

A Health Care Leadership Agenda for the Postpandemic World

September 2020



BCG

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Preface

As we entered 2020, the health care industry already faced transformational changes driven by mergers, new alliances, shifting consumer behaviors, and the rise of new competitors. The COVID-19 crisis disrupted the industry in additional ways. Health care systems have had to urgently address gaps exposed by the pandemic, such as critical supply shortages and inadequate infrastructure. Providers have had to radically redesign outpatient care. Telehealth adoption skyrocketed almost overnight. Demand for medical procedures plummeted and will likely never fully recover. Historically high global unemployment, coupled with public- and private-sector fiscal challenges, is projected to translate into even greater pressure on affordability and steep declines in the private health insurance market.

Payer, provider, health care system, and service (PPSS) organizations are amid an era of unparalleled uncertainty and transition. To both compete in a pandemic environment and thrive in a postpandemic world, health care leaders must build on innovative approaches adopted in response to COVID-19 and develop comprehensive initiatives to reposition—and reimagine—their organizations for the future.

Our feature article explains five traits of successful transformative CEOs: They take decisive action quickly. They unlock immediate gains to fund the journey and tell

a convincing story of change. They emphasize growth. They can think like a new CEO by shaking up established ways of thinking. And they understand that transformation is a race without a finish line.

Other articles explore the lingering impact that the pandemic will have on health care systems. We assess the profound economic implications for payers and the lessons learned from health care systems in nations that flattened the curve and prevented death. We explain how health systems must develop and implement a new paradigm for outpatient encounters, including initial diagnosis, episodic care, and chronic-disease management. We also suggest how governments can prepare for long-term trends that COVID-19 accelerated, such as the move toward a digital economy, adjustments to global supply chains, and heightened pressures on public finances and services.

In the pages that follow, we provide ideas that leaders can use to win both the current fight and the future.

In continued good health,



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July 2020

How Transformative CEOs Lead in a Crisis

by **Lars Fæste, Christian Größ, and Jose Flores**

The COVID-19 pandemic has changed many aspects of business, but one thing that hasn't changed is the urgent need for companies to transform. In fact, the crisis has underscored that need. Most organizations have already launched rapid measures in response to the situation. The challenge now is to build on these measures and develop longer-term, comprehensive initiatives to reposition the company for the future—which may feel like a permanent state of emergency.

BCG's experience with more than 750 successful transformations helped us define five traits that will enable CEOs to lead more successful transformations. These insights have been tested across a range of economic conditions, including growth markets, recessions, and periods of turmoil. They should head the agenda of any CEO facing or implementing a transformation—in other words, *every* CEO.

A Proven Set of Measures

We initially developed the [five traits of transformative CEOs](#) in 2018. Since then, much has evolved in the business world, including political uncertainty in Europe and the ever-escalating tension between the US and China. The collective impact of these changes increased the pressure on companies and leadership teams—and the novel coronavirus dramatically compounded the burden. As a result, many companies across industries and geographic markets now need to stabilize revenue, unlock growth through new digital sales channels, and reduce costs. Most important, they need to embed digital in all aspects of operations and commercial functions and become more agile. Transformation is the vehicle to address these issues, but executing a transformation has never been tougher.

Given that broad challenge, CEOs need a reliable set of measures to use when developing and implementing change. Transformative CEOs share the following traits.

They take decisive action quickly and launch a formal transformation program. Most companies have already launched initiatives—reducing costs, testing e-commerce models, stabilizing supply chains, and using technology to improve communication and engagement

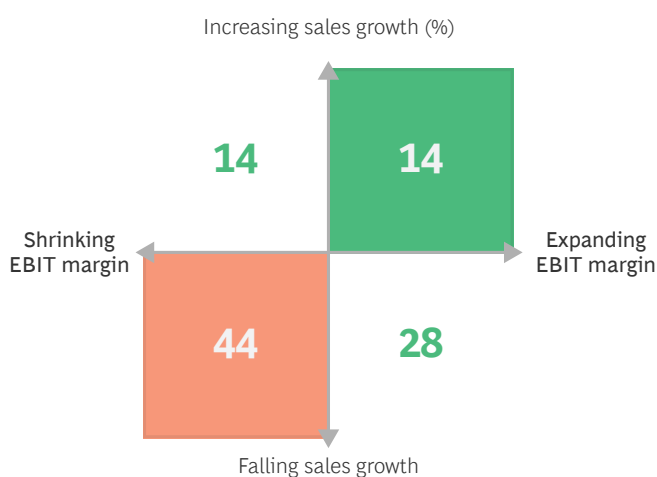
with both employees and customers—to respond to the pandemic, building cross-functional teams that have accomplished impressive feats amid significant uncertainty. Now, CEOs must quickly build on those baseline actions by taking bolder measures. Our research shows that, historically, 57% of companies launch a comprehensive transformation program within one year of experiencing a severe reduction in TSR. Such decisive actions have led to increased chances of success in both the short term and the long term.

Formal transformation programs with coordinated targets, actions, and milestones boost investors’ confidence, leading to an increased valuation relative to earnings. A well-managed program delivers more quickly, ensures discipline, includes actions to build up needed capabilities, and establishes effective communication both within and outside the organization.

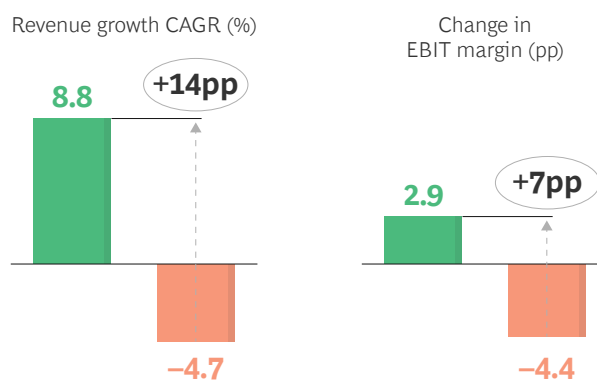
Notably, an economic downturn isn’t a reason to put off necessary changes. Instead, it can serve as a proving ground for management. [BCG research](#) shows that although a sizable share of companies during the past four US downturns saw reductions in both their top lines and their bottom lines, a set of top performers managed to generate increases in both dimensions. (See [Exhibit 1](#).)

Exhibit 1 - Most Companies Perform Worse During Downturns, but Some Flourish

14% of companies improve growth and margin in downturns, while 44% decline in both...



...and the performance gap between them is substantial



Sources: S&P Compustat; S&P Capital IQ; BCG Henderson Institute analysis.

Note: Average performance shown across the four US downturns since 1986; sales growth and EBIT margin compared with three-year, predownturn baseline for US companies with at least \$50 million in sales. EBIT = earnings before interest and taxes; pp = percentage points.

**CEOs who use reliable measures
can help companies stabilize
revenue, unlock growth, reduce
costs, and become more agile.**



They unlock immediate gains to fund the journey and tell a convincing story of change. Because the pace of change in business has accelerated, companies can no longer spend six months plotting a transformation and then several years implementing it. Instead, companies need to take immediate steps to begin delivering results, send cash to the bottom line, and fund future initiatives.

Top-performing organizations don't rely just on cost cuts to free up capital—instead, they also improve capital efficiency and deliver quick wins to boost revenue. Digital is often a critical step toward generating **fast, sustainable performance improvements** and funding the journey. For example, using digital to improve pricing or optimize promotions can increase revenue by 4% to 6%, while also improving EBIT margins by up to 2 percentage points. Empowering the sales function through analytics to identify the best channel mix and marketing messages can produce substantial gains. Companies that digitize their sales functions can generate gains of 10% to 20% in revenue through higher conversion rates while reducing the cost per lead by 15% to 30%.

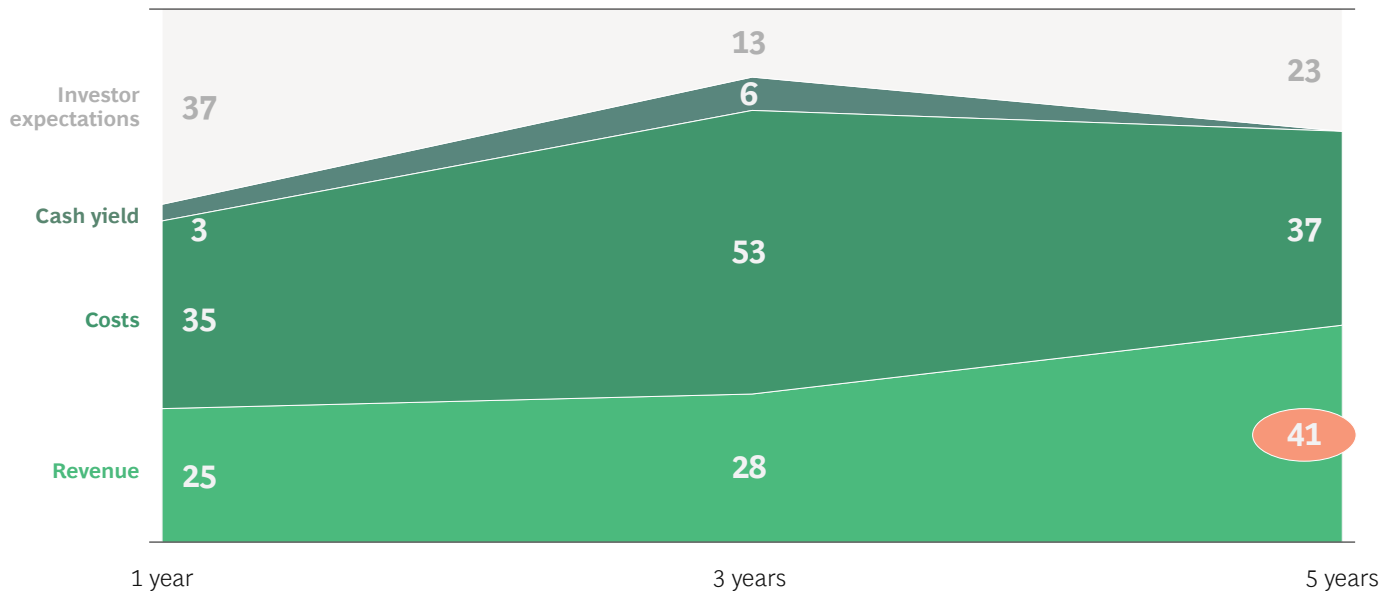
Similarly, implementing robotic process automation, machine learning, AI, and other tools to handle administrative and repetitive tasks—in functions such as workforce planning within HR and invoice handling or payment approvals within finance—can reduce head counts by 20% to 30% in corporate centers, decrease handling times, and increase accuracy and service quality.

In addition to boosting short-term performance and raising funds, rapid early measures can serve to build up critical expertise, convince naysayers, and increase the credibility of leadership teams—both internally (the workforce and the board) and externally (investors and other stakeholders).

They include an explicit emphasis on boosting growth and increasing vitality. As noted above, the understandable impulse of many CEOs in a crisis is to center a transformation on cutting costs. To be clear, cost reductions are often a critical step, but they can never stand alone. Over the long term, revenue growth has a greater impact on transformation success—contributing, on average, nearly half of cumulative value creation after five years. (See Exhibit 2.)

Exhibit 2 - Revenue Drives Long-Term Success in Transformations Among Underperforming Companies

CONTRIBUTORS TO CUMULATIVE TSR OUTPERFORMANCE IN TRANSFORMATION (%)



Sources: S&P Capital IQ; BCG Henderson Institute analysis.

Note: Based on TSR growth relative to industry over given time frame for performers (excluding a few top outliers) in the 70th to 95th percentiles, for companies with two preceding years of severely declining performance. Graph excludes negative contributions for companies in each factor.

Over the long term, revenue growth has a greater impact on transformation success than cutting costs.



In fact, **transforming for growth** often involves a higher level of investment—and investments in R&D and digital for new business models, in particular, create more value: our findings suggest that such investments increase the likelihood of success by up to 29 percentage points. On the other hand, transformations accompanied by high (when compared with the industry average) capital expenditure spending boost the chances of success by only 11 percentage points. Why? Capex investment generally suggests that a company has the intention of exploiting existing opportunities by expanding capacity—that is, doing more of the same. In contrast, investments in R&D and digital capabilities help companies redesign their business models, tap into new markets, rethink product and service offerings, and engage more directly with end users—leading to a greater likelihood of transformative impact.

Think like a new CEO. New CEOs perform better in transformations. In fact, a new CEO can boost the odds of a successful transformation by 7 percentage points, on average. Why do new CEOs perform better? Because they take an outsider’s view of the business, with no legacy bias, and they are willing to take bold steps to shake up established ways of thinking.

Incumbent CEOs and management teams, therefore, cannot afford to be complacent and maintain the status quo. Instead, they must be somewhat paranoid and continuously take a fresh look at the business. Or, as we say, “If it ain’t broke, fix it anyway.”

Once a management team is in place, it is critical to maintain the team for the duration of the transformation. We found that only 7% of companies changed their CEO during a transformation. Changes in top management not only heighten uncertainty for people within the company, decreasing the buy-in, but also send a negative message to investors, leading to increased skepticism about the company’s ability to deliver results.

They understand that transformation is a race without a finish line. We live in an era of persistent disruptions, and for some businesses it will feel like a permanent crisis. Given the nature of transformations and the tendency to be distracted by external events, companies need a North Star to keep them oriented toward their long-term objectives.

Our analysis revealed that companies with an above-average long-term strategic orientation for their transformations outperformed those with a below-average orientation by almost 5 percentage points. This finding was even more pronounced when such companies were operating in turbulent environments: in those cases, long-term orientation correlated with an increase in TSR of 7 percentage points.

Similarly, companies running their programs for at least five consecutive years (either as one continuous program or as an unbroken series of overlapping programs) were especially effective at transforming in turbulent environments.

Transformation can no longer be thought of as a project with an end date. Transformative CEOs know that, in order to succeed, they will have to keep stretching the goals, act more boldly than ever, and identify ways to renew the organization.

COVID-19 was an external disruption imposed on companies, but the future remains very much in companies’ own hands. By looking at the evidence regarding transformations—and specifically the traits that increase the chances of long-term success—CEOs can tilt the odds in their favor and position their organizations to win over the long term.

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When Leadership Matters Most

by Peter Tollman and Martin Reeves

In the midst of the COVID-19 crisis, leaders are doing their best to chart the right course under harsh and unpredictable conditions, knowing that the morale, viability, and prosperity of their organizations depend upon them getting this right. Leadership matters most in moments of extreme stress. Most leaders don't have direct experience of leading through a crisis of this magnitude and there is value in synthesizing what we know about the traps and success factors.

A number of common traps are in plain sight as we look across organizations today:

- 1. Invisible Leaders.** A crisis will pull leaders into an endless succession of top team meetings where the issues are discussed and strategies agreed. While necessary, if this crowds out communications between leaders and employees, it can create unnecessary aimlessness and anxiety.
- 2. Stiff Communications.** Many crises follow an unpredictable course, and leaders may hesitate to be specific in case they are later proven wrong. Furthermore, they may be fearful themselves and try to cover this with a calm gloss. The result is formal, inauthentic communications, which create rather than reduce distance.
- 3. Communications Gridlock.** Many organizations move from being unengaged early in a crisis to becoming hyperactively engaged. An ever-expanding echo chamber develops as everyone emails everyone about various aspects of the crisis, and crisis communications and daily crisis meetings absorb people's time. The main work of the organization becomes talking about the crisis. This not only crowds out the critical real work to be done; it creates exhaustion and generates a fog of information, which impedes the communication of critical messages.
- 4. Overly Tactical Focus.** There are lots of urgent matters to be attended to in a crisis. In the COVID-19 crisis these include hygiene policies, home working policies, travel policies, supply chain adjustments, facilities closures, daily updates, and more. While necessary, these are not sufficient. This short-term focus must be complemented by looking ahead and anticipating what comes next, to prevent organizations from perpetually being in reactive mode. In the COVID-19 crisis there must be an equal emphasis on Reaction, Rebound, a likely Recession, and Reimagining the business in a postcrisis world. Many organizations are primarily focused on the first of these.
- 5. Introversion.** A crisis naturally precipitates a defensive psychological stance. Organizations look inward to address their pressing challenges. But crises such as COVID-19 affect customers, suppliers, industry peers, investors, and other stakeholders equally. Turning away from stakeholders in a time of need is a missed opportunity to create collective solutions, to meet new needs, and to build trust.

6. Inertia. The COVID-19 virus is characterized by very high transmissibility. This has created an epidemic that moves faster than most organizations are able to. We have seen the dire consequences of losing a week or two before taking action in some European countries.

7. Failure of Imagination. The first casualty of a crisis is imagination. But while responding to a crisis requires getting certain simple things right without overthinking them, fundamental solutions and adjustments require more creativity.

What then are some of the guiding principles that leaders need to heed during a crisis?

- 1. Be visible, purposeful, and authentic.** Communicate in ways that engage and increase the relevance of your teams and clarify the reasons underlying your communications.
- 2. Leverage the principle of “commander’s intent.”** The Prussian general Helmuth Von Moltke pioneered the idea of *Auftragstaktik* (Commander’s Intent) to allow the effective functioning of an organization in the fog of war. Rather than peppering the organization with frequently changing and detailed instructions (and allowing others further down the chain to amplify such behaviors), he shared only the key objectives and their rationale, allowing soldiers to employ whatever tactics were necessary to achieve the objectives in each situation they faced. This not only allows the organization to be flexible and adaptive but reduces time lags and allows a focus on execution rather than internal communications.
- 3. Use multiple clock-speeds.** Leaders need to think on multiple timescales by considering the now, the next, and the later. They need to make sure that leadership teams look ahead. And they need to prepare their organization to pivot to the next wave of considerations.
- 4. Engage externally.** Your customers and stakeholders need you now. The best intelligence on a crisis, comes from the crisis itself, and you need frequent, fresh, firsthand information to adapt and respond effectively. You need to be able to see the weak signals that spell new threats and opportunities.

5. Cut through bureaucracy. Assemble a multifunctional task force that is empowered to make decisions and suspend normal decision protocols that may require multiple sign-offs and consensus building. Be comfortable making decisions on the best available information and changing them if better information becomes available.

6. Keep imagination alive. You will need imaginative solutions. There is advantage in adversity. It's no accident that the Chinese word for crisis combines the characters for danger and opportunity. There will be new needs and new opportunities to serve clients now and beyond the crisis. There will be new opportunities for innovation. The world beyond the crisis will not be a reversion to 2019 reality—attitudes, behaviors, and needs will change. A crisis effectively speeds up the clock: bad things come faster, but so do opportunities. Leaders will need to adopt and help their organizations adopt an ambidextrous mindset—defending, protecting, and reacting on the one hand and creating, innovating, and imagining on the other.

Now is precisely when leadership has the greatest impact. Effective crisis leadership has a multiplicative effect on organizational capability. Every leader will need to modulate his or her style to help flip organizations from a peacetime mode to a wartime mode as swiftly and effectively as possible.

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June 2020

How CEOs Can Win the Fight and Transform to Win the Future

by Daniel Küpper, Tom Reichert, Marin Gjaja, Vaishali Rastogi, and Ryoji Kimura

As countries lift lockdowns and companies ramp up operations, CEOs face an unprecedented challenge. Across the full scope of their company, they must manage two efforts on different time horizons: competing in the prevaccine pandemic environment over the next 12 to 24 months and repositioning their company to thrive in the postpandemic world. In other words, they must **win the fight and transform to win the future**. To succeed, CEOs should focus on five priorities now.

What It Takes to Win in the New Reality

Virtually overnight, the economic shock caused by the COVID-19 pandemic has given rise to a new reality that leaders must discern, adapt to, and shape. The new reality is characterized by shifting customer needs and behaviors, increased uncertainty and volatility, and a reversal of globalization trends. For most companies, this challenging environment will cause significant decreases in revenues and profits. In a recent [BCG survey of business leaders](#), almost half said that they expect their company's profits to decline by more than 20%, and 90% are planning company-wide cost reduction programs.

However, CEOs should not accept declining performance as inevitable in the new reality. The BCG Henderson Institute [studied the performance of all major US public companies during the past four downturns](#). Competitive positions were more volatile in the downturns, creating both opportunities and risks. Although most companies suffered losses, 14% of the companies managed to increase revenues as well as profits despite declines in their industries. What did these companies do differently? It can be boiled down to three overarching actions: they acted early, they took a long-term perspective, and they focused on growth as well as cost reduction.

For CEOs today, this historical insight suggests that achieving strong performance in the new reality will require more than a rapid crisis response over the course of a few weeks. Winning the fight will be a marathon that lasts until a vaccine or highly effective treatment is widely available—12 to 24 months from now, according to the World Health Organization. During this period, business continuity and competitive position will constantly be at risk and require active management. And, winning the future will demand making long-term, proactive moves even as the fight phase persists.

Unfortunately, many companies do not appear to recognize the imperative of making long-term moves as they fight the pandemic. In BCG's survey of business leaders, fewer than 30% said that they plan to reimagine their supply chain structure during the crisis. Conversely, investors see the upside in being farsighted while managing the crisis. In a recent BCG survey of investors, 88% said that they want CEOs to focus on building capabilities to create advantage, drive future growth, and be better positioned for winning the future, and 65% are even open to dividend cuts to drive current resilience and future advantage.

Five CEO Priorities

To respond proactively, CEOs must understand how the new reality affects their company and their markets, and CEOs must act decisively in the face of a wide variety of challenges. Earlier in the pandemic, we proposed a set of short- and medium-term priorities for responding to the crisis and [leading organizations out of adversity](#). Now, to ensure business continuity during the fight and to build the foundation for a prosperous future, CEOs need to broaden their perspective and focus on five priorities.

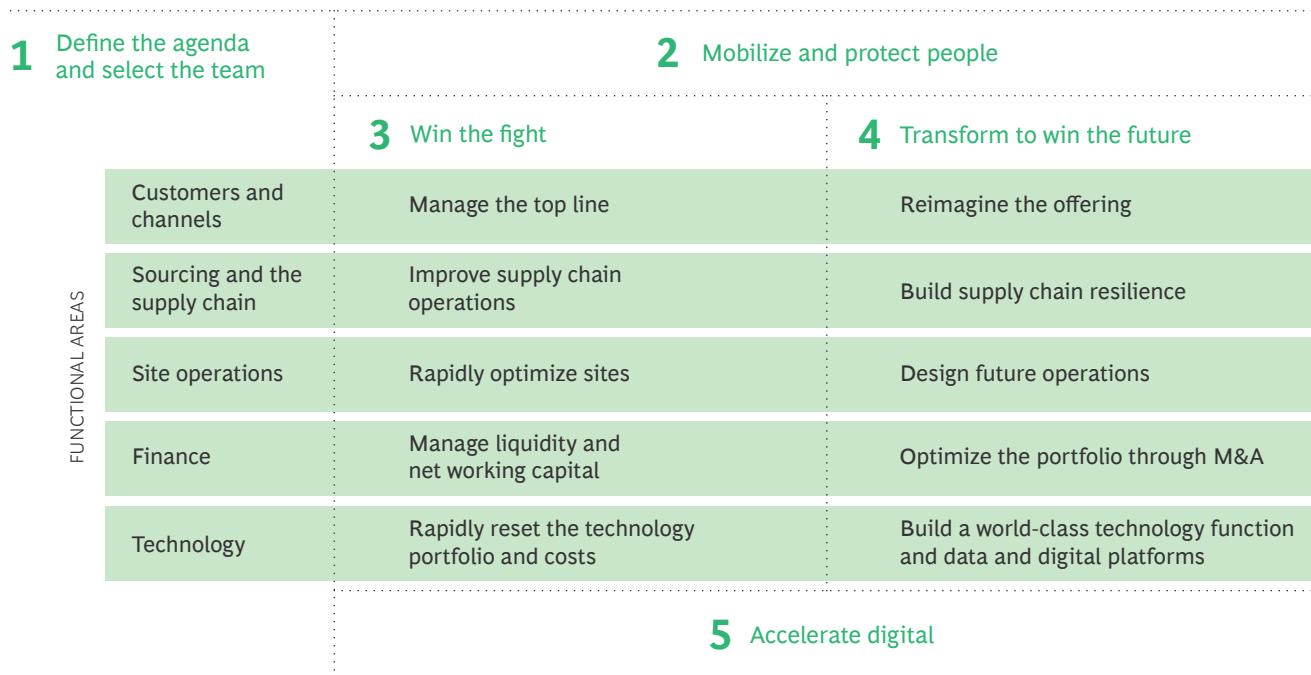
To help CEOs address these priorities we created a framework. ([See the exhibit.](#)) It provides the key activities that companies must pursue in five functional areas. In especially hard-hit industries, such as commercial aviation and tourism, companies will need to pursue all activities to implement a transformation. In other industries, companies can use the framework to design a tailor-made action plan that reflects their needs.

