle Peters

Politicians are often disappointed with how long it takes to implement policies and how much the final outcome can differ from what they or their stakeholders expect. Meanwhile, citizens who want high-quality services are often let down by second-rate digital solutions and the complexity and impersonal nature of their dealings with government. Taxpayers are frustrated by stories of failed projects and the waste and inefficiency of a system that tends to value process over outcomes. And in a risk-averse environment of hierarchical and bureaucratic silos, talented, mission-driven public servants become disillusioned. With the gap widening between expectations and what's being delivered, governments need to fundamentally transform the public-sector operating model. The key to doing so could be the practices collectively known as agile.

An approach to software engineering that emerged in the early 2000s, agile is quickly becoming a new organizational paradigm. Using agile methodologies, multidisciplinary teams work in fast, iterative sprints. Most governments are likely to have adopted some form of agile when implementing technology projects, and some public-sector organizations are using it in the delivery of digital services. What is new is the idea of applying agile ways of working at scale across an enterprise. Private-sector organizations such as ING Netherlands have done it and are reaping significant benefits. Increasingly, public-sector organizations, such as the World Bank, are likewise beginning to adopt agile at scale.

The potential benefits to all stakeholders are considerable, but implementing agile is not for the faint-hearted. Structures, processes, behaviors, and cultures that have evolved over decades are hard to shift. The public sector also faces unique challenges in the need to operate within legislative frameworks and in the nature and timing of political decision making. It must work with less labor flexibility, including constraints on layoffs and rigid job descriptions, levels, and remunerations. Moreover, unlike other organizations, governments must constantly consider the voters.

But organizations that make the shift to agile can deliver higher-quality programs and services more efficiently and with less risk. And by giving employees greater autonomy—accompanied by clear guidance and leadership on purpose and strategy—they can unleash the huge productivity dividends currently lying dormant within today's public-sector workforce.

The Benefits of Agile

Digital technology has had a transformative impact on the way people consume services. Apps, chatbots, and virtual assistants allow them to access services anywhere at any time. As these technologies drive new consumer behaviors across industries, citizens' expectations of public services are also changing, and many governments are responding by investing in digital capabilities. Artificial intelli-

gence, machine learning, and predictive algorithms could enable dramatic improvements in policy analysis and service delivery. But while technology is a powerful tool, it can be hamstrung by legacy structures, cultures, and ways of working. In the public sector, agencies and even internal functions tend to be siloed, and leaders are incentivized to focus on their own vertically organized and sometimes competing domains.

Agile involves a mindset that prioritizes a clear, overarching vision over prescriptive detail.

By contrast, agile helps teams organize to deliver high-quality output quickly. It involves a shift in mindset that prioritizes a clear, overarching vision over prescriptive detail. It facilitates flexible leadership and organizational structures, cross-functional teams, ecosystems of talent, and collaborative cultures and behaviors. When scaled up and applied across an enterprise, agile breaks down functional silos, increases transparency and accountability, and empowers employees.

Agile uses an iterative "minimum viable product" methodology, in which features of a product or service are developed sufficiently for first users to grasp the concept and provide feedback. That feedback informs the next iteration, which is shared with a larger number of users, and so on until the product or service is being used at scale.

This approach leads to faster, more effective product and program design than is possible using the traditional "waterfall" methodology. With waterfall, separate groups design and build a product or service in sequence. Each group must wait for the preceding team to complete its work before moving ahead. Besides being slower than agile, the waterfall method carries the risk of misunderstandings during handoffs, which can require work to be redone. In contrast, agile's process of continual testing and iteration not only improves products and services but also reduces the risk of implementation failure. In fact, research by the Standish Group indicates that agile ways of working cut this risk almost in half.

Agile at Work

We have seen these powerful effects at work in the corporate sector. When ING Netherlands adopted agile methods, it increased both speed to market and customer centricity in the face of tremendous disruption in the financial services industry. ING was inspired to change its approach by the ways of working of digital natives such as Netflix and Spotify. In addition, Zappos' adoption of "holacracy"—in which decision making is distributed across self-organizing teams rather than being assigned by a management hierarchy—inspired the transformation of ING's call centers and operations. Numerous companies, including Renault–Nissan–Mitsubishi, have likewise implemented agile in order to transform their business operations.