DEFINE THE AGENDA AND SELECT THE TEAM

In a reality characterized by uncertainty, it is more important than ever for leaders to provide clear guidance. Even in the absence of reliable forecasts, CEOs must set an agenda for the next 12 to 24 months and beyond, into the postpandemic future. There will be no-regret moves, such as rapidly eliminating unnecessary costs in operations or in administrative functions. But other significant decisions, such as changes in the product portfolio or the closure of production facilities, will have to be made despite uncertainty around future developments. For these decisions, the timing is crucial—leaders must stay abreast of the evolving situation and quickly adjust action plans using an agile working model. [Developing and analyzing multiple scenarios](#) will help to significantly increase reaction speed as events unfold.

Many companies have set up a rapid response team to lead the initial crisis management efforts. To meet the challenge of defining an agenda for the coming months and for the long term, CEOs should broaden the team's mandate and expand its membership to include people from all functional areas. This team can orchestrate and integrate all activities and ensure that they cover the spectrum from immediate impact to long-term impact.

A Framework for Addressing Five Critical Priorities



Source: BCG analysis.

To succeed, the team needs to be set up with sufficient capacity and seniority to drive fast actions and effective change for the next 12 to 24 months. The team should identify and prioritize opportunity areas and assign them to specific owners to pursue. To demonstrate impact and build momentum, the team should devote some of its initial focus to quick wins. To support the team’s efforts, the company should establish rigorous governance, processes, and reporting. Leadership sign-off should be required for all initiatives to ensure buy-in.

MOBILIZE AND PROTECT PEOPLE

People are the heart of a company. To maintain business continuity and achieve longer-term objectives, CEOs must mobilize and protect their people.

The crisis has accelerated the adoption of new work practices, and we expect these approaches to remain across organizations in the new reality. This is a unique opportunity to redefine the future of work. For example, deviations from standard practices, such as remote work, that have typically been regarded as inefficient are now being deployed on a broad scale. By applying the lessons learned from implementations across businesses, companies can optimize these practices and enhance the efficiency, satisfaction, and engagement of the workforce over the long term. Satisfaction and engagement will also be crucial for retaining employees, especially as the market for talent heats up again during the recovery.

One of the unique aspects of this crisis is that most of the historical data, decision support models, and forecasting approaches for demand and supply planning became obsolete practically overnight. To improve decision support and scenario planning, companies can use Lighthouse—a digital analytics platform that can be rapidly deployed. Lighthouse combines new, near-real-time data feeds of internal and external data with multiple analytics models, driven by artificial intelligence (AI), and advanced visualization tools. The result is a dashboard that provides near-real-time transparency on demand and supply, allowing for more-informed decisions and scenario planning that reflects the new environment.

The crisis has also elevated the standards for health and hygiene in the workplace, and we expect these will endure. For the first time, companies will need virus-monitoring systems to keep their workplaces and employees safe, to build workers’ confidence, and to help manage business continuity and risk. For example, BCG is deploying its Safe@Work app that provides a digital virus-monitoring solution for contact tracing and employee safety management. The tool supports comprehensive efforts to track employee health, identify and break infection chains, encourage and monitor safe workplace behaviors, and communicate consistently.

We have defined a set of **people priorities** that will help to ensure a safe and motivated workforce during the challenging months to come.



CEOs must set an agenda for the next 12 to 24 months and beyond, even in the absence of reliable forecasts.

WIN THE FIGHT

For most companies, the immediate priority is to secure the cost efficiency and continuity of their current operating model. However, in addition to having short-term liquidity and stability, companies must ensure that the entire operating model and cost structure can support the next 12 to 24 months. To make it happen, CEOs should lead efforts to actively manage liquidity and net working capital as well as to reduce costs across the company. And, because the objective is to secure margin, CEOs also need to focus on actively managing the top line.

Manage liquidity and net working capital. Companies need to increase liquidity and reduce nonessential spending along the value chain. The goal should be to create financial leeway in order to navigate through emerging challenges. The effort should be led by a [cash management office](#) that is explicitly responsible for managing short-term liquidity, creating liquidity plans, launching cash preservation measures, and monitoring and forecasting cash and liquidity development.

Reduce costs across the company. Companies should consider both nonpersonnel and personnel costs. The adjustment of nonpersonnel costs is among the key levers to generate quick impact without immediately impacting the company's workforce. For example, a company can cut costs in the supply chain by improving supplier management and logistics operations. Another opportunity is to rapidly adjust technology costs by refocusing the pipeline of technology and IT projects toward high-value and highly strategic projects, future-oriented platforms, and solutions for remote working and digital collaboration.

To respond to the severity of the current crisis, companies must also consider reductions in personnel costs. Many companies will need to introduce flexible work models and rightsize the workforce in frontline and support functions. Additionally, by rapidly optimizing sites, companies can often reduce operating costs by more than 10%. Companies should also quickly review their product portfolio and mix to analyze cost-saving opportunities. This includes reconsidering product launches and suspending sales activities for certain products in specific regions.

Manage the top line. Many companies were forced to focus on digital sales channels during the lockdown phase to secure revenues. In the win-the-fight phase, new channels, such as e-commerce, will continue to provide a valuable opportunity to maintain customer engagement and to generate additional sales. Because customer needs and behaviors have shifted so much, and because the competitive environment will be volatile, a rapid review of pricing opportunities across much of the product portfolio will also likely be necessary to preserve revenues.

TRANSFORM TO WIN THE FUTURE

CEOs should not allow the focus on near-term profits and competitiveness to obscure the need to transform the business in order to win the future. They need to pursue a variety of activities, largely simultaneously with the effort to win the fight. The concurrent efforts are required not only because leaders need to set up the business for long-term success but also because the duration of the fight is uncertain. We see three sets of activities that are keys to winning the future.

Reimagine the offering. Companies should adapt their business model in response to changes in customers' demand preferences. For example, as uncertainty increases and cash becomes critical, more customers may prefer signing machine-as-a-service agreements rather than making high initial investments in machines. Such market changes can offer the opportunity for breakthrough innovations. Innovative companies have a significant advantage, even during a recession. According to a [BCG study](#), the total shareholder return of the 50 most innovative companies outperformed the MSCI World Index by more than 20% four years after the 2008 financial crisis.

Build supply chain resilience and design future operations. The first weeks of the COVID-19 crisis revealed a weak spot for many companies: a global supply chain that operated efficiently in a steady-state environment but was highly vulnerable to external shocks. In fact, supply disruptions caused some companies to stop or slow down production even before the coronavirus outbreak reached their facilities.

To transform to win the future, companies need to increase the resilience of their end-to-end supply chain, including internal operations. This requires reviewing and optimizing the entire operating model, with a focus on the footprint of the supplier network as well as the company's own production network. Digital tools, such as a supply chain control tower or a [digital twin solution](#), can significantly improve transparency and stability as well as enhance productivity. Considering that increased volatility and uncertainty are expected to persist even as the immediate crisis subsides, end-to-end resilience and greater operating efficiency must be long-term imperatives.

Optimize the portfolio through M&A. Companies should review their business portfolio to identify the potential for divestitures and M&A. Low company valuations in the weak economy may expand [the opportunities for M&A](#). Furthermore, BCG research indicates that, two years after an acquisition, [the relative total shareholder return of deals done in a weak economy exceeded that of strong-economy deals by 10 percentage points](#). By proactively pursuing the right deals, companies can outgrow their competition quickly. To create sustainable value, companies need a clear vision for their M&A strategy that is based on a small number of long-term themes. Even as they look for new sources of growth, top-performing companies stick to their well-defined strategic vision, while adapting it as necessary to the increased volatility and uncertainty of the new reality.

ACCELERATE DIGITAL

For most companies, digital and AI have been prominent topics when developing their strategic roadmap in recent years. The pandemic response has rapidly accelerated digital implementations to enable remote work, for example, or to improve the online customer experience. Companies have experienced several years' worth of digital changes within the past few months. In a recent BCG survey of business leaders, 80% said that digital transformation has become even more urgent in light of the crisis. To keep pace, companies have needed to make significant catch-up investments.

The combination of externally induced change and catch-up investment creates momentum that companies should leverage to accelerate digital initiatives across all functions both to win the fight and to win the future. In pursuing these initiatives, they need to directly support many of the actions discussed above and rigorously focus on creating business value in order to ensure that digital projects have a short-term to midterm payback.

Digital technologies can enable significant cost reductions—in our experience, 10% to 30% in supply chain and manufacturing functions, 10% to 20% in procurement spending, and 20% to 40% in shared services. For instance, robotic process automation increases the efficiency of back office processes, advanced data analytics allows for optimization of business processes, and digital automation technologies significantly increase productivity on the shop floor. Another efficiency lever is the [bionic supply chain](#), a new approach that aims to create seamless cooperation between humans and digital systems. To successfully implement these digital solutions and further accelerate digitization, many companies will need to strengthen their technology and IT functions.

Pursuing these five priorities will be essential to winning the fight during the next 12 to 24 months and positioning the company to win the future. The companies that emerge from the crisis stronger than ever will be those that deploy rapid, agile decision making and take decisive actions across the immediate-, medium-, and long-term time horizons. Put simply, tomorrow's winners will be determined by the actions that CEOs take today.

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April 2020

Sensing and Shaping the Post-COVID Era

by Martin Reeves, Philipp Carlsson-Szlezak, Kevin Whitaker, and Mark Abraham

COVID-19 and the containment policies aimed at controlling it have changed how we work and what we consume. History shows that such changes are not always temporary—crises can fundamentally reshape our beliefs and behaviors. How then can companies prepare for a postcrisis world, rather than hunkering down and waiting for a return to the past?

Let's first consider how attitudes and behaviors are shaped by a deep societal crisis. Major disruptions can cause fundamental shifts in social attitudes and beliefs, which pave the way for new policies, ways of working, and consumer needs and behaviors, some of which persist in the long run. (See [Exhibit 1.](#))

Exhibit 1 - Crises Often Lead to Long-Lasting Changes



Source: BCG Henderson Institute.

Historical Examples of Societal Crisis-Induced Shifts

The Black Death, which killed 25 million to 30 million people in 14th-century Europe, is credited by some historians with ending feudalism and serfdom and ushering in the Enlightenment by shifting power to increasingly scarce labor resources. We can say without exaggeration that the plague shaped the path of European history.¹ Consider also the impact of World War II on women's participation in the workforce. With a large share of the working-age population deployed in the war effort, women were encouraged to fill jobs on the domestic front, through efforts to reduce social (and sometimes legal) barriers. After the war, the effects of these shifts persisted, driving an acceleration of female workforce participation.²

The 9/11 terrorist attacks similarly reshaped transportation and security policies worldwide. There was a collective shift in societal attitudes about the tradeoff between personal privacy and security. As a result, citizens accepted higher levels of screening and surveillance in the interests of collective security.

Societal crises can also have lasting effects on consumption patterns. For example, the 2003 SARS outbreak in China changed attitudes toward shopping: because many people were afraid to go outside, they turned to online retail. Though the crisis was short lived, many consumers continued to use e-commerce channels, paving the way for the rise of Alibaba and other digital giants.³

How Will COVID-19 Shift Beliefs and Behaviors?

Lasting shifts in social attitudes, policy, work, and consumption will likely also emerge from the pandemic. It's hard to predict precisely how it will shape our perspectives on society, but we could see a greater focus on crisis preparedness, systems resilience, social inequality, social solidarity, and access to health care. It's also easy to see how the crisis could accelerate nationalistic tendencies, and some commentators are already talking about the possibility of a "great decoupling" of international interdependencies. At an individual level, it's possible that we may adjust how we view the balance between work and family life, having been reminded of what is truly important to us.

1. Walter Scheidel, *The Great Leveler*, Princeton University Press, 2017.

2. Claudia Goldin and Claudia Olivetti, "Shocking Labor Supply: A Reassessment of the Role of World War II on U.S. Women's Labor Supply," National Bureau of Economic Research working paper, 2013.

3. Duncan Clark, *Alibaba: The House That Jack Ma Built*, Ecco, 2016.

These attitudinal shifts could in turn be reflected in significant policy shifts in many areas, including trade, border controls, health care, crisis preparedness, foreign affairs, employment, and social welfare. National security agencies are already drawing analogies between the COVID-19 pandemic and cyber warfare, and rethinking and bolstering cyber defenses as a result. The pandemic could also shape national politics, as citizens judge the effectiveness of their governments' responses.

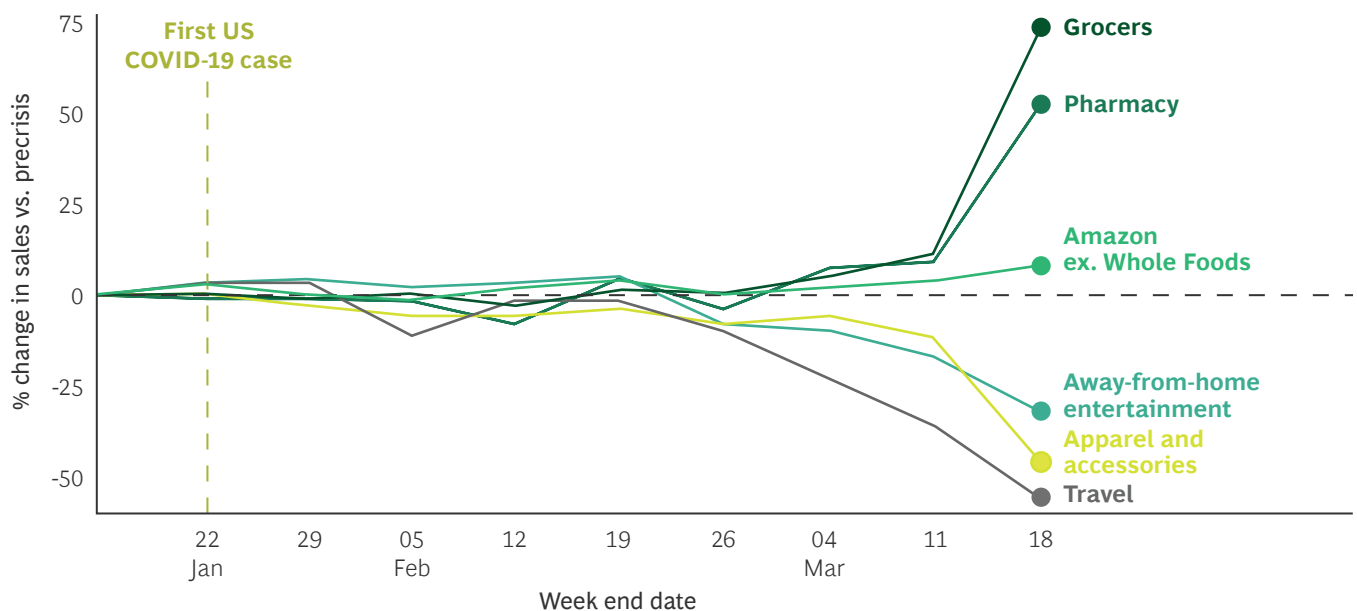
Attitudes, policies, and the direct experience of the pandemic are already changing how we work, including greater emphasis on remote working, digital collaboration, workplace hygiene, and protections for temporary workers, for example.

And we can already see significant shock-driven shifts in purchasing patterns in our analysis of credit card activity for hundreds of thousands of consumers. Groceries and pharmacy products have increased by more than 50% compared with precrisis levels, and online shopping on Amazon has also increased. Conversely, travel spending has declined by 56%, and live entertainment and apparel purchases have declined by more than 30%. (See Exhibit 2.)

We should not expect that all of these shifts will stick, however. For example, there was a marked reduction in air travel after the 9/11 attacks, but it returned to its previous trend line within 15 months. Undoubtedly we will see some consumption patterns reverting to long-term trend lines, albeit at different speeds. We must distinguish between temporarily postponed, accelerated, or disturbed consumption, and new, more permanent patterns of consumption.

Furthermore, we should not expect consumption to shift only among existing products. New ideas often emerge or are developed in response to extreme needs arising during a social crisis.⁴ World War II, for example, forced innovation or accelerated development and commercialization of the jet engine, pressurized aircraft cabins, helicopters, atomic technology, computers, synthetic rubber, rocketry, radar, and penicillin, with lasting effects. New needs born in our current crisis will likely drive lasting innovation in other areas, such as mass disease-testing technologies, digital collaboration tools, or affordable home office setups.

Exhibit 2 - Purchasing Patterns in the US Are Shifting as the Outbreak Intensifies



Source: Earnest Research credit card data as of 3/18/2020 and BCG estimates; BCG GAMMA analytics.

4. Josef Taalbi, "What drives innovation? Evidence from economic history," *Research Policy*, October 2017.

We should not, however, expect permanent shifts to be easily discernible through observation and analysis alone. We cannot know for sure what shifts will persist until after the crisis is over, by which time pioneers will have already established leading positions. Pioneers will not only *adapt* to shifting needs; they will also proactively *shape* perceived needs and outcomes through innovation, education, and promotional activities.

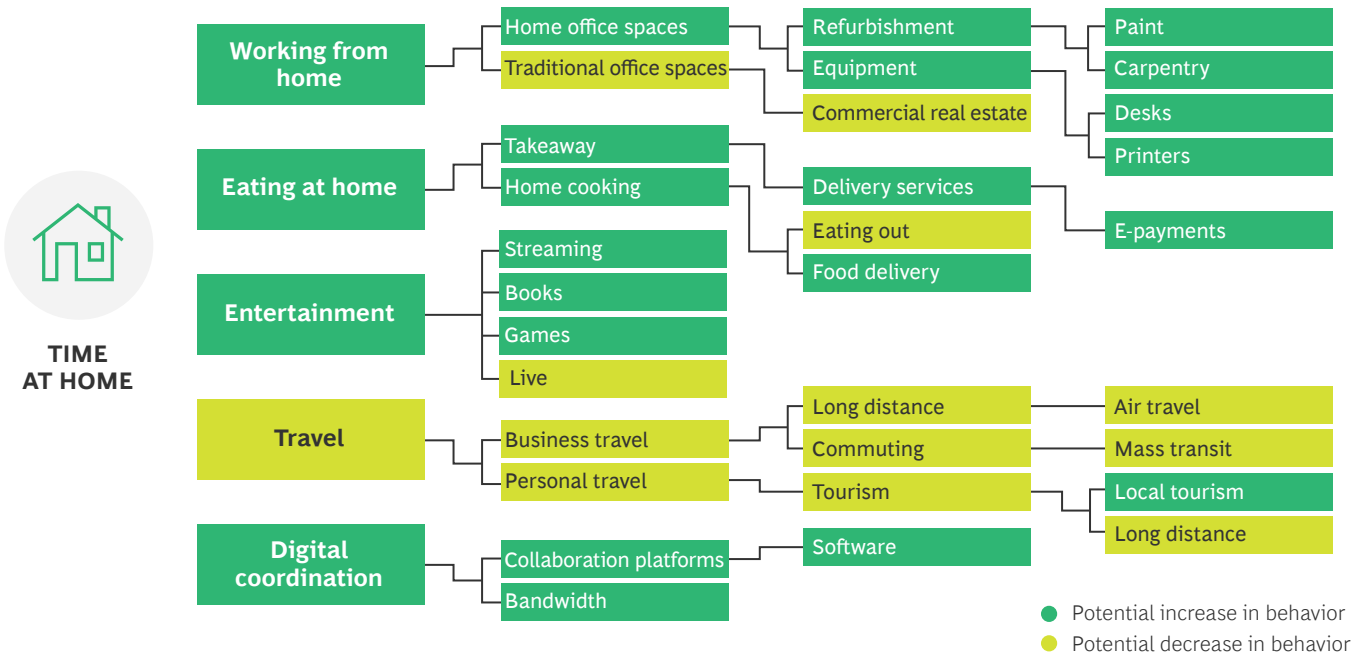
We can visualize the field of possibilities by observing fundamental attitudinal and behavioral shifts and creating branching trees of potential ramifications. Fundamental shifts among consumers could include more time at home, more emphasis on hygiene and health, or greater emphasis on family security. Producer shifts could include embracing remote working, streamlining operations, decentralizing supply chains, and emphasizing crisis preparedness and systems resilience. Each of these basic shifts has manifold potential consequences. For example, the potential implications of increased time at home are shown in Exhibit 3.

It is too soon to know which of these possibilities will become firmly established. However, organizations can look to China for hints about which behaviors might stick. New infections in the country have slowed dramatically, social restrictions are being eased, and economic activity is restarting: as of late March, power consumption has recovered 80% of the way to last year’s levels and movement of people and goods has recovered 70%.⁵

China has not returned to its precrisis state, however. According to a BCG survey, approximately half of Chinese consumers say they plan to spend more on preventative health care, vitamins and supplements, and organic foods over the next six months.⁶ In contrast, more than one-third say they plan to decrease spending on restaurants, vacations, and tobacco products over the same timeframe.

Such shifts are not guaranteed to last—with the outbreak still raging abroad and the possibility of a rebound in infections, consumers are likely still in a crisis mindset. Nevertheless, China will provide signposts to the shape of the postcrisis reality.

Exhibit 3 - Potential Implications of Spending More Time at Home



Source: BCG Henderson Institute.

5. Power consumption measured by daily coal consumption at four major plants; movement of people and goods measured by average congestion delay index in ten major cities; source: WIND.
6. BCG COVID-19 Consumer Sentiment survey, March 12–16 (1,831 Chinese respondents).



Attitudinal shifts could be reflected in significant policy shifts in many areas.

Divining and Shaping the Postcrisis Reality

What practical measures can companies take to sense, exploit, and shape the post-COVID-19 reality? We suggest eight steps:

- 1. Expect change and look ahead.** Organizations tend to become myopic and insular when under threat. But crises often mark strategic inflection points, and **a necessary focus on the present should not crowd out consideration of the future.** The key questions become, What next, and with what consequences and opportunities?
- 2. Understand broader social shifts.** Addressable opportunities are often born out of new customer needs and frustrations, so listening to customers is vital. However, traditional surveys tell you only about existing product and category needs and uses; consumers may not be explicitly aware of their emerging needs. Companies need to look more broadly at how social attitudes are shifting to understand which observed changes in behavior and consumption could be lasting. For example, if leaders' and workers' attitudes toward remote working shift after a few months of experiencing it, that could have significant consequences for office equipment, office real estate, home remodeling, transportation, and other sectors and segments.
- 3. Scrutinize granular, high-frequency data.** Aggregates, averages, and episodic statistical data will not reveal the weak signals of change. Companies need to access and analyze high-frequency data, such as data on credit card transactions, at a very granular level in order to spot emerging trends.
- 4. Identify your own revealed weaknesses.** The crisis will undoubtedly expose needs for greater preparedness, resilience, agility, or leanness in different parts of your company. Those weaknesses also signal opportunities to renew your products and business model and serve customers better. They may also help you understand broader customer needs, since others are likely to be experiencing similar stresses.
- 5. Study regions further ahead in the crisis.** China and Korea are many weeks ahead of Western countries in their experience of crisis and recovery. By **studying what happened in these markets**, leaders can better predict which changes are likely to stick or could be shaped. A geographical fast-follower strategy may be available to agile players.
- 6. Scan for maverick activity.** Some companies, often smaller players on the edges of your industry, will be making bets predicated on new customer needs or

behavioral patterns. Ask yourself, Who are these mavericks, and which potential branches and leaves on the tree of possible shifts are they betting on? Are those bets gaining traction? What are you missing? From there, you can decide on the appropriate response to each opportunity or threat: ignore, investigate further, create an option to play, replicate and exceed, buy the maverick, or act with high priority.

- 7. Look at which new patterns reduce friction.** Frictions are unnecessary delays, costs, complexities, mismatches with needs, or other inconveniences that a customer experiences in using a particular offering. Forced habits that entail more friction than the traditional alternative are likely to be temporary: we may be forced to eat only canned food from our pantries in a crisis, but many are likely to return promptly to consuming fresh food when it is over. On the other hand, forced habits that reduce friction are more likely to stick: how many of us relish the thought of carving out a couple of hours each day to reach our workplaces? High-friction areas are also ones where it is logical for mavericks to innovate and where they are more likely to succeed.
- 8. Maintain hope and a growth orientation. It's almost inevitable that we will face a deep postcrisis recession.** This is not a reason to postpone innovation and investment. Counterintuitively, **14% of companies grew both their top and bottom lines during recent economic downturns**, and our analysis shows they create value mainly through differential growth. This is true across all industries. The evidence is clear: the best time to grow differentially is when aggregate growth is low. "Flourishers" in a downturn do reduce costs to maintain viability, but they also innovate around new opportunities, and they reinvest in growth pillars in order to capture opportunity in adversity and shape the postcrisis future.

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May 2020

Learning from COVID-19 to Transform Global Health Systems

by Jennifer Clawson, Josh Kellar, and Stefan Larsson

The global coronavirus pandemic is proving to be a severe moment of truth for health systems around the world. In some places, it has exposed weaknesses and gaps—shortages of critical supplies, underinvestment in public health infrastructure, and a lack of coordination and agility among policymakers, political authorities, and health care leaders—that have led to overwhelmed health systems, rapid growth in cases, and high mortality.

Other health systems have responded more effectively. In Asia, South Korea, Singapore, Hong Kong, and Taiwan have been far more successful in the early phase of the pandemic in flattening the curve and preventing deaths. And the systems in Australia, Germany, Iceland, and New Zealand have also excelled in one or more dimensions of pandemic response.

We believe that any health system can learn a lot from the top performers. Although we are still at a relatively early stage in the crisis, BCG has identified six practices that represent a best-in-class response to the pandemic and that can be applied by any national health system as part of its pandemic control strategy.

Beyond the fight against COVID-19 itself, these best practices are also broadly applicable to the way that national health systems fight any disease and manage the overall population health of their citizens. In health care, periods of crisis and adversity are also frequently important catalysts for innovation. Campaigns against past epidemics were responsible for improvements in health system infrastructure and the adoption of better hygiene practices. Similarly, some of the greatest innovations in trauma care have been the product of wartime medicine. The fight against COVID-19 has the potential to accelerate the emergence of a new model for organizing and managing health systems worldwide.

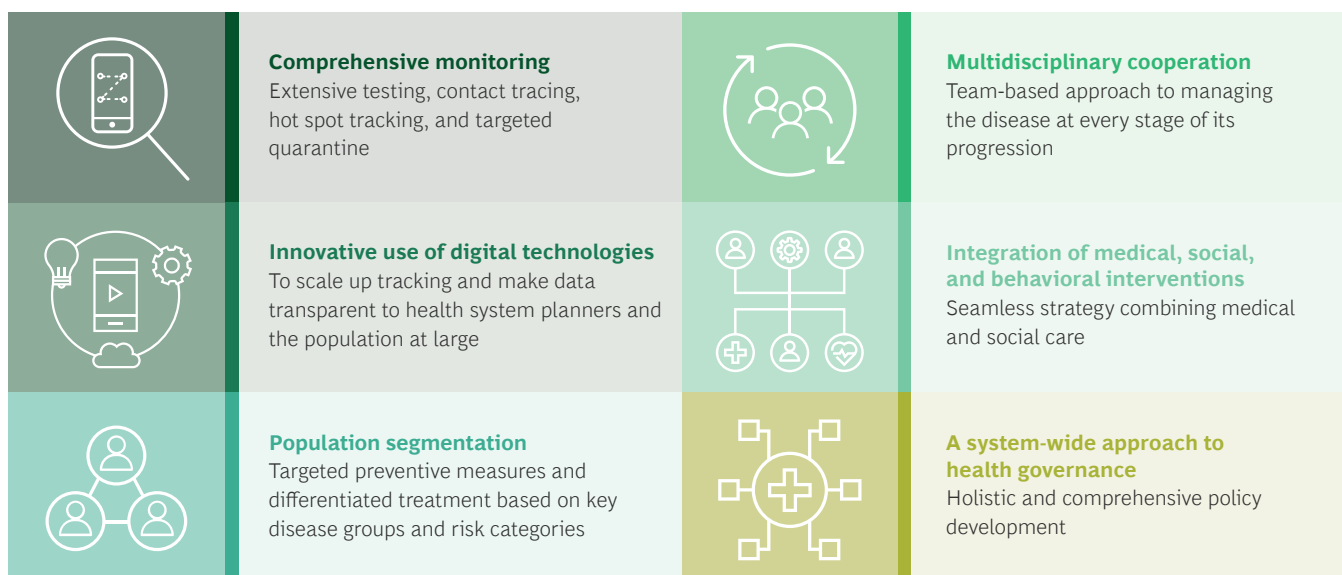
The Six Components of a Comprehensive Response to COVID-19

Collectively, the six best practices constitute an integrated and comprehensive response to COVID-19. (See Exhibit 1.) How they work together is as important for system effectiveness as any individual component itself.

1. Comprehensive Monitoring. Unless a health system can monitor the rate of occurrence and mortality of an infectious disease in its population in real time (or close to it), it will be unable to devise appropriate strategies for containment or mitigation. In the context of COVID-19, a robust viral-monitoring system consists of four key elements: widespread diagnostic and surveillance testing to know who has the disease and to identify community spread; contact tracing to identify who has come into contact with those infected and, therefore, may be infected themselves; tracking of emerging hot spots; and quarantining of the infected and exposed to prevent further spread.

South Korea, for example, quickly established an aggressive monitoring regime that included an extensive network of drive-through diagnostic centers, rigorous contact-tracing teams, and a robust process to test and quarantine international arrivals to the country. The approach has allowed South Korea to avoid the society-wide lockdowns that have been necessary in many parts of the world. Germany and Iceland are among the other health systems that have established aggressive testing and monitoring regimes early in the pandemic.

Exhibit 1 - Six Best Practices in the Fight Against COVID-19



Source: BCG analysis.

2. Innovative Use of Digital Technologies. Leading health systems are also making creative use of digital technologies to scale up tracking and to make the data transparent, both to health systems managers and the population at large. South Korea posts anonymized data obtained from cellphone records, credit card receipts, and other private data sources to track the movements of everyone who has tested positive.

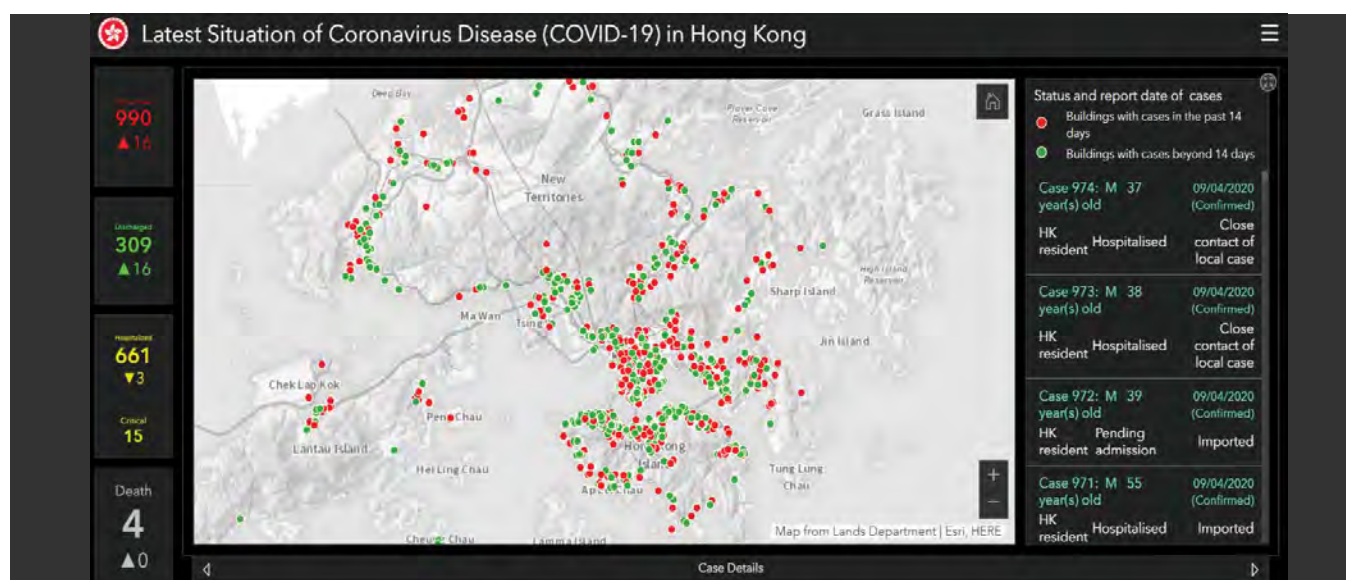
Meanwhile, Hong Kong is using geo-location data to create a publicly available dashboard that maps all current and former cases. (See Exhibit 2.) Singapore has developed a voluntary, encrypted, and anonymized mobile phone app called TraceTogether, which uses Bluetooth to collect data from phones in close proximity, allowing users to trace their contacts over a 21-day period (sharing the data with health officials is optional).

To be sure, some uses of digital technologies raise serious privacy issues and may be inappropriate (or even illegal) in certain countries, but with sufficient care, it's possible to balance data transparency and personal privacy. Many efforts are underway to strike this balance worldwide. In the US, for example, Apple and Google have announced a Bluetooth-based contact-tracing platform that is similar to Singapore's TraceTogether. Likewise, a consortium of epidemiologists, engineers, data scientists, and digital privacy experts led by the MIT Media Lab has developed an application for secure, privacy-protected location logging known as Private Kit: Safe Paths.

3. Population Segmentation. Comprehensive tracking and transparent data are prerequisites for segmenting the population into key patient groups and risk categories. Segmentation is critical both to implement targeted preventive public health measures (and, thus, to limit the need for more general lockdowns) and to increase the precision of appropriate treatment for different populations. In addition to distinguishing those who are infected from those who are not, it's also critical to segment by risk category, by stage of infection, and over time, by serological status.

4. Multidisciplinary Cooperation. As overwhelmed health systems struggle to contain the virus and treat the afflicted, health care workers from every specialty and area of expertise have contributed to an all-hands-on-deck effort. The best-performing health systems have gone further to develop a carefully targeted, team-based approach to managing the disease at every stage of its progression that is characterized by explicit shared goals for patient care. For example, since the multimorbidity elderly are most at risk from COVID-19, infectious disease experts are working closely with primary care and geriatric specialists at elderly care centers to develop strategies for prevention. Combating the disease's ravages on the respiratory system requires collaboration between infectious disease specialists, internists, and ICU doctors.

Exhibit 2 - Hong Kong Uses Geo-Location Data to Create a COVID-19 Dashboard



Source: Hong Kong Special Administrative Region Government, available at <https://chp-dashboard.geodata.gov.hk/covid-19/en.html>.

5. Integration of Medical, Social, and Behavioral Interventions.

Another best-practice response to the virus is the seamless integration of medical, social, and behavioral interventions. In many respects, this is an age-old principle of effective public health that emphasizes community-based strategies to keep the population as healthy as possible. But as health systems around the world have grown more complex, specialized, and fragmented, there has been a tendency to treat health care, public health, and social care separately for budgetary and planning purposes. As a result, the health system can become narrowly focused on biomedical interventions to treat the sick, leading to a systemic underinvestment in public health and in the social and behavioral determinants of health.

In contrast, the best-performing health systems in the current pandemic are taking a far more integrated approach, which has allowed them to place greater emphasis on key social and behavioral interventions and implement them more creatively and rigorously. Examples include the systematic organization of food delivery to quarantined individuals in China, the designation of certain bus routes and specific seniors-only days each week in public parks in Singapore, and especially rigorous mechanisms to support social distancing among the vulnerable elderly in Germany.

6. A System-Wide Approach to Health Governance. The top health systems have been able to more effectively integrate their medical, social, and behavioral interventions because in many cases they had already adopted a more holistic [system-wide approach to overall health governance](#). This has greatly improved their ability to respond with agility to the pandemic—for example, by rapidly growing the health care workforce, expanding ICU capacity, gaining access to protective equipment, and scaling up diagnostics. A major reason why Asian health systems are key leaders in the rapid response to the crisis is that their experience fighting the SARS epidemic in 2003 and the MERS outbreak in 2015 caused them to revamp their approach to health governance and to develop a more holistic, comprehensive policy infrastructure.

In the two decades after SARS, Taiwan developed an agile health command center that was able to move quickly after the first COVID-19 cases in Taiwan were identified in late January and early February. The center implemented over 100 measures to protect against the spread of the coronavirus. This rapid mobilization helps explain why Taiwan, with a population of 24 million people, has had far fewer infections than its neighbors: only 420 counted as of April 18, with six deaths.

A Global Response Informed by Global Standards

The fight against the coronavirus has only just begun, and even the best performers face ongoing challenges. In early April, a number of the Asian systems that had done so well in the early phase of the pandemic were facing a second wave of new infections. For example, after avoiding a countrywide lockdown, Singapore later had to impose a strict control order banning all social gatherings to combat an unanticipated spike in infections associated with its densely populated dormitories for foreign workers. Fortunately, the same system Singapore put in place initially to fight the pandemic allowed it to respond rapidly to these new developments. Others will face similar challenges in the months ahead.

Since globalization has contributed to the quick spread of the coronavirus around the world, it will be tempting for countries to retreat into narrow national strategies for fighting it. This would be an enormous mistake. Rather, what is required is an equivalent globalization of scientific, medical, and public health efforts informed by a shared purpose and goals, as well as wider cooperation to counter this and future pandemics.

The world needs to create a shared learning system as soon as possible to identify and spread innovative approaches for combatting the virus. Particularly, health systems need to develop global standards for collecting health outcomes and other data associated with the pandemic, and to facilitate the widespread sharing of comparable information and evidence about the specific interventions used. Different health systems will inevitably take slightly different approaches to fighting the disease.

But if we can link variations in outcomes to variations in clinical and nonclinical practice through standardized outcome analytics and efficient feedback loops, health systems will be able to quickly identify and disseminate the best approaches for prevention, containment, mitigation, and treatment.

A Model for the Future

In many cases, the practices that are proving most effective in the fight against COVID-19 are the same ones that should be used to treat any major health condition or population segment. This is particularly true for chronic conditions, such as diabetes, that represent a growing portion of the global disease burden. Every health system should:



One best-practice response to the virus is the seamless integration of medical, social, and behavioral interventions.

- Track standardized health outcomes across all diseases and make data about those outcomes transparent.
- Use digital technology to more easily capture, analyze, and share that data among practitioners and patients.
- Continuously refine the segmentation of the population by disease groups and risk categories and develop customized interventions for each.
- Strengthen the multidisciplinary, team-based approach to managing and treating specific conditions, diseases, and population segments.
- Integrate medical, social, and behavioral interventions.
- Take a more holistic approach to the design and governance of national health systems.

In this respect, the massive disruption that societies are facing as a result of the pandemic, however painful in the short term, also represents an important long-term opportunity to create more patient-centered health systems that facilitate continuous learning through sharing standardized data and benchmarks and, as a result, employ resources more effectively to meet patient needs.

The fight against COVID-19 is already pushing health systems toward a more integrated and [value-based approach to managing disease](#). Consider the US, whose highly fragmented health system and underdeveloped public health capabilities are struggling to combat the pandemic. In our experience, those parts of the US system that have already adopted a more integrated, value-based approach—integrated payer-providers such as Kaiser Permanente and Intermountain Healthcare, for example—have been better able to weather the disruption.

Because these institutions have already invested heavily in digital technologies, they have been able to shift more rapidly to the widespread reliance on telemedicine. Because they have considerable experience designing integrated care delivery pathways for specific patient segments and tracking the results, they've been able to rapidly shift resources to adapt to the surge in patients and quickly develop protocols for treating them. Because they rely more on [value-based](#) contracts for reimbursement rather than a fee-for-service model, they have reduced the financial hit caused by the decline in office visits. Perhaps

most importantly, because they have an integrated approach to care, these institutions have been more focused on overall patient health and system resilience than on maximizing the capacity utilization of any single unit within the system—a trait that is proving essential to managing the system-wide disruption the pandemic has brought in its wake.

We believe that even in the more traditional parts of the US health system, as well as in other health systems around the world, the fight against COVID-19 will impel more coordination, collaboration, and transparency. It will create new disruptive imperatives—to integrate traditional medical care and social care, to invest in a patient-centered digital infrastructure that makes telemedicine a routine form of clinical practice, and, in general, to force more integration among multiple stakeholders in what has traditionally been a fragmented and highly specialized health system. Finally, it will place renewed emphasis on the goal of system-wide resiliency, much neglected in recent years owing to an exclusive focus on cost cutting, capacity utilization, and local efficiency.

Once the pandemic is under control, it will be critical for health systems not to lose the institutional “muscle memory” they are now building in the fight against COVID-19. The temptation to return to business as usual will be strong. But the reality is that there's no going back to those traditional models of health care delivery that are no longer economically sustainable and will be even less so in the future, particularly given the current economic climate. Without a major transformation in how health systems are governed and managed, they will still lack the necessary resilience, and societies will face a future of rising health care costs and even more pressure to contain health care spending.

There is, however, an alternative scenario: use the public investments necessary to accelerate the economic recovery from the pandemic as a driver of health system transformation. In exchange for public investments in a more robust public health infrastructure, systems for routine health outcomes tracking, and the creation of a 21st-century digital platform that enables more appropriate prevention, diagnosis, and treatment, providers and other industry stakeholders should make a collective commitment. They must adopt practices that deliver better health outcomes at the same or lower cost. This is the best way, and likely the only way, to achieve high levels of overall population health in a cost-effective manner for the long term.

Out of crisis comes **learning and innovation**—both to face our immediate challenge and to build more sustainable health systems for a healthier and safer world in the decades to come.

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May 2020

A Post-COVID Paradigm Shift in Outpatient Care

by Ben Horner, John Gooch, and Ania Labno

The COVID-19 crisis has triggered a revolution in how health systems deliver outpatient care. In a matter of weeks, ways of working that dated back to the mid-20th century, if not earlier, have been supplanted by a more patient-centric approach enabled by digital innovation. As the acute phase of the crisis subsides in many countries, health systems should seek to embed the positive changes.

Ambitions should extend far beyond sustaining incremental improvements. Indeed, health systems should pursue a full-scale paradigm shift for outpatient care. To design and implement the new paradigm, they should apply a set of levers across the three dimensions of outpatient encounters: initial diagnosis, episodic care (including elective surgery), and chronic disease management.

Health systems need to act quickly in order to build on the recent unprecedented momentum for change. To initiate a transformation, they must lock in the positive changes already made, gain clinicians' support, set priorities, and secure funding. Once they identify successful innovations, they should accelerate deployment at scale through redesigned ways of working and effective governance.

Transforming at “COVID Speed”

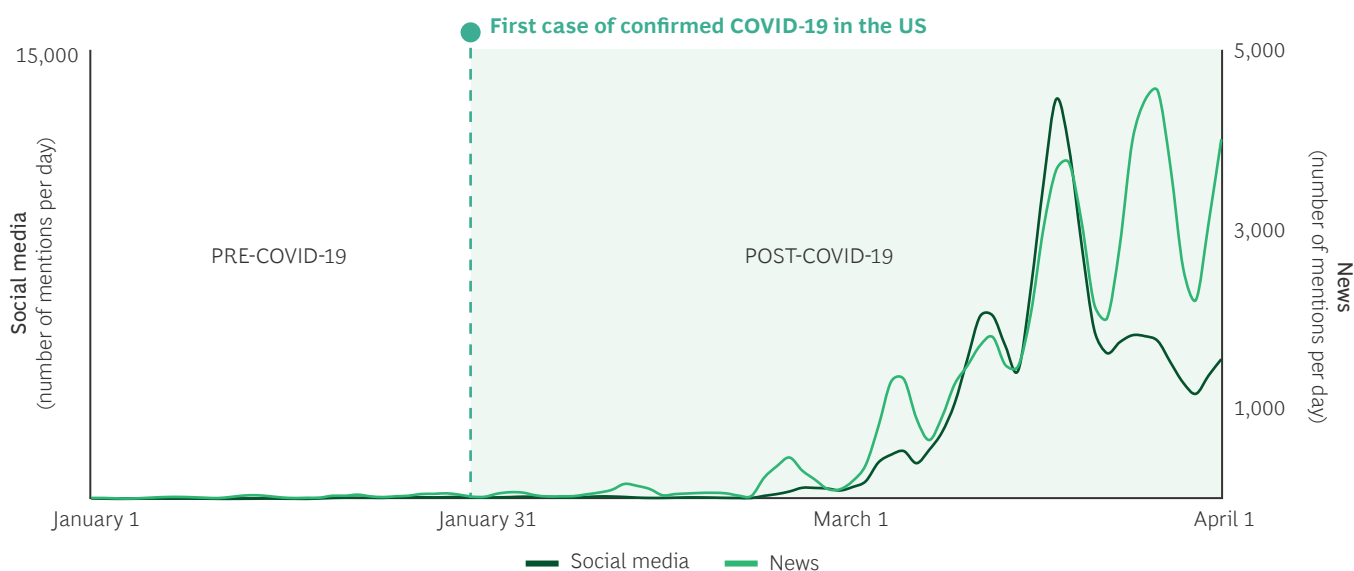
In recent months, health systems have launched new care pathways at an unprecedented pace, moving at what some have dubbed “COVID speed.” For example, in the US, Providence St. Joseph Health rolled out automated care and remote-monitoring tools for COVID-19 patients in just four days, and in England, primary care practitioners transitioned from having 90% of consultations in person to providing 85% remotely in a matter of weeks.

It is imperative for outpatient departments (OPDs) to achieve this scope and pace of change as well. In fact, a paradigm shift in outpatient services is long overdue. In the original model of care, with roots in the 18th century, outpatients visited specialist physicians in their consulting rooms. Specialists had few diagnostic tools and seldom communicated with one another. In the 20th century, the outpatient model was revolutionized by the centralization of specialty care and diagnostic facilities in hospitals—and this model has largely persisted to the current day with only incremental changes.