Agile has been applied in the public sector, too. For example, after the World Bank rolled out agile ways of working across the organization, the impact of its global development programs increased and employee engagement improved. (See the sidebar, "Agile at the World Bank.") The UK's Government Digital Service, the US Digital Service, and 18F, a unit within the US General Services Administration, are examples of the same thinking and approaches at scale.

In these and other organizations, the transformation has occurred not by changing individual projects or departments but by moving large parts of the organization, or even the whole enterprise, to a new way of working—one that provides an effective means of tackling a wide variety of entrenched problems. In policy settings, agile can help set the clear policy goals needed to prioritize and structure the work. It can be used to run test-and-learn experiments in order to determine the best way to achieve a desired outcome, often enabling more cross-departmental collaboration. And it has wide applications in the design and continuous improvement of services that are more customer-centric and efficient and more rapidly introduced.

Implementing Agile in Government

Agile is not a silver bullet. Nor is there a one-size-fits-all model that can be easily transferred from the private sector to government. No one should underestimate the challenges governments will face in adopting agile ways of working.

Government organizations have generally been designed to develop services and implement programs using the waterfall approach. But multiple targets and differing policy objectives in the public sector can create complexity and conflict, making it hard to

AGILE AT THE WORLD BANK

In 2014, the World Bank—which operates in 110 countries with a staff of 17,000—worked with BCG on a series of projects to help rebuild its operating model after instituting a major reform that transformed the organization from numerous regional silos into a global enterprise.

There were several challenges. It was taking the bank up to three years to approve loans because of multiple review cycles, long wait times, and a proliferation of checkers versus doers. Management had many layers, the ratio of direct reports to managers was too high, and meetings were inefficient—often with more than 20 participants, each of whom had a chance to speak in turn. As the former head of operations, Kyle Peters, put it at the time: "Our staff love what they do, but they hate how they do it."

The bank needed to become more nimble. That meant reforming the organization and management of teams, clarifying which individuals were empowered to make decisions, reducing complexity, and eliminating redundancy from internal processes. An agile methodology provided a framework for a staff-led transformation, with no top-down mandates or targets and the opportunity to test changes in four-week sprints.

Meanwhile, new tools and practices were introduced to prioritize activities, track impact, run meetings, and allocate work, with feedback supporting continuous improvement and a collaborative culture. BCG coached ten "agile fellows" for 12 months, teaching them to be the change makers who would sustain the bank's journey.

Agile proved successful. In year one, 90% of pilot participants said that the interventions they tested saved time and improved quality, the board approved two policy change proposals, and employee engagement scores improved.

set goals. Changing longstanding governance, budget, and funding models can be particularly difficult.

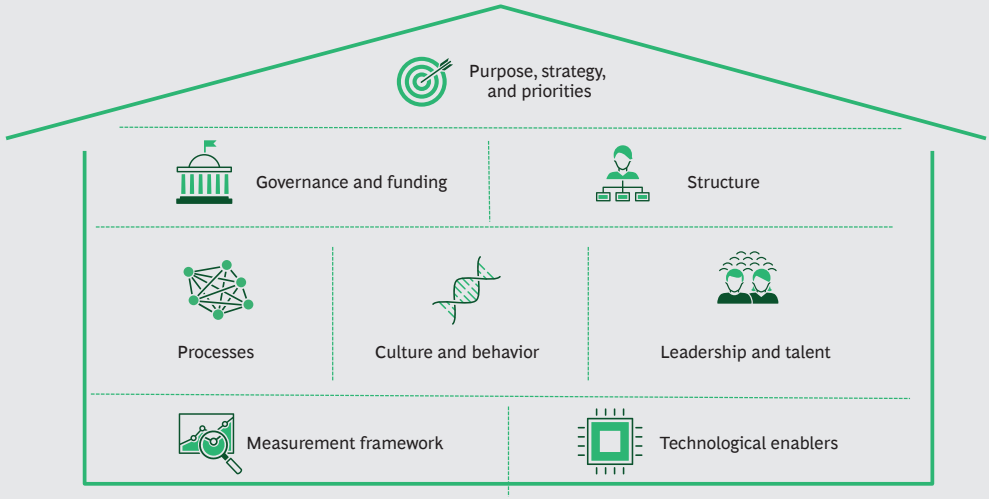
Agile demands other changes as well. Measurement and accountability frameworks need to be redesigned, and internal and cross-agency silos broken down. Organizational culture, leadership styles, and professional mindsets need to be reoriented.

Despite the challenges, interest in agile in government is growing. While approaches will vary, a number of key areas must be addressed in any transformation. (See the exhibit, "BCG's Agile Operating Model Framework.")

They include:

- **Purpose, Strategy, and Priorities.** Agreement on these is essential before an organization can allocate resources appropriately and start to build the infrastructure that agile calls for. Ensuring that everyone is clear on purpose and strategy and understands why and how the organization must change is critical to enabling autonomy at all levels.
- **Governance and Funding.** Organizations should move to a more flexible, capacity-based funding approach, with regular reevaluation of initiatives to ensure that they are on track and merit continued funding.
- **Structure.** Flatter organizations with wider spans of control and clearer accountability and ownership of programs empower the workforce to take responsibility for decision making and problem solving. Line managers then become coaches and facilitators rather than bosses.
- **Processes.** Cross-agency coordination, cross-functional teams, and close cooperation with citizens are essential to flexible, multidisciplinary ways of working.
- **Culture and Behavior.** At the heart of an agile transformation is a change in culture and behavior. Agile prioritizes autonomy at all levels and empowers teams to experiment with alternative solutions to problems. But autonomy can descend into chaos unless teams at all levels are clear on purpose and strategy. That depends on strong leadership and clear and frequent internal and external communications.
- **Leadership and Talent.** Besides hiring and promoting top talent, organizations must base rewards on outcomes and peer feedback, with a focus on developing expertise and new career paths—practices that have yet to be widely adopted

BCG's Agile Operating Model Framework



Source: BCG analysis.

in the public sector. Leaders need a comprehensive understanding of the mission, purpose, and underlying principles of the transformation in order to ensure that teams at all levels are clear on the "why"—the organization's strategy and purpose. Then they need to let go, abandoning traditional command-and-control models and allowing teams to figure out the "how."

- **Measurement Framework.** To assess progress toward goals, data analytics should be more widely deployed across the organization. Transparency in measurement frameworks is essential and can be achieved by using digital tools and analytics to empirically assess and track improvement. Critically, data must be widely available throughout the organization.

- **Technological Enablers.** Agile requires a transition from heavy mainframe to more modular systems that give teams greater ownership of their end-to-end processes. Essential elements include the use of APIs (application programming interfaces); shared tools to manage the flow of work from idea through development and into customers' hands; continuous delivery, automated testing, and DevOps (which unifies software development and operation); and a defined technology architecture that identifies the data important to the organization and the systems that create and manage it.

Of course, as with any large-scale change effort, resistance is likely to emerge along the way. The transition to agile can, for example, create uncertainty among many in the workforce. It's therefore essential for leaders to be clear on what everyone's role will be in the new organizational structure. Agile is a highly transparent way of working and some may find that uncomfortable. And since it brings about a fundamental shift in the way citizens are served, effective change management is critical.

Starting with pilots in one or two areas can build trust, allowing others to see the benefits and paving the way for adoption and rollout throughout the organization. Conversations about the deployment model and how to make the pilots successful are also essential. But while a variety of tools, processes, and methodologies can be used to support agile—from collaboration software to daily stand-up and retrospective meetings—these must be complemented by a corresponding change in mindset.

CHANGING institutions characterized by highly centralized, top-down decision-making processes and risk-averse cultures will be tough. But governments have little choice. Citizens expect to get what they need from the public sector easily and quickly, to provide feedback on the services that they receive, and to add their voices to decision making—at any time and from anywhere. Governments that make these things possible will find that they can unlock the latent potential currently trapped inside the public-sector workforce, while reaping the benefits of greater operational efficiencies and a new, more effective relationship with their citizens.

AGILE STARTS—OR STOPS—AT THE TOP

By Deborah Lovich, Vikram Bhalla, Elizabeth Lyle, and Vinciane Beauchene

Some leaders get it. Others need to. For organizations to embrace agile ways of working, their senior executives have to change their ways of working. This isn't as simple as it sounds: agile behaviors are not the behaviors that propelled these people into senior leadership positions in the first place. Unlearning what led to personal success in the past is a tall order.

There's a lot at stake. Entire companies, or divisions of companies, are making huge investments in transformation programs in pursuit of agile's many benefits. These include greater speed, better product and service quality, lower costs, and heightened customer orientation. But if leaders don't change their own behaviors, they will limit the return their companies can realize on their agile efforts.

There's no one model for agile leadership, but more and more we see successful executives doing four things.