Updating the antiquated model will be essential to help OPDs cope with levels of demand that had been rising for many years before the crisis. In the US, while inpatient stays steadily declined from 2005 through 2015, outpatient visits rose by 14%. In an even more dramatic upsurge, outpatient visits in the UK have doubled in the past decade to 94 million per year. A paradigm shift is also vital to help OPDs quickly clear the buildup of patients whose care has been postponed because of the pandemic. This backlog can be very large—typically 10% to 15% of annual outpatient cases, in our experience.

On the basis of early indicators, both clinicians and patients see clear benefits arising from new models of care, especially in the current environment. In the US, patient interest in digital platforms is remarkably high—for instance, mentions of “telehealth” in social media and news reports increased significantly in March. (See Exhibit 1.) The pandemic has also enabled virtual providers to reach new demographics, such as those older than age 60. A key benefit for clinicians is less exposure to infection—which is especially critical as the COVID-19 crisis continues. Moreover, the reduction in travel to the office allows clinicians to make better use of their time.

Exhibit 1 - Telehealth Mentions in Social Media and News Reports Rose Sharply in the US



Sources: Twitter; YouTube; forums; reviews; blogs; Reddit; online news.

Note: Examples of keywords include telehealth, telemedicine, and online doctor. The exhibit is based on the US market, includes only open accounts and platforms that allow for web scraping, and shows three-day moving averages.

The Elements of the New Paradigm

Looking across world-leading organizations, we have identified six priority levers that health systems can apply in order to transition to a fundamentally different paradigm of outpatient care delivery, for all types of outpatient encounters. Some levers are specific to initial diagnosis or chronic disease management, while others are applicable to multiple care pathways. (See Exhibit 2.) Applied in combination, the levers could improve productivity by as much as 30% to 40% while maintaining quality and outcomes.

Primary-Care Advice Service. This is a live messaging service that allows primary care practices to send queries about patients to specialists and receive recommendations in response. By expanding the capabilities of primary care practices, the service could reduce the number of inappropriate outpatient referrals.

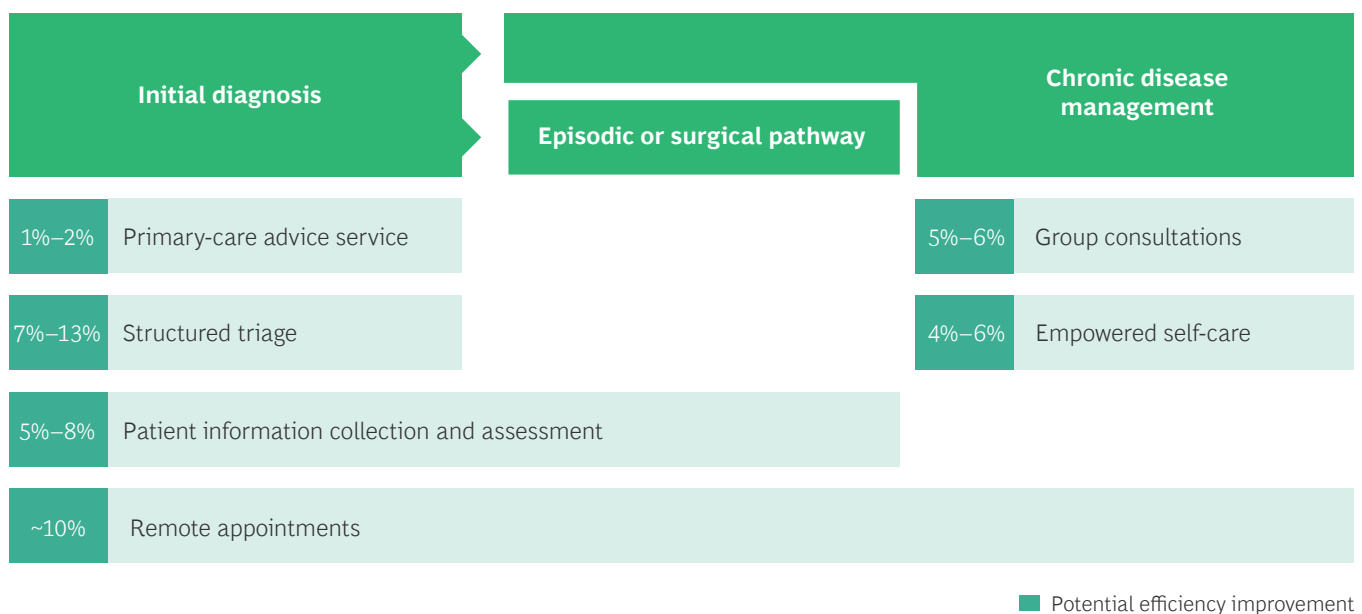
Structured Triage. A triage process for all appointments has several benefits. It ensures that referrals are appropriate, triggers any tests that must be done before an appointment (including those done with at-home test kits), and allows clinicians to assess the optimal mode of consultation (such as face to face, remote, or in a group setting). It also facilitates centralized scheduling of appointments. Organizations could augment manual efforts with algorithm-based triage (including self-triage). One health system found that deploying a triage chatbot on its website decreased calls by as much as 30%.

Patient Information Collection and Assessment.


Health systems can use online forms (linked to electronic patient records [EPRs]) to capture patient history prior to the appointment, allowing clinicians to focus on diagnosis and treatment during patient visits. The assessment can include an algorithm-based “early warning” system that scrutinizes the information provided and ensures that patients undergo any necessary diagnostic tests before the appointment.

Remote Appointments. Conducting appointments via telephone and video has been the biggest shift in the care model during the COVID-19 crisis. A recent BCG survey found that more than 50% of patients in the US with unanticipated conditions are using remote care. Governments are taking steps to enable this—the German government, for example, has removed a reimbursement cap for primary care digital consultations (previously, only 20% of appointments with a specific provider could be remote per quarter). Moving face-to-face appointments to remote consultations improves access for patients, particularly those who live far away from the provider or are hampered by poor mobility. Remote consultations can also be more efficient, especially if the telemedicine interface is integrated into the EPR. Moreover, during the COVID-19 recovery period, the remote-first approach will help to minimize the risk of infection and protect vulnerable patients.

Exhibit 2 - Six Levers in the New Paradigm Improve Outpatient Department Productivity by 30% to 40%



Source: BCG experience.



Health systems need to act quickly in order to build on the recent unprecedented momentum for change.

Group Consultations. By participating in group consultations for chronic disease management, patients can learn from and support one another. They can also gain access to a greater variety of health professionals, including physiotherapists and dieticians. Some organizations are providing these consultations in conjunction with online forums for patients.

Empowered Self-Care. Patient-initiated follow-ups and remote monitoring are particularly effective in enabling people with chronic diseases to manage their own condition on a daily basis and access specialist services when they need support. Rather than scheduling routine follow-up appointments for these patients, providers can set up advice hotlines and establish escalation points (such as a rise in blood pressure) that trigger a specialist consultation. The approach has been applied effectively across many types of services, including those for cancer and diabetes. Additionally, organizations can use remote monitoring to fundamentally change the model of care by enabling a specialist to review a patient's progress daily. Remote monitoring can also be combined with at-home treatments (such as dialysis).

How to Initiate and Accelerate the Changes

To adopt the new paradigm for outpatient care, organizations should apply what they have learned during the crisis about new ways of working and delivering changes at COVID speed. Initiating the changes entails several imperatives:

- **Lock in the changes already made.** Use the major modifications that the COVID-19 response has triggered in your organization as the basis for getting started. To maintain the momentum for change, avoid the trap of looking for brand-new end-to-end solutions—a process that could take months. Instead, seek to lock in the changes you have already made to your systems and build on these modifications by learning from the success of other organizations.
- **Win the hearts and minds of clinicians.** Ensure buy-in from clinicians by measuring impact from the start. Demonstrate the value of new models of care through patient feedback, outcomes, and access metrics. Identify clinicians who can serve as pioneers to lead the transformation and leverage their support and advocacy.
- **Set the right priorities.** Focus first on the highest-impact specialties (those with the most clinical need and greatest level of activity). Start by applying a few key levers, such as remote appointments and triage, that open the door to other levers. For example, triage helps to enable group consultations and patient-initiated follow-ups. To avoid getting bogged down in time-consuming implementations, favor more generic, but scalable, solutions over initiatives tailored to individual specialties.

- **Secure the necessary investment.** Obtain the upfront funds required to implement new models of care by demonstrating the same-year payback. The return may be a lifeline to health systems that are under unprecedented financial strain. For instance, a [recent BCG study](#) found that almost two-thirds of US health and hospital systems face material financial risk owing to the burdens of the COVID-19 response.

To accelerate the changes, organizations should take the following steps:

- **Scale rapidly.** Start small, but once something works, scale quickly. Avoid getting stuck in “pilot purgatory.”
- **Plan for the end state.** The COVID-19 recovery is an opportunity to reimagine entirely new ways of working rather than simply evolving. That means designing new pathways instead of trying to execute the existing pathways differently. For example, redesign clinic templates and booking protocols for remote appointments rather than making tweaks to the current system for in-person appointments. To prevent slipping back to old ways of working by default, establish a formal approval process to restart face-to-face clinical service.
- **Set up light-touch, robust governance.** Delivering the changes at pace across all specialties will require senior sponsorship to enable new ways of working and remove roadblocks within the organization. Use weekly feedback loops with clinicians, supported by tracking of KPIs, to address snags and ensure delivery.

Health systems have a unique opportunity to use the momentum for change created by the COVID-19 crisis in order to accelerate the transformation of outpatient care. Tremendous potential exists to deploy precious resources more efficiently. Successful health systems will not only improve access to, and delivery of, outpatient care but also enhance their ability to sustain normal levels of care during future COVID-19 demand surges. Ultimately, the improvements will help systems achieve their overarching objective: better health outcomes at lower cost.

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May 2020

The COVID-19 Conundrum for Health Care Payers

by Sanjay B. Saxena, MD; Nate Holobinko;
and Martin Löfqvist

Health care payers face an unexpected conundrum. On the one hand, while nearly every sector of the US economy finds itself under massive pressure from COVID-19, payers are actually doing better financially than they were before the crisis began, as [demand for medical procedures plummets](#). On the other, the outlook for 2021 and beyond is fraught with threats, and the next 12 to 18 months could have profound structural implications for payer economics.

To be sure, payers have been doing their part to support health care providers as the COVID-19 pandemic upends much of the health care system. All payers have eliminated prior authorization and utilization management activities to enable hospitals and physicians to focus on clinical care; many have made resources available to help provide clinical care in hot spots such as New York City; and some are providing financial assistance in the form of expedited reimbursement and loans to support cash-strapped providers. As they continue these activities, however, payers need to look beyond the immediate crisis. The actions that they take—or do not take—in the next three to six months will determine their ability to compete and thrive beyond the end of this year.

Near-Term Benefits for Payers

For decades, payers have tried to address issues of rising medical costs and affordability, pursuing all kinds of solutions and achieving uneven results. It took COVID-19 less than two months to effectively reduce the volume of elective, semi-elective, and even urgent procedures to unprecedented lows, with nearly every payer enjoying significant medical cost savings—at least temporarily. Most are on track to deliver strong, if not record, financial results for the year.

Although some of the deferred care will return as providers resume scheduling patients, volume won't immediately bounce back to precrisis levels. BCG's recent COVID-19 health care survey showed a 60% decline in medical procedures in the US as efforts to "flatten the curve" continue across the country. Approximately 80% of this drop is linked to delayed or deferred care, while 20% represents permanent cancellations.

Nearly 85% of the health care professionals we surveyed believe that, even after COVID-19 partially subsides, they will need up to a year to work through their backlog of procedures. Moreover, procedure volume is unlikely to come all the way back anytime soon. Our research indicates that government-mandated social distancing policies, the limited availability of equipment and supplies, and relevant guidance from medical organizations such as the AMA will result in procedure volume that is, on average, 30% below pre-COVID-19 levels during the next 12 to 18 months. Convincing consumers that it is safe to seek care in hospitals and physicians' offices will take time, and at least some of the volume that has shifted to lower-cost and more convenient telehealth and virtual-care formats will remain there.

Ultimately, however, private payers will not be the primary beneficiaries of lower medical costs. The Affordable Care Act (ACA) implemented strong medical-loss-ratio (MLR) floors, and few payers operate far from this range today. Assuming that no unexpected surge in medical costs occurs over the next several years, most savings will eventually have to be rebated to fully insured employers. And at most large employers—which long ago moved to self-funded, administrative-service-only (ASO) products—medical expense dollars are entirely out of play for payers. As a result, the majority of the long-term benefits will go to employers.

Shifts in Payer Membership and Profit Pools Ahead

Many experts anticipate significant disruption in the health insurance market next year. As US unemployment rates rise through levels not seen since the Great Depression, a number of analysts predict a steep drop in employer-sponsored insurance (ESI). At the same time, they project big enrollment increases in Medicaid (especially in expansion states) and in ACA plans offered through health insurance exchanges.

Although we think that these projections are directionally correct, BCG's proprietary insurance industry revenue and profit pool model suggests that payers should adopt a more nuanced understanding of the key trends at work—and the likely market shifts that they will drive.

For instance, our analyses indicate that the ESI market will shrink unevenly and less than many observers expect. Simple projections that convert unemployment numbers directly into membership losses ignore the structural reality that a plurality of workers live in dual-income households. Many unemployed workers, together with their dependent children, can switch to their spouse's (or registered domestic partner's) plan, creating a buffer against one-to-one reductions. Consequently, we believe that the average numbers of dependents on ESI plans will increase by 5% to 10% over the next year, increasing the financial pressure on employers that offer ESI. Similarly, the premise that unemployment and ESI volumes move in tandem ignores the important fact that a meaningful share of workers who lose employment did not rely on that employer for insurance in the first place. Finally, some people who lose their jobs are 65 or older and will simply switch to Medicare as their primary source of insurance.

Our model also shows that Medicaid will grow, but much less and more slowly than predicted. One restraining factor here is the fact that it will take time for recently unemployed workers to realize incomes that are low enough to qualify for the program, muting the rate of uptake into Medicaid. More importantly, numerous states that have not expanded eligibility have incurred high job losses, and the restrictions associated with their program status will impose a lower ceiling on enrollment.

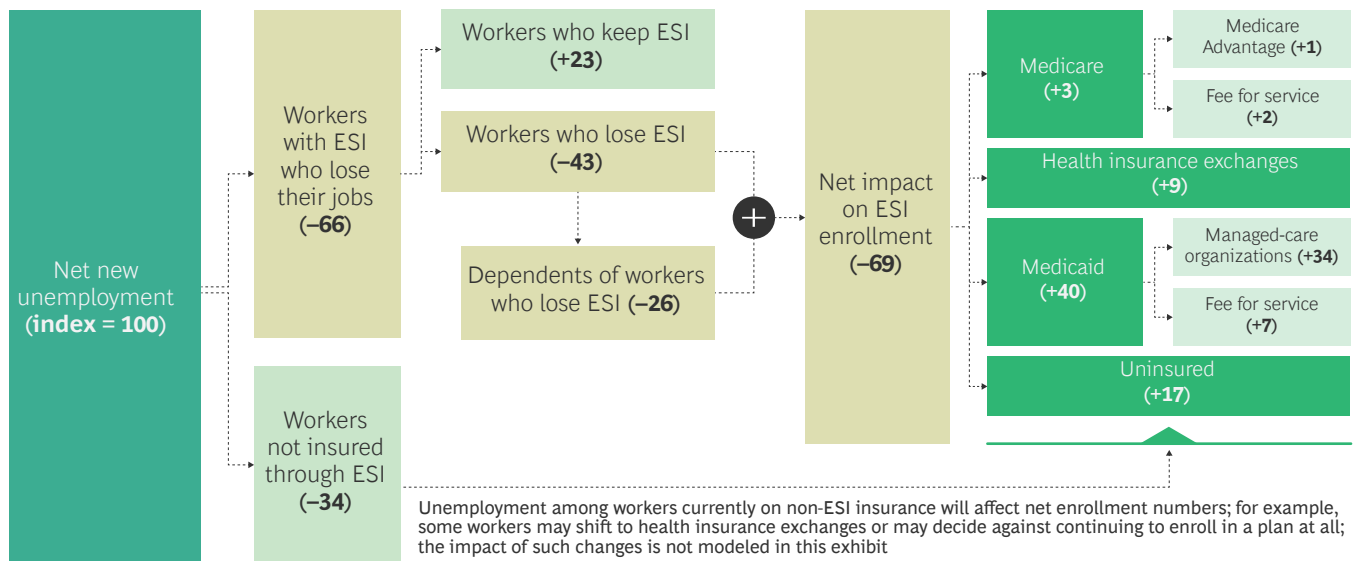
Finally, in our assessment, ACA plans will grow—but only modestly. Some share of individuals who are currently on ACA plans will opt out as they lose their jobs and income. Some workers will lose their ESI plans but not be sufficiently motivated to sign up for ACA plans. Many workers who see unemployment as temporary may think that the benefits of enrolling in a plan are not worth the cost and effort. Even with access to the partially subsidized products available on insurance exchanges, more than 10% of non-elderly adult Americans were uninsured in the pre-COVID-19 period, and almost all of them cited the high cost of coverage as the reason, accordingly to a December 2019 report from the Kaiser Family Foundation. The percentage of people who go without insurance is likely to grow—particularly in a time when many people are avoiding seeking care and when the government, by reimbursing providers for treating uninsured COVID patients, has effectively encouraged individuals to accept the moral hazard of going uninsured. (See Exhibit 1.) According to the latest initial jobless claim data available at the time of this writing, more than 30 million Americans had lost their jobs. If these turn out to be structural losses, ESI enrollment is likely to decrease by about 21 million, or approximately 10% to 15% of nationwide ESI membership.

Will Government Intervention Act as a Stabilizing Force?

Given the large and sudden rise in unemployment, several industry stakeholders have urged Congress to take bold actions to mitigate the resulting shifts in enrollment. In a recent open letter, payers, providers, and a number of industry associations asked the government to manage the costs associated with private insurance for both employers and workers. Examples of suggested initiatives include subsidies for employers' health insurance costs, subsidies for workers to cover COBRA, and incentives to increase participation in health insurance marketplaces by expanding the eligibility criteria for federal subsidies.

Such measures might reduce or delay the large-scale enrollment shifts that we would otherwise expect to see. They would provide financial benefits not only to employers and workers but also to providers, by increasing the share of the population covered by insurance that carries more attractive rates.

Exhibit 1 - The Impact of Rising Unemployment on ESI



Sources: Kaiser Family Foundation; US Bureau of Labor Statistics; US Census; BCG payer profit pool model.

Note: ESI = employer-sponsored insurance. Numbers reflect rounding.

In the bigger picture, however, the extent to which such measures reduce the shift from ESI will depend on how quickly employment returns to pre-COVID-19 levels. If the bounce back is slow and gradual, government action is likely to delay, rather than reduce, health care market shifts, since any government stimulus is unlikely to continue indefinitely. In fact, these measures, together with other unemployment benefits currently offered, might unintentionally slow the country's return to fuller employment, especially if the health benefits under the government's program exceed those offered by employers with open positions.

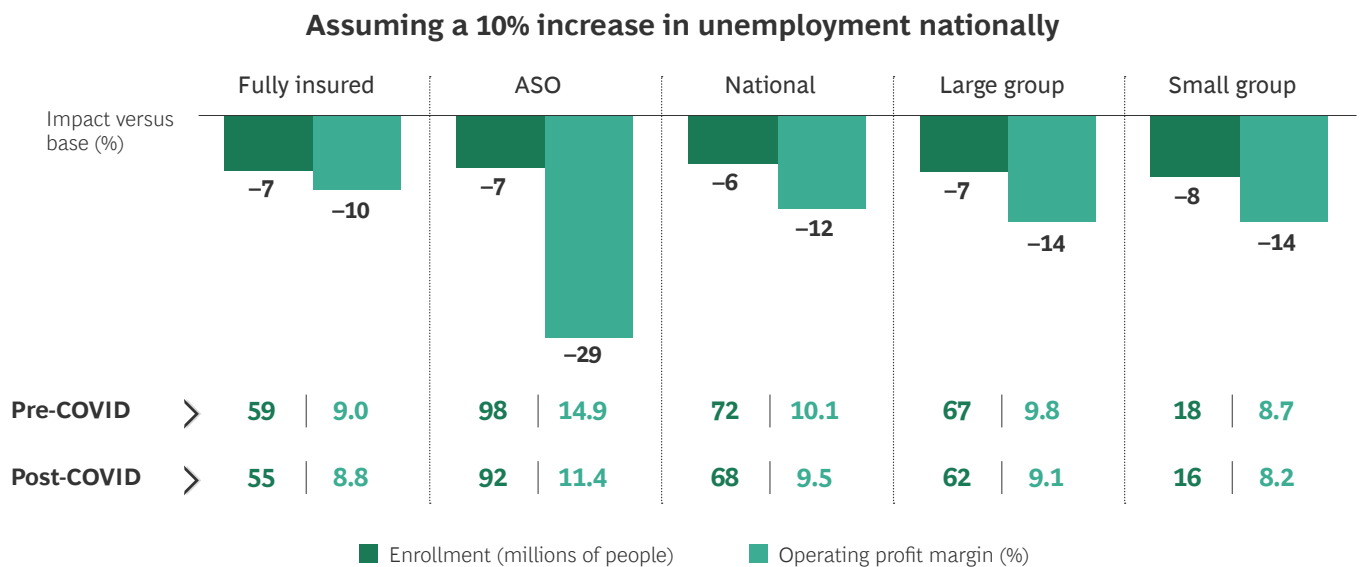
Payers Must Begin Restructuring Now

The prospect of administrative pressure in a year marked by massive medical cost reductions might seem counterintuitive, but this is the likely reality in the absence of significant government intervention aimed at stabilizing

ESI enrollment. As aggregate ESI enrollment drops—and with medical loss ratios capped—most payers will have to spread their fixed-cost base over fewer members and in lines of business that have less headroom (such as managed Medicaid and individual ACA plans). As a result, paradoxically, payers that do not take quickly action to reduce costs could find themselves in the red.

Our analysis suggests that payers might have to endure an operating margin compression of as much as 10% to 25%, assuming a jump of 10 to 20 percentage points in unemployment from pre-COVID-19 levels. This impact is likely to be disproportionately heavy among payers with high ASO exposure. In the absence of a meaningful reduction in fixed costs, ASO could see a dramatic compression of 30% to 60%, compared with the already high compression of 10% to 20% for fully insured plans. In addition, local and regional plans are likely to suffer a larger share of the volume loss than national or large-group plans. (See Exhibit 2.)

Exhibit 2 - The Impact of Reduced Enrollment on ESI Profitability



Sources: Analyst reports; annual reports; BCG analysis.

Note: Figures for operating margin and operating profit exclude state premium taxes and HMO tax, but include selling, general, and administrative expenses and commissions. Calculations assume that 42% to 58% of nonmedical-cost-related costs are fixed, depending on insurance model (fully insured/ASO) and size (national, large, or small). Enrollment numbers represent million of lives covered, and operating profit margin is expressed as a percentage of premium. ASO = administrative services only.

The Urgency of Joining the Public Dialogue

Owing to the preceding factors, payers will soon find themselves caught between a rock and a hard place with respect to public perception. On the one hand, they recognize the financial hardships that are coming and must take action to shed costs rapidly and to reposition their capabilities to ensure that health care remains affordable and accessible. On the other hand, the public will find it difficult to look past the industry's record quarterly profits at a time when hospitals are under strain and many people have lost their jobs. Even if current profits are fleeting and only on paper, a public not steeped in the complexities of insurance regulation is likely to interpret the situation as evidence of payers putting profits over people.

Payers are inherently conservative organizations, and many have adopted a wait-and-see attitude. It is therefore all the more critical for payers to move out front and be seen as driving the conversation on what to do with potential rebate dollars. Just as financial insurers have already done, payers could return some premium dollars to employers on their own initiative or even help shore up health systems that are in greatest need. In light of payers' deep understanding of the cost of health care in their communities, it would be natural for them to start and lead the dialogue about where these dollars should go.

What Happens Next

Given these new pressures, we believe that payers must take the following actions now:

- **Conduct a detailed membership and economic simulation to understand the likely impact of market shifts at both the aggregate level and the line-of-business level.** The effect of market changes will be different for each payer, depending on business mix, exposure to ASO plans, and geography. A general understanding won't suffice to properly inform the required decision making.
- **Prepare now for a leaner cost base.** It will take time to adapt to a lower membership base, and payers that wait will find that they cannot make changes fast enough to protect themselves. As a potential recession looms, it becomes critical to take steps to preserve cash and keep the balance sheet healthy from a position of strength.
- **Leapfrog to medical management and telemedicine capabilities.** COVID-19 presents payers with a once-in-a-lifetime opportunity. The next six months will effectively give them a free pass to shut down unsatisfactory

programs, build new ones, and experiment with fresh capabilities. Now is the perfect time to make a clean break from old and ineffective programs, such as telephonic care management and disease management, and rapidly usher in the next generation of technology and capabilities.

- **Get ahead of the conversation on rebates and medical surplus.** Payers that are not seen as actively guiding unused medical spending back into the hands of employers, members, or even providers are at high risk of incurring a public backlash.
- **Renegotiate provider contracts with an eye toward long-term value.** Because many providers need cash in the near term, this is a good time to strike deals that disincentivize volume-driven medicine and better align incentives for the future.
- **Aggressively acquire and integrate.** For payers that are currently in a strong position—in particular, larger regionals, integrated payer-providers, and national plans—there may never be a better time to acquire care delivery assets, as providers are in great need of financial assistance.

As payers experience brisk fiscal tailwinds this year, they may be tempted not to take these much-needed actions. But in light of how quickly the winds are likely to change as a result of enrollment shifts and cost pressure from employers and government programs, it is essential not to give in to inertia. Companies that take early and aggressive action will put themselves in a much better position to thrive in the aftermath of COVID-19.

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May 2020

Start Reimagining Government Now

by Miguel Carrasco, Priya Chandran, Vincent Chin, Patrick Hayden, Leila Hoteit, Suresh Subudhi, and Danny Werfel

While the battle against COVID-19 continues in full force, it is almost certain that the pandemic will leave a permanent mark on societies around the globe. The longer that measures such as business restrictions and social distancing need to remain in place—and the stricter they are—the greater the likelihood that the changes to our ways of living and working will be broad, deep, and enduring.

Governments must begin now to consider whether the changes that are already underway will persist and how, in some cases, they may evolve. This does not mean trying to predict the precise path of the pandemic or its impact. Challenging in the most stable of times, making reliable predictions is even more difficult in the current volatile and uncertain environment. However, governments must start to assess the lasting changes that the pandemic may bring and reimagine their own approaches and strategies for that new and different world. We see five shifts that could result in long-term changes that governments should prepare for:

1. The move to a digital economy, already well along in many parts of the world, will likely accelerate.
2. The current slowdown in cross-border activity and adjustments to global supply chains will probably continue.
3. The heightened demand for public services triggered by the pandemic may, at least temporarily, increase the role of government in many parts of the world.
4. Crisis management and resilience will become more critical, given the exposure of the consequences of inadequate preparation.
5. The pressure on governments' fiscal health will increase, and scrutiny of the impact of economic reforms on social inequity will intensify.

Governments should prepare themselves now for this post-COVID-19 world by acting in three areas. First, they should reshape how government works, including by strengthening crisis management and embracing systems thinking, an approach that factors in how the activities of government entities intersect to drive citizen outcomes. Second, they should reform how government services are delivered, in particular by accelerating the rollout and adoption of digital services. Third, they must revitalize their economies in a way that boosts long-term competitiveness while generating enduring, environmentally sustainable, and equitable growth.

Current Shifts, Long-Term Implications

In the future, we will likely think in terms of a clear demarcation line: life before COVID-19 and life after. Historically, **calamities have led to fundamental shifts in societies and economies**. World War II brought more women into the workforce; the September 11 attacks changed security protocols across the world and ushered in a new era of intelligence gathering. COVID-19 is already driving five shifts that could have long-term implications for governments. (See the exhibit.)

Accelerated Shift to a Digital Economy. In almost every country, governments have taken measures to restrict in-person contact, forcing people to interact and work remotely. This has driven a surge in digital activity: according to data from Akamai Technologies, monthly global internet usage in March and April was up 30%, ten times the pre-COVID-19 monthly growth rate. Global e-commerce expenditure increased more than 40% from late February to the end of April.¹ Demand for the online provision of services traditionally delivered in person—like a visit to a physician—has also spiked. After the easing of telehealth restrictions in late March, the US saw a tenfold increase in virtual patient consultations in the first two weeks of April, according to a report in *The Lancet*, a trend mirrored in other countries.

Changes Wrought by COVID-19 Today May Have Long-Term Implications for Government

TODAY	TOMORROW?
People everywhere are working remotely.	<ul style="list-style-type: none"> ▪ Accelerated shift to a digital economy ▪ Increased demand for government digital services ▪ Growth in remote working practices
The cross-border movement of people and goods has slowed.	<ul style="list-style-type: none"> ▪ Slowdown in the movement of people over the medium term ▪ Moves to localize or regionalize supply chains ▪ Decline in internationally exposed industries in the near term
Demand for government services and support has spiked.	<ul style="list-style-type: none"> ▪ Continued high levels of demand for government services ▪ Larger role for government ▪ Demand for reform of important government services, like health
Awareness of the risk posed by disasters has increased.	<ul style="list-style-type: none"> ▪ Focus on reforming crisis management in government ▪ Increased investment in resilience ▪ Demand for closer public-private collaboration
Government spending has ballooned.	<ul style="list-style-type: none"> ▪ Pressure on government to manage fiscal health ▪ Weakened ability to respond to volatile and anemic growth ▪ Potential to exacerbate economic and social inequalities

Source: BCG analysis.

1. Signifyd, "Covid-19 Weekly Pulse Report for Ecommerce," week ending 27 April 2020.

Certainly, the dramatic surge in online activity may recede a bit as restrictions are lifted. But it is likely that COVID-19 has accelerated the trend toward digital. That's because movement to digital channels has typically been a one-way street. The SARS crisis, for example, is credited with a permanent uptick of consumers using online retail services in China. Many governments were seeing a large increase in demand for digital services over the past decade—well before the pandemic. In the years ahead, they should anticipate higher levels of demand as citizens who have experienced digital service delivery during the crisis come to prefer this channel.

The amount of time people in government and other sectors will work remotely is also likely to rise. Working from home is not a new phenomenon, but the crisis has broken down some of the barriers that were preventing wider adoption. Many organizations, for example, have invested in technology and have established norms to support employees working from home. And the success of remote-working arrangements may have dispelled myths about productivity. This will have immediate implications for governments as employers. Even before the crisis, for example, more than one-third of US federal government employees worked from home on average one day a week, according to the US Office of Personnel Management. And if employees in many industries across the economy increasingly work remotely, this will affect government services tied to patterns of commuter behavior, including public transportation, government construction and maintenance of highways, and childcare.

Continued Slowdown in Cross-Border Activity. The pandemic has disrupted trade, travel, and other cross-border activities. Trade has been heavily impacted by the economic fallout of the pandemic. The World Trade Organization has forecasted a decline in international trade this year of 13% to 32%, depending on the broader economy. Global travel has come to a nearly complete standstill. By the end of April, global airline capacity had been reduced by almost 75% from pre-COVID-19 levels, with 65% of the world's commercial aircraft in storage.² Most countries have partial or full border closures in place for personal travel. And many have indicated that reopening borders will be among their last steps in the easing of restrictions, with a return to prepandemic openness potentially on hold until a vaccine or cure is widely available.

How quickly and to what extent cross-border activity resumes is unclear. We have already seen indications that supply chains vital to national interests, like medical supplies and agriculture, may be permanently disrupted by a desire among government to secure local supply. Companies may also seek to localize or regionalize supply chains to reduce exposure to global risks. Meanwhile, nationalist posturing is also on the rise, potentially signaling a retreat from open global trade.

Similarly, global travel is unlikely to enjoy a rapid recovery to prepandemic levels. Certainly, international passenger travel has historically recovered quickly from a crisis. Despite dire predictions, airline travel after the September 11 attacks was back at long-term trend levels in the US within three years and continued to grow globally during that period. Airline travel also quickly recovered after the global financial crisis. But this crisis may be different, for several reasons. First, given the expected timeline for the development of a vaccine, the restrictions that have caused the initial dramatic slowdown may remain in place for many months. Second, even when the restrictions are lifted, it is likely that economies in many parts of the world will still be struggling. Third, businesses already under pressure to reduce carbon footprints, and now to reduce costs, are unlikely to resume pre-COVID-19 levels of travel any time soon.

As a result, industries with high exposure to international travel will struggle to weather this lengthy period. This includes airlines and tourism in most parts of the world. In addition, in some countries, such as the US, Australia, and the UK, the education sector is heavily dependent on fee-paying international students and consequently is likely to take a hit.

A Larger Role for Government and Pressure for Reforms. Governments are heaving under the strain of demand for assistance and services. Early in the crisis, Australia saw long lines of newly unemployed people outside welfare offices after the government's website crashed, a result of the government's underestimation of the volume and speed of the impact of the coronavirus on jobs. In Thailand, a government website crashed as 14 million people tried to sign up for a cash handout scheme, four times the anticipated number. The US has recorded almost 39 million jobless claims since mid-March, causing a meltdown of many state government systems. Major recurring issues with Florida's online portal for unemployment insurance through April, for example, left tens of thousands of jobless Floridians unable to file claims.

2. Cirium, "Tracking the In-Storage Fleet and Utilization in a Time of Uncertainty."

Governments should anticipate higher levels of demand for digital services after the crisis as citizens come to prefer this channel.



Beyond the immediate surge in demand for government support, the economic fallout from the crisis means that a heightened demand for government services will likely persist for some time. This will lead to bigger government, at least temporarily, or will force governments to deprioritize spending in areas unrelated to the COVID-19 response if they want to limit an overall expansion.

In addition to welfare support for the unemployed or financial assistance for businesses, the crisis has sharpened the case for government reforms in some countries, particularly where existing services have been exposed as inadequate. Health care systems in particular have been tested in unprecedented ways. How these systems are reformed will be shaped largely by political debates related to issues such as the role of the government versus the private sector in providing care, the implications of telemedicine, and the need for more-resilient medical supply chains and more-flexible health capacity and workforces. Nonetheless, in many countries the crisis has hardened the consensus on the need for reform.

Increased Focus on Crisis Management and Resilience. Nearly every citizen in almost every country has been directly impacted by the COVID-19 crisis. Most people's lives have been disrupted by social distancing requirements, stay-at-home orders, and homeschooling; Many have lost loved ones or are now unemployed or facing a highly uncertain financial future. This has raised an acute awareness of how exposed we are to natural disasters such as pandemics and how critical it is to have a resilient and effective government to lead the way. While still early days, it is clear that some governments have been in a position to mitigate the effects of the crisis better than others by moving fast, acting decisively, and mobilizing resources effectively.

In the months and years ahead, governments will naturally come under pressure to address the flaws exposed in the handling of this crisis. Past crises present a playbook of sorts. After September 11, the US overhauled its intelligence community. After the global financial crisis, most developed countries introduced large-scale reforms of the financial sector, such as the Dodd-Frank Act in the US and updates to the Basel Accords on global banking. This time around, there is likely to be a focus on the health response, in particular how well equipped a country is to detect epidemics and respond swiftly.

Yet the need for action will likely be broader, including a drive to improve the country's resilience in the face of disasters of many types. For many citizens, the COVID-19 crisis probably feels like the latest in a line of catastrophic events that have upended their lives in recent years, from

hurricanes to flooding to heatwaves to bushfires. Since 2015, the US has seen an average of 15 disasters per year costing \$1 billion or more, compared with an average of 6 per year since 1980, according to the National Oceanic and Atmospheric Administration. The increased pace of such disasters reflects, in part, the grave threat that climate change poses to global economies—a threat that dwarfs the damage caused by the current pandemic. Most governments need to urgently rethink their approach to assessing risk overall—and climate risk, in particular—and how they prepare for the next calamitous event.

There is clearly a heightened awareness that our ability to respond to crises—and maintain a vital economy for business growth—is closely tethered to government capacity and performance. This realization could also usher in closer collaboration between the private and public sectors. In many places, the public pandemic response has already drawn heavily on business partnerships to address shared public challenges.

Economic Pressures. The size of stimulus packages announced by governments is already on track to be larger than stimulus spending in the global financial crisis. Across OECD countries, governments have committed 3.5% of GDP to new programs aimed at reviving their economies, compared with 2.1% in 2009, at the height of the global financial crisis. The IMF estimates that across the world, the average government fiscal deficit in 2020 will be 10% of GDP (compared with 3% annually, on average, since the global financial crisis) and that total gross national debt will rise to 96% of global GDP, up from 83% in 2019. At the same time, monetary policy levers have been largely pushed to their limits, with near-zero interest rates across developed countries.

The size and nature of the post-COVID-19 hangover will not be apparent until economies emerge from the widely expected recession. However, in the near term the crisis may leave governments in a weaker position to address further spates of economic stress through additional stimulus. Even with today's low interest rates, which make debt relatively cheap, governments will likely seek to reduce debt levels by pushing for greater cost efficiency in government programs. They must proceed with caution, however. In particular, they should note the lessons from the global financial crisis, when austerity programs in some countries aimed at shoring up government finances inflicted further damage on the economy.

The extent to which today's government actions close—or exacerbate—existing inequalities and address other important policy objectives will shape the ability of post-COVID-19 societies to come together and thrive. Perceptions may matter as much as a policy's actual effectiveness in spurring economic growth and restoring fiscal health. After the last crisis, perceptions about government actions to resuscitate the economy influenced public debate and political discourse for years. A perception that the government was getting “too big” spurred the rise of the Tea Party in the US, for example. And a view that government actions in the crisis favored the wealthy sparked the Occupy Wall Street movement. Trust in government and in its vision may rise or fall on how citizens see their needs and priorities reflected in their government's economic policies, and how well government **delivers on citizens' expectations for public service delivery.**

Government Must Act in Three Areas

Given the potential for the five shifts outlined above to reshape social and economic life, governments need to act now to ensure they can respond effectively. This requires new approaches in three areas.

Reshape how government works. Governments should use the pandemic as a catalyst for revamping how they operate to ensure effective national crisis management and resilience support, improve how they collaborate with local leaders, particularly in cities, and embrace systems thinking and agile ways of working.

Governments should start by reviewing the structures, people, and processes in place to respond to crises. In doing so, they must avoid the trap of only looking backward, solving the last crisis instead of anticipating the next one. To this end, governments should strengthen scenario planning and wargaming, **adopting a “prepare, don't predict” mindset.** With budgets likely under pressure, governments should also take a hard look at both the way business cases for investments are constructed and the way investments are funded. They should adjust approaches in both areas to incentivize critical investments in resilience, which often deliver a long-term payoff, over investments that yield short-term efficiency gains.

In addition, governments need to become more effective partners to local communities. With a growing percentage of the world's population gravitating to cities, governments should take the opportunity in particular to focus on and support urban resilience. And they should build complementary relationships between national and local governments, embracing the **more responsive and experimental approach** that is possible at a local or community level.

Governments must also develop strategies that reflect the operation of government as a system—not as a series of silos. The current crisis has highlighted the importance of such systems thinking, demanding a whole-of-government response that reflects the intertwined health, economic, and societal challenges posed by the pandemic. The pandemic has, for example, exposed how a lack of shared data platforms that enable the matching of supply and demand for critical resources has undermined the national response. To drive a systems-level approach, governments should develop shared data and IT platforms and embrace inclusive decision making, tolerance for an appropriate level of risk, and a focus on outcomes in measuring performance. They should also redouble efforts to adopt **agile ways of working**, including the creation of focused multidisciplinary teams, the development of minimum viable products at speed, and the increased use of data and analytics.

Reform the delivery of government services. As the pandemic accelerates the spread of digital tools and business models, governments should intensify their focus on digital service delivery. They must also assess how health and education systems may need to change.

A drive to expand digital service delivery will be particularly critical. Even before the pandemic, governments were under pressure to meet citizens' expectations for service delivery. Post-COVID-19, those expectations will only grow. To effectively accelerate their investment in digital services, governments must adopt a **citizen-centric mindset to reimagine the entire citizen journey**, delivering simpler, seamless, and faster government services. They must use this opportunity to build teams that can deliver great digital products and services quickly, and accelerate decisions such as moving more aggressively into the cloud, using a more diverse range of suppliers, and simplifying and standardizing their data and digital platforms. Governments will **also need to become “bionic,”** adept at harnessing both the human elements of their organizations (including through the right structures, talent, and ways of working) and the technological elements (such as AI, machine learning, and other innovations) to deliver positive outcomes for citizens.

Government leaders should also focus on reforming health systems, learning from weaknesses exposed during the crisis. The lessons include the importance of resilient medical supply chains and the need to adopt digital technologies and data analytics **in line with digitization trends in other parts of the economy**. Health systems should also embrace changes wrought by the crisis, including the expanded use of digital service channels, such as telehealth. And as governments increase R&D investments aimed at the development of rapid diagnostics, therapeutics, and vaccines to head off the next pandemic, public health institutions will need to position themselves to compete for that funding.

At the same time, governments should rethink their education and worker training and reskilling models. **Digital learning is not new**, but public education systems are now a testing ground for remote-education delivery models on a mass scale. Forward-looking government institutions will seize on the lessons and behaviors learned to permanently reshape how education is delivered. If the right investments are made, including steps to ensure widespread access to digital services and tools, such a shift can help address a profound driver of inequality by decoupling the quality of education from the wealth of a student's neighborhood. In some countries, governments will also need to look at structural reforms so that higher-education institutions are less dependent on fee-paying international students.

Revitalize the economy—and ensure equity. The changes ahead make it critical for governments to take proactive steps to position their economies for a rebound while fostering trust among citizens.

As they restructure their economies, governments will need to **build a base for future competitiveness**. They should, for example, redouble efforts in growth areas such as digital and the green economy. At the same time, they need to design relief packages and economic policies to drive reskilling and upskilling of workers to meet the demands of growing sectors—not to subsidize shrinking industries. Those governments that develop forward-looking human capital strategies based on objective assessments of their competitive advantage relative to other countries will be positioned for a robust and strong rebound.

As governments move to revitalize their economies, they must also build—or in some cases rebuild—trust among citizens. This starts with designing equitable economic reforms that will deliver for all. Many governments have designed stimulus programs, for example, to ensure social

protections are structured to reflect the reality of the “new” economy, particularly the rise of contract and gig workers. At the same time, governments **must be empathetic and transparent, develop authentic connections, and value and respond to citizens' voices**. This is more than just an effective communication strategy—it is also about shaping people, organizations, and processes around an imperative to be genuinely responsive and caring.

The change and uncertainty created by COVID-19 can be a powerful catalyst for positive change in government. But to seize this opportunity, governments need to step back and think about the long-term implications of the pandemic—and reimagine how they should operate in the new reality. Those that do will navigate more effectively through the current crisis—and they will be ready for the next one.

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July 2020

Bridging COVID-19's Racial Divide

by Amanda Brimmer, Marin Gjaja, Dan Kahn, Bryann DaSilva, Kedra Newsom, and Marisa Gerla

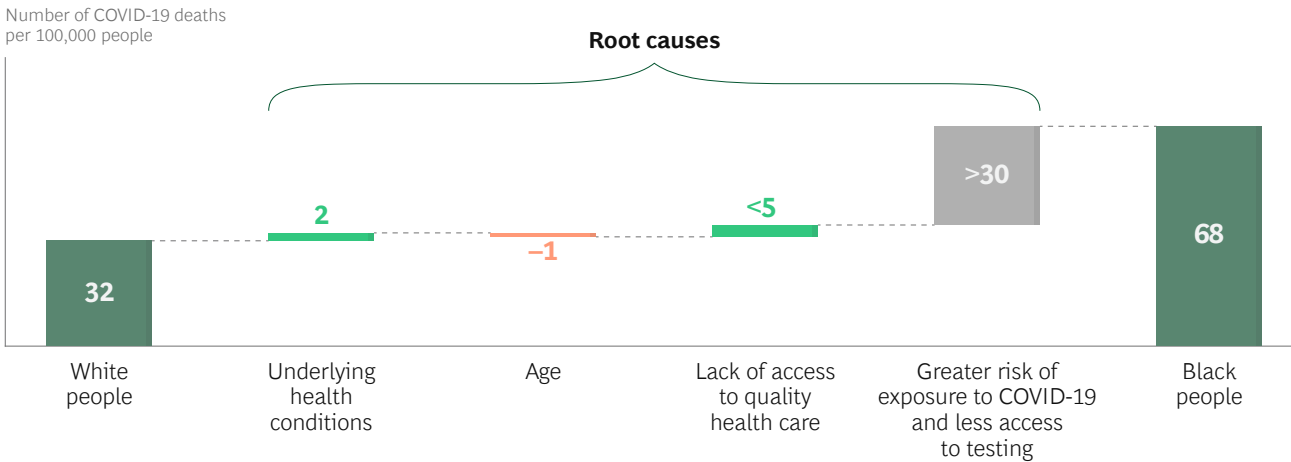
Against a backdrop of protests and a national conversation about systemic racism, disproportionate numbers of Black and Hispanic people in the US are dying from COVID-19. The prevailing view is that the higher number of deaths is due to three factors: underlying health conditions, the lack of access to quality health care, and exposure to the virus.

But our data analysis reveals that is not case. Neither underlying health conditions nor the lack of access to quality health care has played a primary role in the discrepancy, though the latter was an issue early in the pandemic, when the lack of health insurance prevented many people from seeking treatment. Rather, the chief reasons for the disproportionate number of deaths are the greater risk of exposure to people with COVID-19 and less access to COVID-19 testing. By our calculations, these reasons account for about 85% of the disparity. Underlying health conditions, age, and the lack of access to quality health care account for the remaining 15%. (See Exhibit 1.)

The widespread misinterpretation of the data has had grave consequences. In particular, it has distracted policymakers from the immediate imperative to address the systemic racial disparities that are related to exposure as well as testing access. As a result, COVID-19 is again surging among people of color. Hispanic communities in the southern region of the US and in California are getting hit especially hard.

By contrast, Chicago’s journey toward health care equity in fighting COVID-19 shows that more can and should be done to safeguard communities of color. To reduce the spread of the coronavirus among people of color, it is vital to protect those who are essential workers and who are in high-contact occupations. It is also critical to expand the number of testing sites in communities of color and ensure sustained access to quality care.