They prioritize, focusing on the few agile behaviors that they see as most important for themselves and their organizations. There is a general set of agile behaviors, but prioritizing those that the organization most acutely needs requires self-awareness of the existing culture. Achieving organizational alignment means being able to articulate the priorities in a way that the organization recognizes and can act on.

For example, one European financial institution that converted its entire organization to working in agile ways described the priorities for its leaders in these terms:

- **Openness.** Be receptive to feedback on your own behavior and activities.
- **Trust.** Feel comfortable that not everything will be planned; let trial and error show the right direction.
- **Collaboration.** Go for the greater good of the company, which is not necessarily good for a particular unit.
- **No Ego.** Have everyone speak with one voice—as a unified organization.
- **Transparency.** Call out those unwilling to change or to reflect the "new world."
- **Accountability.** Hold one another accountable.

The CEO of a North American bank instructed his top-management team to drive results, adapt and change, unlock people's potential, and speak up for the good of the company rather than for the individual team member's function or division.

Agile's benefits include greater speed, better product and service quality, and lower costs.

They commit themselves to personally acting as role models of behavioral change. It's easier to talk about what needs to change than to publicly commit to new behaviors. The most effective agile leaders commit themselves to daily workouts—in full view of their colleagues and team members—that involve individual and leadership team action plans. These plans are explicit about how leaders model new behaviors in their own work and routines, what and how they communicate, and how they engage the organization. The plans are specific and timely. For example, "I will push decisions down to the front line, cancel meetings, and instead attend team stand-up meetings to see how I can help every day or week."

At the European financial institution mentioned previously, all executive team members committed to holding weekly "town hall" meetings in the company café. In addition to providing general business updates and answering questions at these meetings, they spoke about their personal-development agendas. In doing so, they publicized their commitment to changing their own behaviors. They enable and empower themselves, each other, and their teams. Effective leaders know that behavior change doesn't happen just because they want it to. They seek help—in the form of coaching, feedback, and opportunities—for reflection and skill building. They don't consider seeking assistance to be a sign of weakness. They understand that to achieve any operational improvement, they must invest to get results. Coaching and putting real time into changing personal and team behavior are investments in becoming a better agile leader. Effective leaders recognize that others need help, so they often personally play the role of coach—which is very different from the role of decision maker—for their

teams. And in coaching others to work differently, they reinforce their own new behaviors.

One of the most difficult agile behaviors, especially for those who have grown up in command-and-control and risk-averse organizations, is pushing decision making down to staff closest to operations, processes, and customers. This is the essence of empowerment, but it does not come easy. A senior executive at a global automaker asserts that "the hardest thing is to learn to let go. It's like when you raise kids: you need to decide when to let go and when to tell them what to do."

At the same time, good leaders reinforce transparency and accountability. While they empower teams more, they also demand more transparency in each team's activities—a quid pro quo for agile leaders. A top executive at another European bank told us, "Giving teams space takes discipline, but the short cycle times and guardrails of agile make it easier." A senior executive at an automaker gives her teams considerable autonomy and empowerment to achieve their goals, such as building an innovative self-driving car. But she also follows a venture-capital-style model of accountability, returning to the team every few months to see results demoed and to provide outside-in feedback.

They champion—and reward and celebrate—new behaviors. Leaders in an agile setting face a continuous change management challenge: to encourage, reinforce, and model behaviors that are unfamiliar to most organizations. These behaviors can include pushing for minimum viable products that test a value thesis over fully finished products, encouraging experiments (even ones that most likely will not work at first), and celebrating failures as opportunities to learn and improve. Agile leaders must change the ways that they celebrate success and the ways that supporting systems, such as performance management, reward desired behaviors. They may also need to make some tough staffing choices, saying goodbye to loyal leaders and high performers who have delivered results in the past but are not exhibiting the required behaviors for achieving success in the future.

ADAPTIVE leadership has always been about change. The shift to agile ways of working adds a new layer of urgency, complexity, and challenge. For an organization to transform successfully, its leaders need to develop their own agile capabilities and show the way.

DELIVERING CITIZEN-CENTRIC REFORM

By Rich Lesser

When I joined BCG 30 years ago, one of my first cases was an effort to shape and assess the value of a relatively new concept, segment-of-one marketing. Our belief was that companies would be able to engage their customers not as mass segments but as individuals—tailoring products, messages, and ways of connecting. It turned out we were right, but a few decades too early.

Today, leading companies are obsessed, rightly, with customer centricity—leveraging digital technologies, customized production, and advanced analytics and machine learning to target the needs and aspirations of individual customers.

Starbucks is a great example. The company went from sending 30 varieties of email each week to its 13 million-plus loyalty card customers to sending more than 400,000 variations each week. Said differently, they initially had segments averaging over 400,000 people for each weekly email. Today, they send individualized email. To do this, they needed to embrace advanced analytics and machine learning in a big way and build new skills, processes, and IT platforms within the organization.

This opportunity is just as important for governments. The concept of citizen-centric reform—aligning government services with the distinct needs of individual citizens and communities—would have seemed unattainable and unaffordable just a few years ago. Recently, however, BCG has had the opportunity to support numerous such efforts around the world. Citizen-centric reform is becoming a reality.

Changing the Lens of Reform

Government reform has historically been supply focused. The government decided how best to provide services to relatively broad groups of people. But more and more citizens expect services to be tailored to their individual situations and accessible anytime, anywhere—and they count on government to keep up with the technologies that are already deployed in the rest of their lives.

The opportunities for innovation are plentiful. Affordable advances in technology and data analytics can open up new digital channels and enable greater customization and localization geared toward an individual's unique circumstances. Access to huge sets of data can help isolate problems and develop targeted solutions. Government initiatives can now reach the remotest of regions nearly instantly because of ultrafast connectivity at fractional cost and time.

With these advances and opportunities, it makes sense to adjust the approach to government reform by placing the citizen at the

center—tackling complicated bureaucracy and removing silos in order to ensure that each individual gets a robust, tailored solution. By improving transparency and offering services that are more accessible, convenient, and effective, citizen-centric reform delivers real impact. Here are a handful of examples from the reform efforts we've supported around the world.

Australia: Government Services, at Your Convenience. Australia embarked on a journey to reform its Department of Human Services, which provides social security benefits, Medicare, child support, and disability support. It defined three broad objectives: improve access to services, provide services more efficiently, and deliver better outcomes. The effort transformed the citizen experience by introducing new ways of segmenting and channeling customers—as well as expanding online services, lean operations, and the use of technology through apps and integrated platforms.

Texas: Safer Roads Across the State. TxDOT is dedicated to improving safety and reducing congestion. But as Texas's population continues to grow rapidly, building new roads has not been enough. Roads in Texas are already less safe than those in other states, with nearly 4,000 lives lost in 2016. TxDOT used technology to create reliable, up-to-date data on traffic; inform drivers about alternative routes in real time; and respond quickly in order to clear incidents off the roads. TxDOT is now rolling out this solution to improve safety and reduce congestion throughout the state.

India: Affordability, Access, and Quality. There is tremendous opportunity for India to be at the forefront of citizen-centric reform across a range of services, with a focus on connecting with hard-to-reach people. Innovative services are already pulling marginalized members of the population into the banking system and giving millions of Indians a digital identity. India is one of the leading internet nations—with far-reaching high-speed connectivity—making it possible for the government to target citizen-centric reforms in other critical areas, such as health, education, food security, and labor programs.

US: Groceries for Military Families. Reforms within the Defense Commissary Agency (DeCA) provide a strong case for applying private-sector lessons to public-sector reforms that put individual and family needs at the center. With that intent, DeCA used big-data techniques to analyze its rich transaction-level data, specifically taking into account customer shopping behavior and preferences. The result was the ability to customize product assortment and introduce new private-label items, as well as to create a better pricing framework. Now, an essential benefit for US military families is more financially sustainable and offers a better shopping experience.

Saudi Arabia: An IT Platform for the Labor Market. Saudi Arabia was facing significant problems related to youth and female unemployment. The country had labor programs in place, but gaps in IT support meant that it was difficult to add new programs, individuals had very little automated access and support, and there was no central reporting or monitoring of labor market dynamics. Saudi Arabia took a citizen-centric approach to addressing the problem. The government created a single, integrated platform that could act as a mediator for labor market participants, facilitating the delivery of customized employment support and increasing government transparency.

Citizens First: The Time Is Now

People want easy access to high-quality services relevant to their specific needs. They want to know that their voices are heard and their distinct needs are understood. Today, with advances in technology, analytics, and connectivity, governments can meet these rising expectations. Citizen-centric reforms can unlock the extraordinary potential that governments can bring to their people and communities. Empowered with new tools and a new mindset, leaders around the world can reimagine how they engage with and support their citizens to improve access to services and the overall quality of life.

NOTE TO THE READER

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