Exhibit 1 - More Than 85% of Incremental COVID-19 Deaths Among Black People Are Due to Greater Risk of Exposure or Less Access to Testing



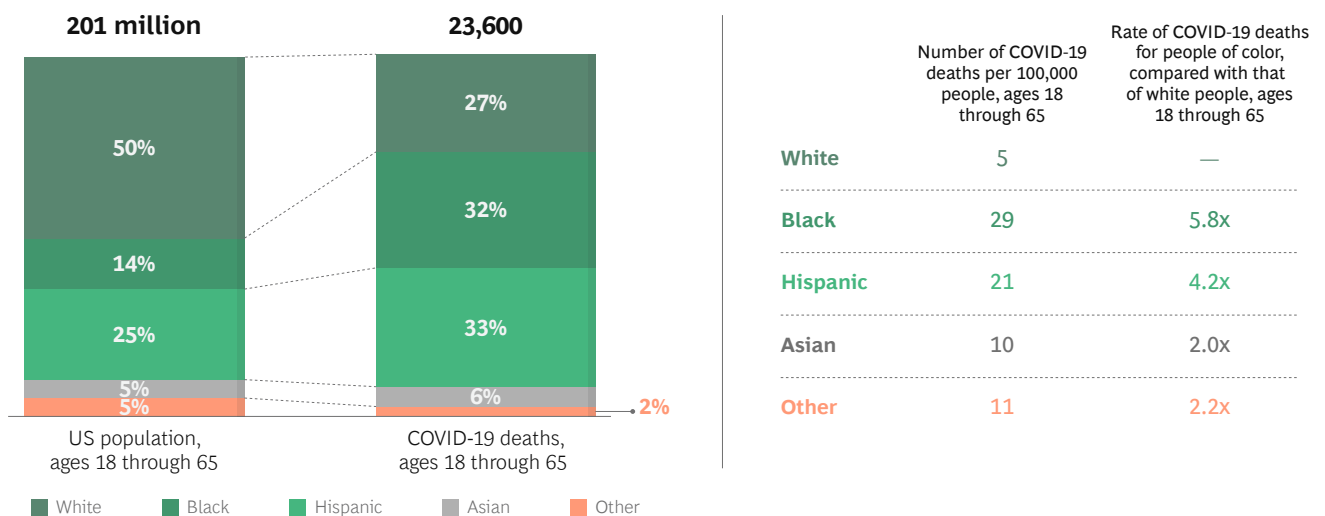
Sources: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System’s 2017 survey data; other CDC data as of July 15, 2020; American Institute of Economic Research; US Census Bureau; findcovidtesting.org; BCG analysis.

Coming to Grips with the Data

To get a true sense of the impact of the pandemic on the lives of people of color, we analyzed data on COVID-19-related deaths, infection fatality rates (IFRs), and infection rates for Black, Hispanic, Asian, and white people in the US. We then investigated the root causes for the disparities among the different groups. (See “About Our Research.”)

The Number of Deaths. The data is sobering. For the US population, ages 18 through 65, Black people account for 32% of all COVID-19 deaths, despite making up only 14% of that population. (See Exhibit 2.) When we compared the number of COVID-19 deaths per 100,000 people aged 18 through 65 for each group, we found that the number of deaths for Black people is 5.8 times higher than it is for white people, while the number of deaths for Hispanics is 4.2 times higher than it is for white people.

Exhibit 2 - US COVID-19 Deaths per 100,000 People Are Disproportionately High for People of Color, Ages 18 Through 65



Sources: US Census Bureau (2018 estimates); Centers for Disease Control and Prevention data as of July 15, 2020; BCG analysis.

Note: Because of rounding, not all percentages add up to 100.



About Our Research

To get a better understanding of the impact that COVID-19 has had on people of color in the US, BCG analyzed data from the US Census Bureau and the Centers for Disease Control and Prevention (CDC), including data collected by the CDC's Behavioral Risk Factor Surveillance System (BRFSS).

Synthesizing various analyses and expert interviews, we determined the expected Infection Fatality Ratio (IFR) by age group and by the presence or absence of a relevant underlying health condition. We then applied these rates to demographic data from the US Census and the BRFSS for each racial group by state to determine the expected IFRs by group, adjusted for age and underlying health conditions.

Using these expected IFRs and reported deaths, we estimated the number and rate of infections for each racial group. The number of infections is calculated by dividing the actual number of deaths by the expected IFR.

It was also possible to estimate the root causes of the death difference between people of color and white people. We compared the infection rate for each racial group with the distribution of deaths reported through June 24, 2020, to find the portion that can be explained by age and underlying health conditions. When we repeated this analysis with data reported through July 15, 2020, the results were nearly identical, so this is likely to be a sustained trend.

Subsequent to our demographic analysis, we methodically evaluated various root causes in sequence to determine which ones were most important: underlying health conditions and age, the lack of access to quality health care, or greater risk of exposure to COVID-19 and less access to testing.

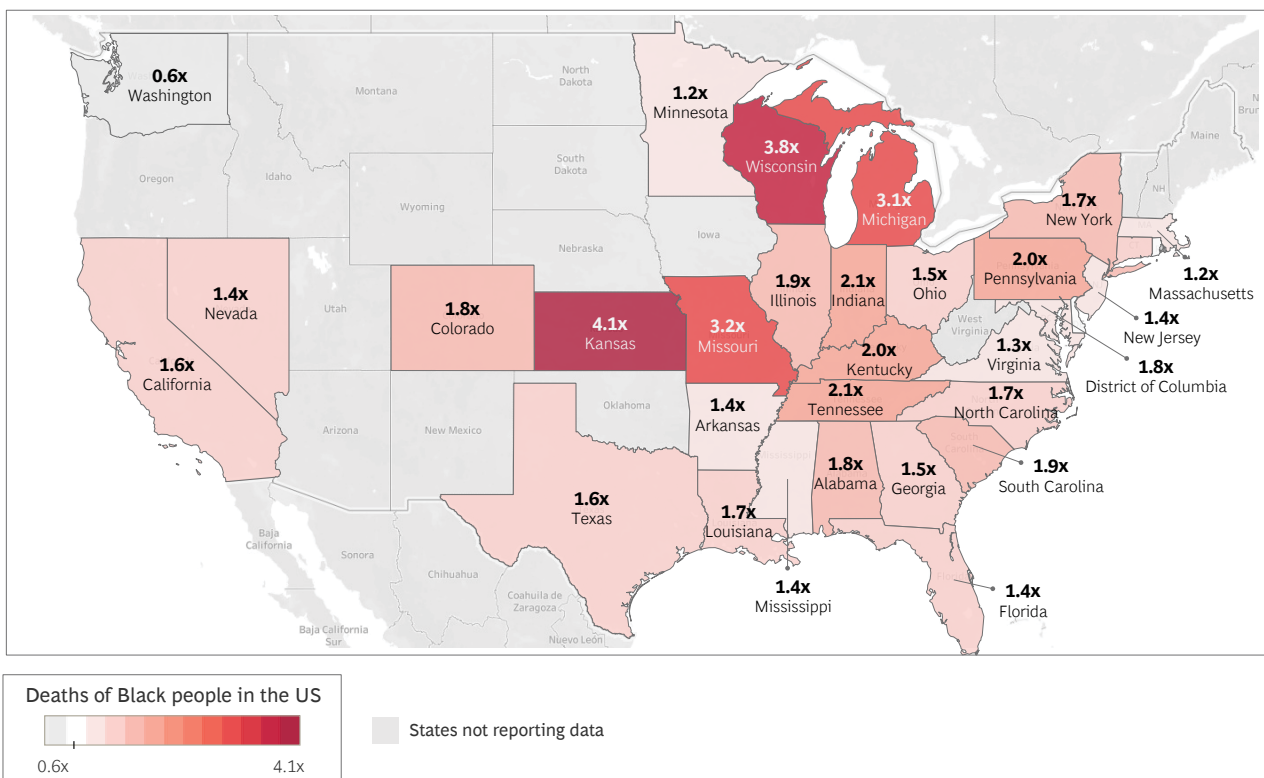
Regional data yielded similar insights. Expectedly, the number of COVID-19 deaths for Black people and for white people varies significantly from state to state. But the number of COVID-19 deaths for Black people is higher than the average number for the general population in almost every state reporting this data. (See Exhibit 3.) In urban areas, the number of deaths for Black people is about 1.5 times higher; in rural areas, it is 4 times higher.

IFR. Epidemiologists define IFR as the percentage of people infected with the virus—regardless of whether they have been diagnosed—who are expected to die from it. In July, the World Health Organization stated that the current consensus global IFR for COVID-19 is 0.6%.

The IFR for a group depends primarily on the prevalence of underlying health conditions and age distribution. We estimate that for Black and Hispanic people in the US, the IFR is respectively 0.4% and 0.3%, slightly lower than the IFR for white people (0.5%). For Asians, it's even lower (0.2%). The demographic base of older white people accounts for the majority of this estimate.

Infection Rates. Given US testing limitations and the high prevalence of asymptomatic cases, we have to estimate the true infection rate. Estimated infection rates depend on IFRs and the reported number of deaths per racial group. By our calculations, the infection rates for Black and Hispanic people are respectively three and two times higher than they are for white people. (See Exhibit 4.) This is important because it shows that infection rates for people of color are the primary reason for disparities in COVID-19 outcomes.

Exhibit 3 - The COVID-19 Death Rate Is Higher for Black People Than It Is for Many States' General Populations



Sources: Centers for Disease Control and Prevention (CDC), Behavioral Risk Factor Surveillance System's 2017 survey data; other CDC data; American Institute of Economic Research; BCG analysis.

Exhibit 4 - COVID-19 Infection Rates for People of Color Are Two to Three Times Higher Than the Rates for White People

Per 100,000 people	Number of deaths	Estimated infection fatality rate	Estimated number of infections	Rate of infection for people of color, compared with that for white people
White	~32	.5%	~6,000	—
Black	~68	.4%	~17,500	2.8x
Hispanic	~35	.3%	~13,000	2.1x

Sources: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System's 2017 survey data; New York City Department of Health and Mental Hygiene; South Korean government; US Census Bureau; BCG analysis.

The Key Factors Influencing Racial Disparities

Why are death and infection rates so much higher for people of color than they are for white people? There are four factors to consider: the greater risk of exposure, less access to testing, underlying health conditions and age, and the lack of access to quality health care:

Greater Risk of Exposure. Of the various factors that are linked to infection, exposure to the virus is the most important because people of color are at significantly greater risk of exposure for various reasons related to social determinants of health. They are, for example, significantly more likely to live in multigenerational housing, use public transit, and work in environments where they are more exposed to the virus.

While only 16% of white people live in multigenerational households, that number is 60% to 80% higher for people of color. Nearly 30% of Asians live in multigenerational housing. In addition to multigenerational households, people of color in congregate living facilities (especially nursing homes, treatment centers, and prisons) have been hit hard by the coronavirus. To date, 60% of nursing homes that have a significant population (more than 25%) of people of color have reported COVID-19 cases, as opposed to 30% of nursing homes that have a small population (under 5%) of people of color. Prison residents are testing positive for the coronavirus at five times the rate of the general population.

Working conditions are especially problematic. Black and Hispanic people make up a disproportionate share of two groups of workers that have the highest risk of exposure:

- **Essential Workers.** The largest group that has a high risk of exposure is essential workers. This group spends many hours each day in places such as grocery stores, pharmacies, and hospitals. Essential workers make up approximately 33% of the overall workforce and 45% of the workforce that is people of color.
 - **Workers in High-Contact Occupations.** The other group is made up of workers who have a high risk of exposure because they contend with very crowded workplaces—such as factories and hotels. Workers in these environments are disproportionately people of color. For example, people of color represent about 60% of employees in the meatpacking industry but account for almost 90% of the confirmed COVID-19 cases in this sector.
- Less Access to Testing.** The data on testing reflects wide disparities between people of color and white people. The inequities have resulted from requirements for testing, access to tests and testing sites, skepticism about testing, and monolingual outreach.
- **Requirements for Testing.** Early in the pandemic, many states made having a prescription mandatory for getting a test. This posed a challenge to many Hispanics who do not have a personal doctor (20% report not having a personal physician or health care provider, compared with approximately 5% of white people). However, that issue largely dissipated when many states relaxed the rule about prescriptions.

Chicago's journey toward health care equity in fighting COVID-19 shows that more can and should be done to safeguard communities of color.



- **Access to Tests and Testing Sites.** On average, zip codes for areas predominantly made up of people of color have approximately 15% fewer testing sites than zip codes with mostly white residents. Moreover, the number of administered tests per capita in zip codes with mainly people of color is only 25% higher than the number given in zip codes with mainly white people. If the number of administered tests was based on infection rates, zip codes with predominantly people of color would have two to three times the number of tests than the average in zip codes made up of mostly white people. Clearly, an insufficient number of people of color are getting COVID-19 tests. Why? We believe several factors are at work. Some people with low incomes cannot afford to take time off while waiting for results, as some employers require. Additionally, recent studies suggest that people of color face much longer wait times, and communities of color are less likely to have a sufficient testing supply than communities with mostly white residents. In other instances, well-intentioned efforts, such as Delaware’s drive-through testing sites, could not be accessed by local residents who lacked a car. Regardless of the cause, however, the result is the same.
- **Skepticism About Testing.** Some people have been reluctant to get tested because they mistrust the government. That may be because long-standing racial inequities in health care have made some people reluctant to give authorities access to their private data. The consequences of being tracked and traced may be especially worrisome for undocumented immigrants who are at risk of losing their jobs or, worse yet, deportation.
- **Monolingual Outreach.** Hispanics who speak only Spanish may have missed out on testing simply because outreach has been primarily in English. Given that approximately 20% of Hispanics in the US don’t speak English, the number who have missed opportunities to get tested could be significant.

Underlying Health Conditions and Age. People who have chronic health conditions, such as heart disease or diabetes, or who are over the age of 65 are especially **vulnerable** to COVID-19. If infected, these health-vulnerable individuals have a high risk of succumbing to the disease. Since a higher percentage of Black adults have underlying health conditions than do white adults (30%, compared with 25%), it is often assumed that underlying conditions are responsible for the higher number of COVID-19 deaths among Black people. (This does not apply to Hispanics, since only 20% have relevant chronic health conditions.)

That assumption is incorrect, however, because Black adults with underlying conditions are typically younger than white people with chronic conditions, largely offsetting the influence that such diseases have on the death rate. Approximately 25% of white people are over the age of 65, but only 16% and 9% of Black and Hispanic people, respectively, are over the age of 65. Overall, higher health vulnerability is not a significant cause of the higher number of deaths among people of color; by our estimate, it accounts for less than 5% of the difference.

Lack of Access to Quality Health Care. The last factor to be considered, health care access, has three key drivers:

- **Health Care Capacity.** Our county-level analysis shows that, overall, counties with a predominantly white population have a similar number of hospital beds and a similar ICU capacity per capita as counties with predominantly people of color. While there is material variance in some regions, it is not enough to suggest that health care capacity has played a major role in COVID-19 death disparities, even though it is a well-documented contributor to other chronic health outcome disparities.
- **Health Insurance.** In the early weeks of the pandemic, health insurance coverage may well have limited access to health care: higher percentages of Black and Hispanic people in the US are uninsured and may not have sought out testing or treatment because of the large out-of-pocket costs. But this should no longer have been an issue by late April, when federal programs and insurance waivers began covering out-of-pocket costs for COVID-19 testing and treatment. Since there continue to be large disparities in death rates, we can rule out health insurance as a major factor.
- **Quality of Care.** The number of Black and Hispanic patients hospitalized with COVID-19 per 100,000 people is four times that of similar hospitalizations for white patients. But a much larger percentage of hospitalized white people have died than hospitalized people of color (20%, compared with 13%). This suggests that the quality of the care a person receives in the hospital is not likely a primary reason for the higher number of deaths for people of color, though it appears to be a factor in some locations. Still, the significantly higher number of hospitalizations for people of color is cause for concern. It could be due to the fact that many Black and Hispanic people lack a primary care provider or access to a community clinic. (See [“Chicago: A Case in Point.”](#))



Chicago: A Case in Point

The city of Chicago offers an illustration of how government and society can work together to turn around health care disparities and achieve more equitable outcomes.

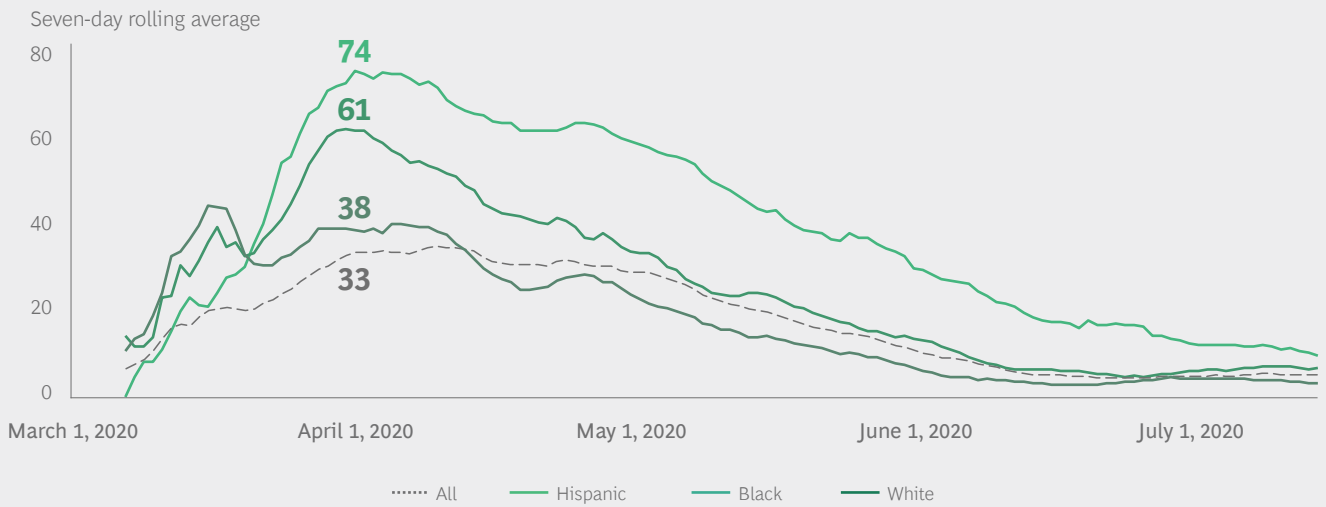
Because it was collecting COVID-19 data by race, Chicago identified a wide disparity for the testing positivity rates between two groups: people of color and white people. In early April, the rate for white Chicagoans was 38%, but it was 23 and 36 percentage points higher for Black and Hispanic Chicagoans, respectively. (See the exhibit.)

So, the city launched the Racial Equity Rapid Response Team (RERRT), a public health outreach and education campaign, to develop recommendations, mobilize community partners, and prioritize resources for communities with minority populations. The RERRT worked with local leaders to promote hand washing, encourage testing, and distribute free masks and hand sanitizer. It also required hospitals to share race and ethnicity data about COVID-19 patients.

Since the launch of the RERRT, the testing positivity rate for Black Chicagoans has come down to nearly the same as the rate for white residents. The rate for Hispanic Chicagoans is still about 10%, which indicates that difficulties persist in some communities of color. The RERRT's work in these communities is ongoing.

Large Disparities in Test Positivity Rates Across Racial Groups Have Narrowed in Chicago

TEST POSITIVITY RATE BY RACE



Source: City of Chicago.

Policies for Addressing the Disparities

We believe that a robust set of actionable policies is a good starting point for addressing the enormous racial disparities around COVID-19 outcomes that exist in the US today. The following list of policies is by no means exhaustive—see our fuller [set of potential policies to protect the vulnerable](#). We mention these because they are especially relevant for communities of color and could help lower their overall death rates significantly.

- **Distribute masks.** Governments should dispense masks to all who are [health vulnerable](#) (and those who are close to them), who have a greater risk of exposure, and who suffer economic hardships. Additionally, officials should strongly encourage everyone to wear the masks. Distributing and enforcing the wearing of masks is the single most cost-effective tool that policymakers can use to fight the disease. But people of color, especially Black men, have reported harassment and a fear of being profiled if they wear a mask. Therefore, in areas with predominantly people of color, local officials should strongly encourage that people wear masks but may choose not to require it. Additional research should be done to assess the efficacy of face shields or other solutions as an alternative to masks.
- **Conduct weekly tests.** Governments should test people who have a high risk of exposure at work as well as those who are in close contact with people who are over the age of 65 or who have underlying health conditions. There are three important practices to observe. First, normalize the number of testing sites and tests across regions on the basis of test positivity rates (the number of people who tested positive divided by the number of people who were tested). Communities of color should have the same test positivity rates as communities with predominantly white people. Having more-accurate numbers will provide a clearer picture of how many more testing sites and tests are needed to ensure that people of color have adequate access to testing. Second, increase awareness of the importance of getting tested. Improving outreach and multilingual guidance are key. Third, for outreach and testing sites, partner with organizations that people trust, including community groups, churches, nongovernmental organizations, and public services. Testing sites should not require IDs for testing because it could inadvertently deter undocumented people.
- **Mitigate the risk of contracting the coronavirus in the workplace.** Governments should establish, monitor, and enforce strict occupational safety protections for people who work in environments where the risk of exposure is high. Penalizing noncompliance would improve working conditions in places (such as meat-processing plants) where large numbers of people are at high risk. Governments can also provide funding for safety measures—such as N-95 masks, safe transportation options, and opportunities for health-vulnerable workers to be voluntarily deployed elsewhere—thereby incentivizing companies to implement them.
- **Limit the risk of spreading the coronavirus in high-risk residences.** A tragic number of deaths have occurred inside congregate living facilities. Congregate living facilities must systematically implement regular testing for all residents and staff, strictly limit in-person visits, and establish safe quarantine options to apply in the event of a coronavirus outbreak.
- **Expand the number of community health centers.** Some 2,000 federally funded health clinics in communities with predominantly minority populations have shut temporarily, with many more on the edge of permanent closure as their financial prospects dim. It's critical to take the steps needed to reopen these facilities and, if possible, expand the number. Policy measures that are proven to increase trust in medical services are also important. Community health workers (CHWs) are a good place to start. Trained and trusted, they can provide valuable health coaching and social support. Hospitals around the country now depend on CHWs, who have been shown to reduce the number of unnecessary emergency room visits and hospitalizations.
- **Make sheltering in place more sustainable by providing food, counseling, and social connections.** Simply asking people of color in health-vulnerable households to stay home from work is not the solution. Many people cannot give up their means of support. Subsidized or free contactless delivery of food and other essential services will be critical to enable people to stay home if they are sick or test positive.

The pandemic's impacts on people of color go far beyond health issues. Economically, the crisis has led to people of color being laid off or furloughed in massive numbers. Approximately 24% of Black people and 20% of Hispanics have reported losing their jobs; those percentages are nearly twice the percentage of white people (11%) who have lost their jobs. According to the US Department of Labor, the gap between the unemployment percentage for people of color and for white people is the widest it's been since May 2015.

The long-term consequences of COVID-19 for people of color are yet to be determined. But it is clear that the long-standing racial inequities that it has exacerbated are likely to keep growing if they are not addressed. As Black and Hispanic people continue to contract the coronavirus at two to three times the rate that white people do, the disease will spread further in communities of color. This will create a downward spiral of more lockdowns and more job losses, with the attendant problems of inadequate food and housing. And whenever COVID-19 cases surge in the future, they will disproportionately afflict people of color.

COVID-19's impact on the lives of people of color has been broad, deep, and often misunderstood. It is past time to do something about it.

The authors thank their colleagues for their contributions: Venkat Raman, for his research, analysis, and assistance in developing this article; Aradhana Parikh, for her research and demographic analysis; and Kelsey Hayes, for her research and help in identifying the policies.

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July 2020

The Digital Path to Business Resilience

by Karalee Close, Michael Grebe, Phillip Andersen, Varun Khurana, Marc Roman Franke, and Roelant Kalthof

Resilience is top of mind for executives today, and it will prove to be a key factor for winning in the 2020s. As the world of business grows increasingly uncertain and volatile, companies that have purposefully developed capabilities to tackle ambiguity and unpredictability—in a word, resilience—are most likely to thrive.

Companies' resilience is being tested as never before. Consumer spending in the US fell by almost 20% during the first two months of COVID-19's explosive spread across the country, according to the US Department of Commerce, even as the pandemic disrupted 75% of supply chains, according to the Institute for Supply Chain Management.

Customer priorities and touch points are changing rapidly, and the ongoing massive shift to remote working poses a [major risk to companies' IT infrastructure](#). Consequently, as a recent BCG study shows, approximately 60% of companies expect to report at least a 10% decrease in revenue and earnings in 2020.

In this bleak context—and in general—resilience is a key driver of value. Some companies outperform their peers during downturns, while many others lose ground or don't survive. In the past four downturns since 1985, about one in seven companies increased both its sales growth rate and its profit margins, [according to a 2019 BCG study](#). Despite the challenging circumstances, these successful companies grew their sales by 14 percentage points more and improved their margins by 7 percentage points more than the 44% of companies that declined on both parameters.

Even before the COVID-19 crisis erupted, many companies were struggling to keep pace with technological change. The challenge has only accelerated since the pandemic began, bringing a growing realization into sharp focus: the future of work and life will be more digital than people previously imagined. With almost every organization having to depend on data, analytics, digital tools, and automation, digital technologies will constitute an increasingly critical element of business resilience tomorrow.

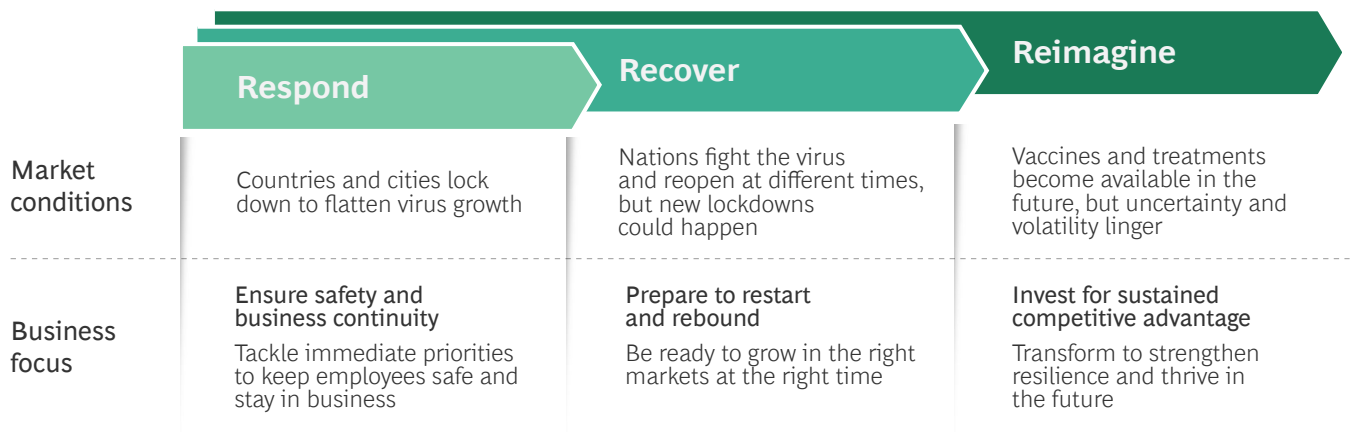
The Phases of Resilience

Much has been said about resilience in recent times, but people often overlook its duality. It isn't just about springing back from a crisis, as commonly understood; it is also about springing forward into a new reality.

A resilient company, our studies show, responds immediately to safeguard itself from an exigency, recovers from adversity so that it is in a position to outperform its peers, and then reimagines its business to get—and stay—ahead of rivals in an ever-changing future. Tackling the current COVID-19 crisis, for instance, requires companies to plan for three phases, each with its own objectives. (See [Exhibit 1](#).) Depending on its geography and industry, a company could operate in more than one phase simultaneously.

By now, most companies have addressed the immediate priorities of the Respond phase of resilience—by, for instance, keeping employees safe, changing their ways of working, and dealing with key operational issues such as supply chain disruptions. Their focus now is on restarting and rebounding by adjusting quickly to the new realities on the ground. During that Recover phase, business will have to cope with uncertainty in demand, supply, labor markets, and credit availability. Traditional forecasts and operational processes are unlikely to be effective, so companies must develop data-driven sense-and-respond approaches to tackle the volatility and must learn to adjust rapidly to fast-changing scenarios.

Exhibit 1 - The Covid-19 Crisis Has Forced Companies to Build Resilience in Three Phases



Source: BCG analysis.

The process of building resilience also has a critical Reimagine phase, which involves preparing the business for the future. The current situation is likely to result in permanent shifts in consumer and employee behavior, and some industries and business models will be irreversibly disrupted. As the nature of competition shifts, however, resilient companies will have a clear opportunity to emerge stronger. For this reason, companies should start laying the foundations of sustainable advantage by building resilience now.







Why Digitally Enabled Resilience Matters

A company needs to embed resilience in every aspect of the organization, from its go-to-market approach to its operations to its most critical infrastructure. Vulnerabilities in any area could affect the business’s ability to survive and thrive.

Through our work with companies across industries and around the world, we have identified six dimensions of resilience on which business leaders must focus: protecting and growing the top line, developing agile operations, enabling people, accelerating the adoption of data and digital platforms, enhancing cybersecurity, and strengthening financials. (See Exhibit 2.) Resilience comes from each of these dimensions, but business leaders must also consider them in combination, in order to gain resilience from their interactions.

Technological capabilities are instrumental in building resilience in all six dimensions. Resilient companies are likely to follow an operating model that adopts an integrated view of the relationship between people and technology—what we call the *bionic company*—which brings out the best in both. Doing so results in superior financial outcomes, almost doubling earnings growth and contributing to an increase of 2.4 times in the *growth rate of enterprise value*.

Exhibit 2 - Resilience Has Six Dimensions

	Protect and grow the top line	Rapidly identify and address changes in customer needs with data-driven and digital marketing, sales, and pricing
	Develop agile operations	React quickly to and manage disruptions in supply chain, logistics, manufacturing, development, and corporate functions
	Enable people	Empower employees to work and collaborate effectively in any circumstances; adapt with new approaches to talent management and capability development
	Accelerate data and digital platforms	Increase the modularity and availability of core IT infrastructure and applications; democratize data to enable data-driven and AI-enabled decisions across silos
	Enhance cybersecurity	Safeguard digital assets and react quickly to security breaches in an increasingly distributed environment by using secure technologies and procedures
	Strengthen financials	Ensure financial liquidity with an operating-expenses-driven cost model, reduced total cost of ownership, and data-enabled policies to manage cash and working capital

Source: BCG analysis.

Companies that have purposefully developed capabilities to tackle ambiguity and unpredictability—in a word, resilience—are most likely to thrive.

Digital transformation has therefore become more crucial than ever. In a recent BCG survey, 75% of executives agreed that they regard digital transformation as becoming more urgent in light of the COVID-19 crisis, and 65% said that they anticipate increasing their investments in digital transformation. As almost every organization's dependence on digital technologies grows, it is hardly an exaggeration to say that adopting and managing digital technologies will be critical to business resilience.

Done right, a digital transformation will not only build long-term resilience, increasing speed to market, workforce productivity, and stability. It will also **deliver short-term financial gains**. (See Exhibit 3.)

Companies that use digital levers can expect their profit margins to increase, on average, by 12% to 20%. They will generate as much as 50% of the additional profits in the first year, thereby generating the resources needed to fund the rest of the transformation journey. This characteristic is particularly relevant today. More than 80% of transformations will be self-funded, **according to BCG research**, and most companies expect that they will have to institute tighter funding policies in the current circumstances.

A word of caution, though. A BCG study suggests that **fewer than 30% of companies successfully capture value from digital transformations**. Their success depends on defining a clear vision that is closely linked to strategy and value, ensuring leadership commitment and governance of results, and **building critical technological and human capabilities**.

Three Steps to Develop Digital Resilience

It's important for companies to build digital resilience when and where they will need it most. Many of them have already increased their investments in secure remote working technology and reduced their capital expenditure to respond to their immediate needs, **according to a recent BCG analysis** of the investment priorities of about 700 IT executives in the US. (See Exhibit 4.) Companies also continue to invest in the digital levers that will allow them to grow during the recovery by, for instance, ensuring supply chain continuity and digitizing critical parts of the business. Most are also continuing to invest in strategic priorities to build ongoing resilience, by expanding and strengthening data and digital platforms and by doubling down on automation.

Exhibit 3 - Digital Transformations Build Long-Term Resilience and Increase Profitability



PERFORMANCE

12% to 20% additional EBIT¹
(about half of it within 12 months)



AGILITY

40% to 50% faster speed to market²
(in about 3 months)



ENABLEMENT

20% to 30% higher workforce productivity³
(about half of it within 6 months)



STABILITY

Up to 60% less IT error and rework⁴
(in 6 to 9 months)

Source: BCG analysis and case experience.

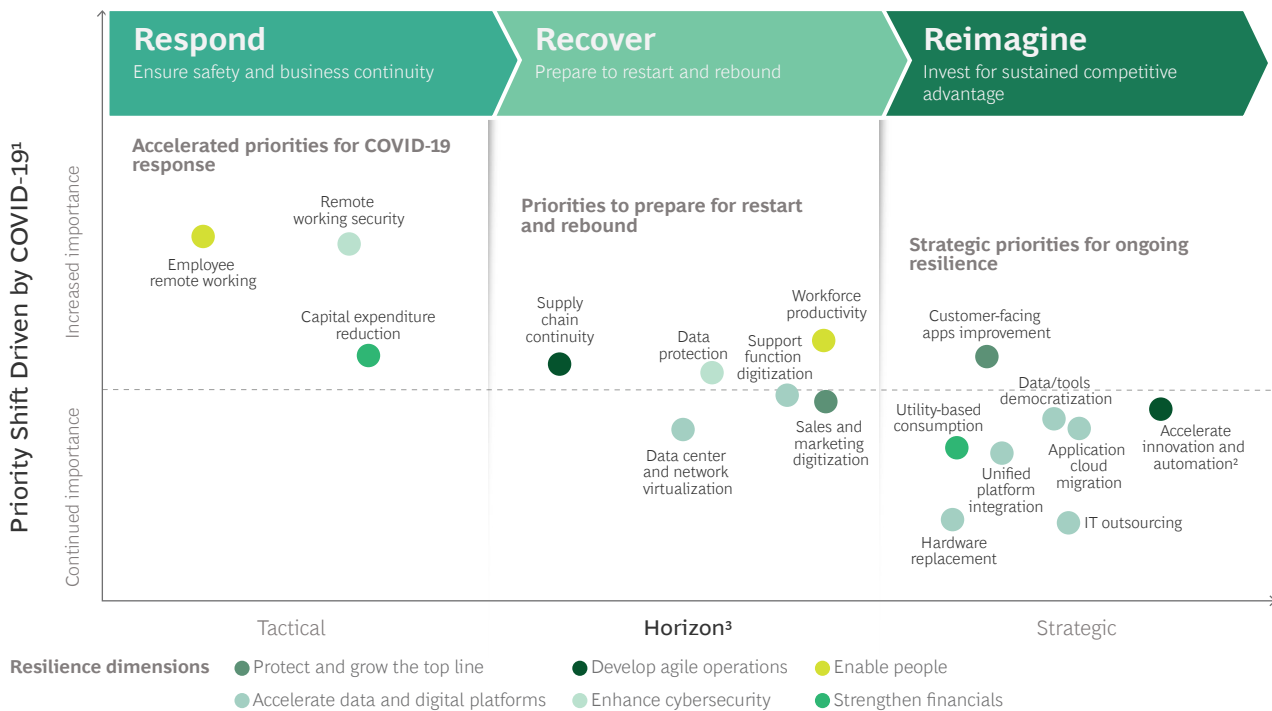
¹ According to BCG's Performance Improvement Through Digitization 2019 study, based on analysis of 40 digital resilience levers.

² Enabled by applying advanced analytics to economic indices and establishing a control tower for high frequency demand forecasts.

³ Achieved with AI and smart working tools such as chatbots, workflow automation, and decision support systems.

⁴ From BCG experience in the insurance sector, achieved by designing cybersecurity in a uniform way for all applications and platforms.

Exhibit 4 - IT Executives' Investment Priorities Span All Resilience Phases and Dimensions



Source: BCG COVID-19 IT Buyers Sentiment Survey, April 24–May 5, 2020 (N = 674).

¹Self-reported change in importance due to the COVID-19 pandemic, based on a scale from “much less” to “much more.”

²For example, with AI and predictive analytics.

³Self-reported priority, calculated as the relative importance of long-term priorities versus short-term priorities.

Given today’s acute resource constraints and the pressing need to accelerate change programs, prioritization is critical. Companies can follow a three-step approach to tailor priorities to their specific situation and needs. Their decisions will depend on endogenous factors, such as their organization’s current resilience maturity—including financial strength—and on exogenous factors, such as the impact of COVID-19 and the potential for digital disruption.

Step 1: Address Imperatives to Respond and Recover

The starting point in this three-step process is to address the issues resulting from lockdowns and to support business performance as markets recover. Companies must tailor their actions to their particular contexts, but most companies have taken a number of common actions in the Respond and the Recover phases. (See Exhibit 5.)

Many companies, we find, struggle in their efforts to respond and recover rapidly. In their initial response, companies must focus on business outcomes that will deliver the most value in the shortest time, such as protecting and growing the top line and developing agile operations. That’s why efforts to switch to digital marketing and e-commerce and to develop a data-driven supply chain are often high on the agenda today.

To accelerate during the recovery, a company must focus on tangible, short-term opportunities, and employees must develop new skills and adapt to new ways of working. Most changes will relate to the development and deployment of digital capabilities, so business leaders need to move closer to technology teams.

Exhibit 5 - Key Imperatives in the Respond and Recover Phases

	Respond Ensure safety and business continuity	Recover Prepare to restart and rebound	Reimagine See Exhibit 7
 Protect and grow the top line	Boost digital channels to replace or augment traditional sales channels	Reignite the commercial engine in the right markets at the right time	
 Develop agile operations	Stabilize operations to meet demand during the crisis	Ramp up and automate operations, balancing speed, cost, quality, and safety	
 Enable people	Enable employees to work and collaborate remotely	Rethink skills and working models to deliver value in the new reality	
 Accelerate data and digital platforms	Keep lights on for IT infrastructure, applications, data, and end-user services	Reset the technology portfolio and cost to maximize value	
 Enhance cybersecurity	Deploy secure technologies to protect onsite operations when accessed remotely	Scale cybersecurity systems, and extend them to supply chain and e-commerce partners	
 Strengthen financials	Reduce discretionary spending to preserve cash, and secure financing	Continuously adjust the cost structure to demand, and optimize the asset portfolio and net working capital	

Source: BCG analysis.

Step 2: Reimagine the Future and Set Ambitions

Once companies have dealt with their immediate priorities, they must turn to their ambitions for the future—in particular, preparing to win in the new reality. They need to determine the scope of their ambitions and the pace at which they must develop resilience.

In setting the scope of their ambition, companies should identify specific, critical resilience dimensions on which to differentiate themselves. Knowledge-based companies, such as those in financial services, will want to be best in class at accelerating data and digital platforms and at enabling employees. Those with a production focus, such as manufacturers and oil and gas companies, will strive to become leaders in developing robust and agile operations. Companies with a frontline focus, such as retailers, will emphasize, among other things, developing resilience in growing the top line.

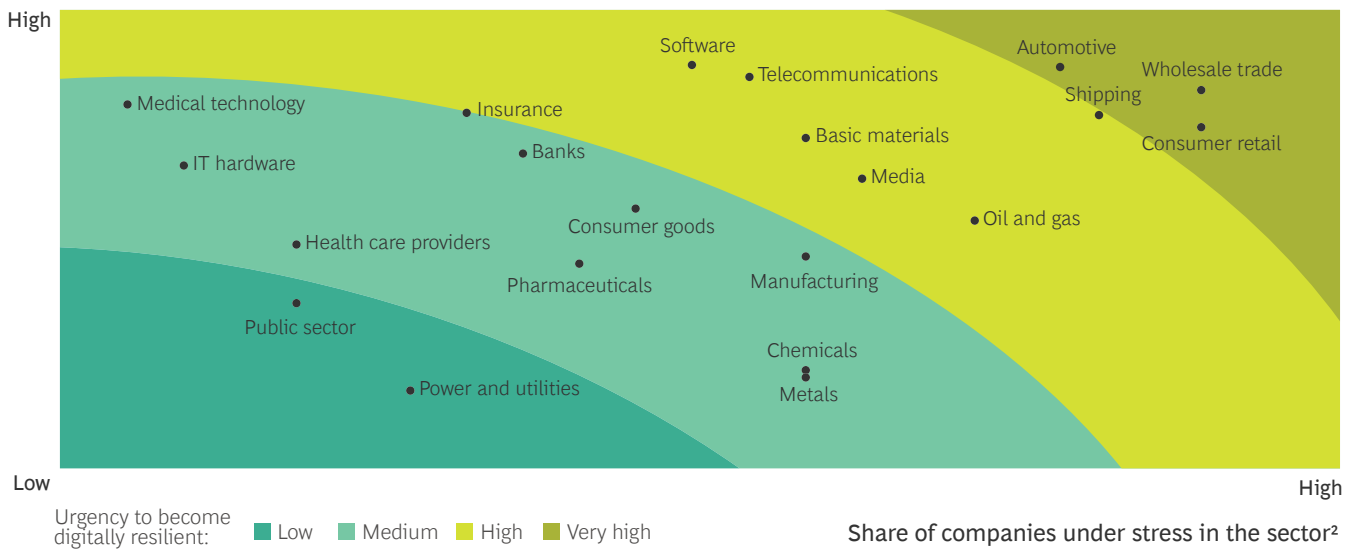
Two key factors will determine the urgency and need for resilience. (See Exhibit 6.) One is the expected financial impact of crises such as COVID-19 in a sector, indicated by the current level of financial distress. The other is the potential for digital disruption, which can be measured using BCG’s Digital Acceleration Index (DAI).¹ Companies in industries that face lower levels of financial distress and risk of disruption can afford to take a more focused and financially pragmatic approach to investing in digital resilience.

In sectors where both the potential for digital disruption and the amount of financial distress are high, businesses should treat investing in digital resilience as a matter of urgency. For example, after COVID-19 hit a premium beauty products retailer in Europe hard, the company used advanced analytics to more accurately predict daily demand. This enabled the retailer to quickly reduce its order volumes by 30% even as it prevented stockouts, thereby increasing its working capital. Buoyed by its success, the company is now using machine learning to develop state-of-the-art demand management capabilities. Doing so will allow it to respond to future disruptions even more effectively.

1. BCG’s DAI measures an organization’s digital maturity on 38 digital dimensions, including strategy and roadmap; digitization of the value chain; new digital growth channels; people, technology, and data capabilities; and the digital ecosystem. A database of more than 8,000 companies provides benchmarks against peers across countries and industries.

Exhibit 6 - The Urgency to Become Digitally Resilient Varies by Sector

Self-reported potential for digital disruption and transformation¹



Sources: BCG Henderson Institute and the BCG Digital Disruption Index, part of the BCG Digital Acceleration Index.

¹ Measured by the potential of digital to address customer pain points, the ability to scale digital offerings, the amount of venture capital for digital, and the threat to incumbents posed by new entrants from adjacent markets.

² Sectors are ranked by their share of companies with a greater than 15% probability of default as implied by five-year credit default swap as of May 29, 2020.

Step 3: Build Sustainable Advantage

Finally, companies must invest in developing sustainable advantage by building long-term resilience. To do that, they need to identify the gaps between their ambitions and their current resilience maturity.

Each resilience dimension encompasses rising levels of capabilities at three distinct levels of maturity, which we label *exposed*, *viable*, and *future-ready*. (See Exhibit 7.) By referring to this exhibit, business leaders can quickly assess their company’s maturity on each dimension. They can also use detailed assessments, such as BCG’s DAI, to gain precise insights into where they stand and what actions they should take for maximum impact.







A company must immediately take steps to tackle the dimensions on which it is exposed. The minimum goal should be to ensure that the company is viable—if not future-ready—on all six dimensions. That’s particularly true in the areas of financial strength and cybersecurity, where vulnerability may spell disaster during the next crisis

a company faces. Once a company is viable on every dimension, it can work to become future-ready on the dimensions that it believes are necessary to weather future crises and to differentiate itself in the marketplace.

After a company has determined its priorities, it must rethink its digital strategy and roadmap, and **reset its investment portfolio** accordingly. Projects that were top of mind six months ago may no longer be priorities, and staying the course until the next planning cycle is likely to be a losing strategy.

The COVID-19 crisis has turned the spotlight on the urgent need for companies to become resilient, and the importance of digital technologies in making this transformation. As markets and economies are likely to continue to change rapidly, uncertainty will persist. Only a small group of resilient companies will be able to capitalize on the opportunity to grow stronger in the face of uncertainty. Investing in digital resilience will help companies accelerate out of crises quickly and create sustainable competitive advantage in the new reality.

Exhibit 7 - Each Resilience Dimension Has Three Levels of Capability Maturity—and Vulnerability

		Reimagine Invest for sustained competitive advantage		
		Exposed	Viable	Future-ready
	Protect and grow the top line	Limited online and remote sales; marketing using simple targeting without automation	Multichannel offerings and remotely enabled sales force, based on data-driven decisions and some automation	Customer journeys integrated across channels, with self-serve, personalized recommendations and automation
	Develop agile operations	Traditional operations with little or no ability to react quickly to new process requirements or disruptions	Digitally augmented operations to quickly identify and react to changes and external shocks	Fully digitized, highly automated, and IoT-enabled operations with E2E visibility, from supply chain to corporate functions
	Enable people	Culture of physical presence, with limited IT enablement; people working in traditional line and project structures	Flexible workforce able to collaborate and work in all circumstances; use of dynamic talent-sourcing models and focus on learning	Smart and agile ways of working with tech-augmented workforce; strong sense of connection and shared purpose
	Accelerate data and digital platforms	Legacy-heavy platform and scattered data; business and IT working in silos with low agility	Continuously available and fault-tolerant data and digital platform, based on cloud infrastructure	Architecture based on APIs and microservices, with fully functional data lakes that enable rapid innovation
	Enhance cybersecurity	Cybersecurity not centrally coordinated; high exposure to threats, especially in the supply chain and in remote work	Trained cybersecurity experts; technologies implemented for remote working, threat protection and detection, and recovery	Cybersecurity treated as a CEO-level priority; security operations center in place; secure supply chain and e-commerce platforms that include partners
	Strengthen financials	Limited cash management leading to liquidity stress; delayed processes and inhibited agility due to lack of digitization	Cash office with rigorous governance; RPA and AI-optimized processes that increase speed and forecast accuracy	Early liquidity warning system and asset-light business model; digitized processes for control, audit, and planning

Source: BCG analysis.

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How Do You “Design” a Business Ecosystem?

by Ulrich Pidun, Martin Reeves, and
Maximilian Schüssler

If designing a traditional business model is like planning and building a house, designing an ecosystem is more like developing a whole residential district: more complex, more players to coordinate, more layers of interaction, and unintended emergent outcomes.

What makes ecosystem design distinctive is that it requires a true system perspective. It is not sufficient to design the value creation and delivery model; the design must also explicitly consider value distribution among ecosystem members. This is further complicated by the limited hierarchical control in an ecosystem and the need to persuade partners to participate, which poses specific governance challenges. And ecosystems exhibit strategic challenges not found in other governance models, such as how to solve the chicken-or-egg problem of creating a critical mass of partners and customers during launch and how to build a scalable and defensible model.

Moreover, business ecosystems, similar to residential districts, cannot be entirely planned and designed—they also emerge. This adaptability is actually one of their major strengths. However, there are some key design choices you need to get right in order to increase the odds of success. These design choices are not independent; they must be consistent with one another and offer a coherent overall configuration.

Based on an analysis of more than 100 successful and failed ecosystems across sectors and geographic markets, we find that the ecosystem design challenge can be addressed by working through six sequential questions (see Exhibit 1):

- What is the problem that you want to solve?
- Who needs to be part of your ecosystem?
- What should be the initial governance model of your ecosystem?
- How can you capture the value of your ecosystem?
- How can you solve the chicken-or-egg problem during launch?
- How can you ensure evolvability and the long-term viability of your ecosystem?

Step 1: What Is the Problem That You Want to Solve?

IS THE PROBLEM BIG ENOUGH?

Before you can start designing your ecosystem, you must make sure that the problem that the ecosystem is supposed to solve is clearly defined and large enough to justify the high upfront investment and to convince the right partners to participate. The value proposition for a new ecosystem can come from removing an existing friction (anything that dissuades customers from buying a product or service, such as high cost, delay, poor quality, imperfect functionality, unpredictability, and misunderstanding or lack of trust) or from addressing an unmet or new customer need.

The value potential from addressing an unmet need is difficult to predict but potentially very rewarding, because there is initially no offering to compete with. Who would have guessed 20 years ago that posting selfies, photos of your food, and cat videos is such a deep human need that multibillion-dollar businesses like Instagram and YouTube could be built on them? By contrast, removing an existing friction is more predictable. The ecosystem value proposition is a function of the size of the friction, the share of the friction that can be eliminated by the ecosystem solution, and the willingness of customers to pay for it.

Exhibit 1 - The Six-Step Journey of Business Ecosystem Design



Source: BCG Henderson Institute.

Take, for example, Better Place, a startup founded in 2007 to build an innovative ecosystem-based solution to power electric vehicles (EVs). Its breakthrough idea was to separate car and battery. In this model, the driver purchases a car without a battery, while Better Place owns the battery and charges a mileage-based monthly fee for leasing, charging, and exchanging it. In this way, Better Place could solve several fundamental problems of existing EV offerings: Because Better Place owned the battery, the EV could be offered at a competitive price, and the risk of obsolescence and low resale value due to advances in battery technology was eliminated.

Because Better Place built not only charging infrastructure but also switch stations that could exchange batteries in a matter of minutes, the problem of limited driving range was also addressed. And finally, Better Place also solved the problem of electric grid capacity, because as the orchestrator of the EV ecosystem it could balance the power demand from cars with grid capacity. Better Place was thus able to remove substantial frictions and offer an enormous benefit to the world. However, as we will see, the ecosystem failed because of other weaknesses in its design.

The specific value proposition of a business ecosystem is context dependent. For example, frictions in traditional retail were much higher in China than in the US, because China had no significant retail or payments infrastructure and it was difficult for consumers to get access to many products they were looking for. This explains in large part the success of transaction ecosystems like Taobao and Tmall, which largely removed these frictions. In a similar vein, B2C ecosystems are typically easier to establish than B2B ecosystems, because many existing B2C relations suffer from relatively high transaction costs, while B2B offerings are more likely to be characterized by mature companies with optimized professional relationships. In the early 2000s, there was huge excitement about the value potential of B2B marketplaces in the US, with estimated online exchange potential of more than \$5 trillion by 2005. In fact, by that year, almost all B2B marketplaces in the US had disappeared. The bubble collapsed mainly because the problems that could be solved through these marketplaces were just not important or big enough.

Again, the situation was different in China, where the lack of infrastructure made it difficult for a business to find partners, a problem that Alibaba largely solved. However, we also believe that advances in sensor technology, cloud computing, and data analytics will make it possible to address new and bigger problems, and IoT-based business models will likely fuel the next wave of B2B ecosystems in the coming decade.

IS AN ECOSYSTEM THE RIGHT CHOICE?

The next question that must be answered is whether an ecosystem is the best way to realize the business opportunity. Ecosystems compete with other governance models, such as vertically integrated organizations, hierarchical supply chains, and open-market models. As we discussed in “[Do You Need a Business Ecosystem?](#)”, an ecosystem is the preferred model in unpredictable but highly malleable business environments and when high modularity of the offering is combined with a high need for coordination among players.

There are many examples of business opportunities that are not well suited for an ecosystem model. Who wants to fly in an aircraft that was built by a loosely coordinated ecosystem of companies? In this case, the complexity and integrated nature of the design, and the need for utmost attention to safety, favor an integrated model or a hierarchical supply chain. On the other hand, many business opportunities do not require a business ecosystem because they can be realized in an open-market model. For example, if Saeco launches a new automatic espresso machine, the required coffee beans, water, and power supply are generic complements that consumers can purchase in the open market and then combine on their own.

Sometimes the best governance model is not so obvious—or can change over time. Zappos started as a transaction ecosystem, matching consumers with shoe manufacturers, but found that it could offer a more consistent value proposition by taking full control of the buyers’ experience with a traditional hierarchical supply chain model.

WHAT KIND OF ECOSYSTEM DO YOU NEED?

Not all business ecosystems are created equal. Some business opportunities are best organized as a solution ecosystem, which creates and delivers a product or service by coordinating various contributors. Others are best set up as a transaction ecosystem, which matches or links participants in a two-sided market through a (digital) platform. And some are best organized as a hybrid, combining elements of a solution and a transaction ecosystem. It is important to be clear about the type of ecosystem, because the types differ not only in their structure but also in their purpose, success factors, and value creation mechanisms.

You cannot unilaterally choose to be the orchestrator. You need to be accepted by the other players in the ecosystem.



Step 2: Who Needs to Be Part of Your Ecosystem?

WHAT ARE THE PLAYERS AND ROLES?

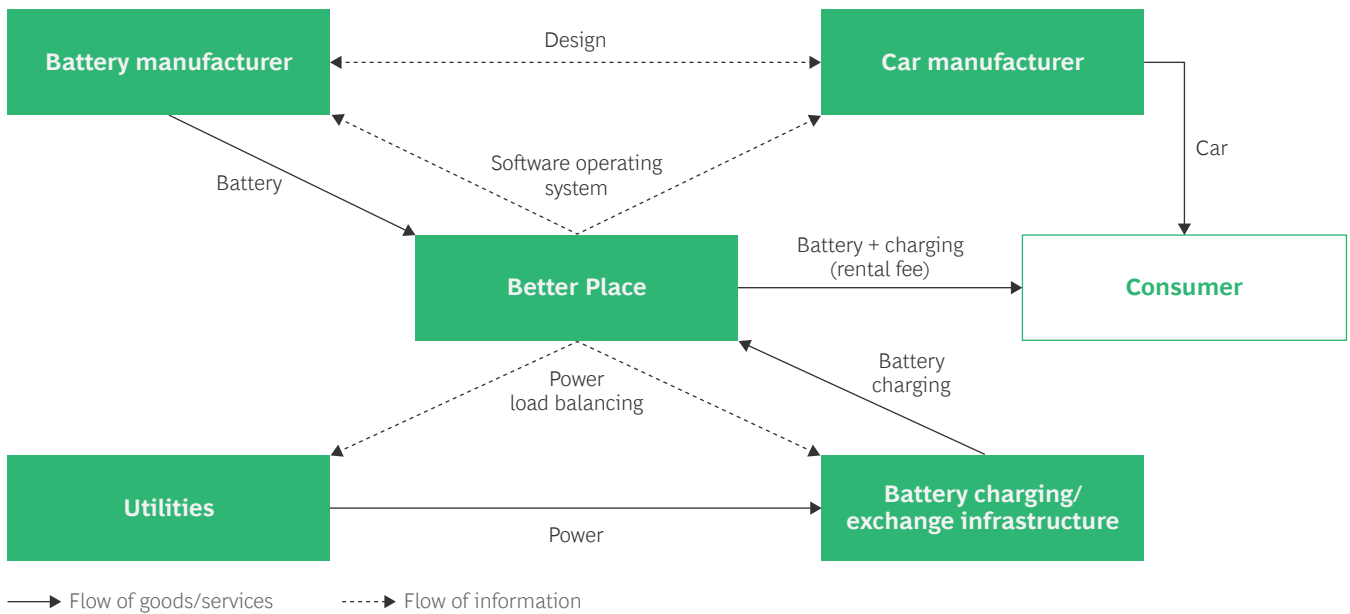
The initial design of a business ecosystem starts with mapping the “value blueprint”: the activities that are required to deliver the value proposition, the links among them, and the responsibilities of the various actors. The value blueprint also specifies the flow of information, goods or services, and money through the ecosystem. (See Exhibit 2.)

The design of an ecosystem should be driven by its core value proposition. The initial value blueprint should incorporate the minimum number of domains (types of participants or market sides) that are needed to provide this core value and expand over time. All examples of hybrid models that we know started either as a transaction ecosystem (Airbnb, Alibaba, LinkedIn) or as a solution ecosystem (Apple iOS, Android) and added further domains and offerings only once they were firmly established.

The value blueprint is the basis for assigning roles to the various players. A solution ecosystem is typically characterized by a core firm that orchestrates the offerings of several complementors, suppliers, and intermediaries (such as Better Place’s ecosystem in Exhibit 2). In transaction ecosystems, the orchestrator role is played by the owner of a central (mostly digital) platform that links producers and their suppliers with consumers.

The different roles have benefits and drawbacks. The orchestrator builds the ecosystem, encourages others to join, defines standards and rules, and acts as arbiter in cases of conflict. The broad scope of the role comes with the bulk of responsibility for ecosystem success and the sustained level of investment that is required to get the ecosystem going. The orchestrator is the residual-claim holder of the ecosystem. While it has a big influence on the distribution of the value created, it must also make sure that all relevant players earn a decent profit. In return, the orchestrator can keep the residual profit, which can be very high (Apple iOS, Microsoft Windows) but also negative for an extended period of time (Uber, Lyft). Orchestrators that fail in their responsibility to secure fair value sharing will sooner or later destroy their ecosystems.

Exhibit 2 - The Better Place Ecosystem’s Value Blueprint



Source: BCG Henderson Institute.

WHO SHOULD BE THE ORCHESTRATOR?

In many business ecosystems, the assignment of the orchestrator role is clear. For example, in most transaction ecosystems the provider of the matching platform is the natural orchestrator, and the roles of producers and consumers are readily assigned. Similarly, some solution ecosystems are built on a technical platform that serves as the basis for orchestration, such as the console of a video game ecosystem or the operating system on a PC or smartphone.

However, as a new ecosystem emerges, the orchestrator role may be contested. Think of the competing smart-farming ecosystems that are currently being built by equipment manufacturers (John Deere), seed and crop protection providers (Bayer-Monsanto), and technology players (Alphabet). And who should be the orchestrator of an effective ecosystem for electronic health records: health insurers, providers, IT companies, or the government?

It is important to understand that you cannot unilaterally choose to be the orchestrator. You need to be accepted by the other players in the ecosystem. In this regard, there are four requirements for a successful orchestrator of a business ecosystem. First, the orchestrator needs to be considered an essential member of the ecosystem and control resources needed for its viability, such as a strong brand, customer access, or key skills. Second, the orchestrator should have a central position in the ecosystem network, with strong interdependencies with many other players and a resulting high need and ability for effective coordination. Third, the orchestrator should be perceived as a fair (or even neutral) partner by the other members, not as a competitive threat. And finally, the best candidate is likely to be the player with the highest net benefits from the ecosystem and thus a correspondingly high ability to shoulder the large upfront investments.

Most companies seem to strive for the orchestrator role because they fear being commoditized, losing direct access to customers, or being exploited by another orchestrator. However, being a supplier or complementor in a business ecosystem can be a very attractive role. Arguably, the biggest winners of the Californian gold rush in the mid-19th century were the suppliers of pots, pans, and Levi

jeans. Similarly, suppliers and complementors can benefit from lower investment requirements and the opportunity to join the most attractive of several ecosystems. Or they can hedge their bets and participate in more than one ecosystem. In particular, if they provide important components that represent a bottleneck for the ecosystem, they can secure a substantial share of the overall profits.¹

An example of a highly successful complementor is Adyen, a Dutch payments company enabling global platforms to support all key payment methods around the world. At the time of writing, the company had a market cap of more than €25 billion, had more than doubled its stock price since its IPO in June 2018, and reported revenue growth of 41% in the first half of 2019 at an EBITDA margin of 57%. Arithmetic dictates that only a small minority of firms can be orchestrators. We are convinced that many incumbents would be well advised to put their strategic focus on finding attractive complementor or supplier roles.

HOW CAN THE ORCHESTRATOR MOTIVATE THE OTHER PLAYERS?

Ecosystem orchestrators face the additional challenge of motivating the required partners to commit and contribute to the ecosystem. Ron Adner identified two important risks for the feasibility of an emerging ecosystem: co-innovation risk and adoption risk.²

Co-innovation risk stems from the fact that developing a new or substantially improved value proposition is typically associated with high risks for the individual required innovations. In the case of a business ecosystem, these individual risks multiply because of the interdependence of the different components. The probability of technical success of an ecosystem solution equals the mathematical product of the probability of success of all required components, which can be very small if just one factor is small.

1. D.P. Hannah and K.M. Eisenhardt, "How firms navigate cooperation and competition in nascent ecosystems," *Strategic Management Journal*, December 2018.

This co-innovation risk is particularly relevant for solution ecosystems, where the failure of one critical component is sufficient for the entire ecosystem to fail. For example, in early 2000, Nokia and Sony Ericsson started a race to bring to market the first 3G mobile phone capable of video streaming. Nokia had forecast that by 2002 more than 300 million mobile handsets would be connected to the internet. The actual number was 3 million; 300 million was reached in 2008, six years later. Nokia became a victim of co-innovation risk: While Nokia was fast to the market and could sell its first 3G handset in 2002, before Ericsson, other actors in the ecosystem still had to develop solutions to fully enable video streaming, such as formatting software to fit TV images on small phones, router innovations allowing mobile phone operators to know which customer signed up for which plan, and digital rights management to ensure copyright protection for content owners. Before these innovations were established, 3G video streaming could not be viable, rendering the device largely useless.

Assessing co-innovation risk is important to evaluate the overall probability of success of the ecosystem, but also to identify the bottleneck components that need most attention and support. Intel understood this challenge when the company designed its ecosystem and created the Intel Architecture Lab to drive architectural progress on the PC system and to stimulate and facilitate innovation on complementary products.

Even if co-innovation risk seems limited, there is another challenge related to the value blueprint: *adoption risk*. Because of the high interdependencies in a business ecosystem, all contributors to the overall solution need to be ready, willing, and able to participate and invest in the ecosystem. A single instance of rejection is enough to break the entire adoption chain. For example, Better Place finally failed in spite of a compelling value proposition because it could not secure the participation of one important group of partners in its ecosystem, the car manufacturers. It got Renault on board by guaranteeing volume and placing an order of 100,000 cars, four years before it had a single customer. But Renault ultimately was Better Place's only car-manufacturing partner.

How can you evaluate critical partners' incentives to participate? Partners are more likely to commit if they score high on the following criteria:

- High relative profit increase from participation
- High competitive risk from nonparticipation
- Limited investments required for participation
- Limited risk from participation
- Existing capabilities to build on

If some critical players show a high adoption risk, you may need to reflect this in your ecosystem design with incentives for participation. Incentives need not be only monetary; they can, for instance, also include access to customers or data. Ron Adner mentions digital cinema projectors as an example. The value proposition for replacing analog films and projectors by digital counterparts was generally compelling: higher resolution, better protection from piracy, and significant savings in the value chain. The cost of producing a conventional film was \$2,000 to \$3,000 per print, costing \$7.5 million for a release shown on 3,000 screens. Regardless of these advantages, adoption risk proved to be very high for cinemas because the investment costs were prohibitive relative to the benefits. Despite efficiency gains, higher quality for consumers, and more flexibility regarding the offering, cinemas saw no need to adopt digital projectors on a large scale. Only once the film studios established a financing scheme in which they shouldered the initial outlay for the projector, and studios shared the benefits by paying a virtual print fee per digital film screened (covering approximately 80% of the cinema investment costs), were the incentives for adoption high enough to establish the new technology on a broader scale.

Step 3: What Should Be the Initial Governance Model of Your Ecosystem?

HOW OPEN SHOULD THE ECOSYSTEM BE?

Ecosystem governance is an important design choice because it creates an indirect form of control appropriate to the complexity and dynamism of an ecosystem. It establishes the standards, rules, and processes that define an ecosystem's formal or informal constitution. Governance needs to balance two requirements for ecosystem success: value creation (rules of collaboration to co-create value as an ecosystem) and value sharing (rules and processes for splitting the value among ecosystem players).

The single biggest governance question for an emerging ecosystem is its degree of openness. Questions in three areas must be answered:

- **Access.** Which individual partners will be allowed to participate in the ecosystem? Which requirements do they have to fulfill in order to get access to the platform and its resources?
- **Participation.** To what extent are ecosystem partners invited to shape the ecosystem? What is the scope, detail, and strictness of the rules governing this? Who decides how the value created is distributed among partners?
- **Commitment.** What level of ecosystem-specific investments and co-specialization is required? Is exclusivity demanded or are partners allowed to multihome in competing ecosystems?

In practice, we can observe successful ecosystems with very different levels of openness, from rather restrictive (Nespresso) to managed (video games) to very open (Airbnb). For example, the Chinese company Haier chooses a rather open approach toward access to its emerging “internet of food” ecosystem, which tries to integrate players from the appliance, food, health care, home furniture, logistics, and even entertainment industries to create a comprehensive customer solution from buying to cooking, eating, storing, and cleaning. As Zhang Ruimin, chairman of the Haier group, put it, “We want to build an energetic rainforest rather than a structured walled garden.”

On the other hand, Sony experienced the peril of an open governance model when introducing its e-reader. Alarmed by piracy in the music industry, publishers were extremely

concerned to protect their rights around books. Sony did not manage to establish a governance model to address this concern. Therefore, Amazon could conquer the e-book market as a late entrant by establishing the Kindle as a very closed platform that loaded content only from Amazon and precluded users from transferring books to any other device or to a printer.

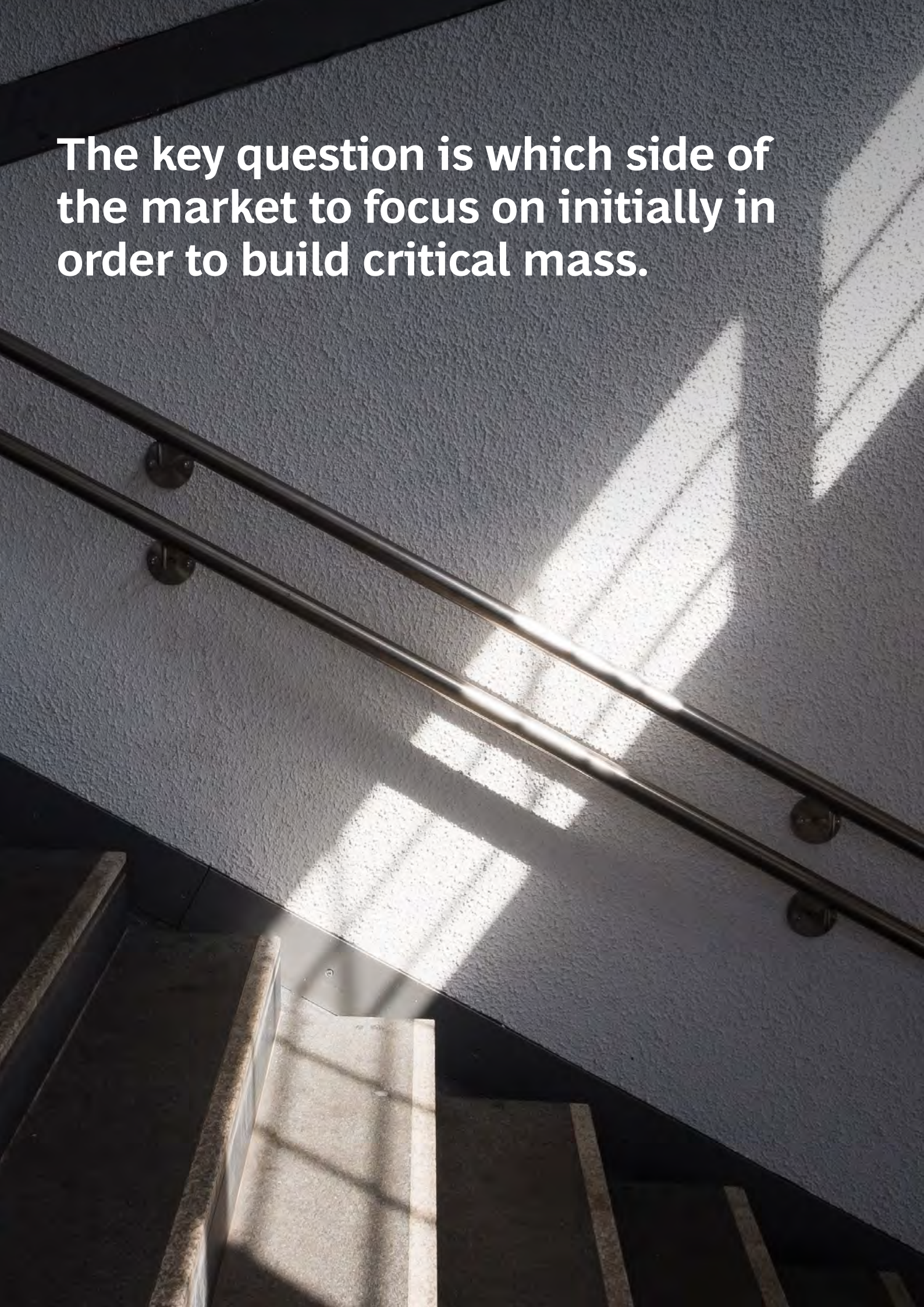
In some sectors, ecosystems compete on their degree of openness. For example, Android broke the dominance of Apple iOS as a mobile operating system with an open governance model, while Facebook overcame the weaknesses of Myspace's open model by being initially very selective about who it allowed to join and establishing the double-opt-in “friending” feature.

How can you find the right level of openness for your ecosystem? The decision must optimize the tradeoff between the advantages of a more open setup and of a more closed setup. Open ecosystems can benefit from faster growth, particularly during launch. They enable greater diversity of participants and variety of offerings and encourage decentralized innovation. Open ecosystems tend to use the market to guide their development; partners join and leave and adjust their offers as customer demand and technologies evolve.

On the other hand, open ecosystems are difficult to control and are thus best suited for products and services with limited downside and relatively low cost of failure. In case of high failure costs, and a corresponding need to limit the downside, a closed ecosystem may be the better solution. It allows for a more deliberate design of the ecosystem and for closer control of partners and of the quality of the offering. Moreover, a more closed ecosystem helps the orchestrator capture value by, for example, charging for access.

The right level of openness will depend on the relative importance of the individual factors, such as growth versus quality, decentralized versus coordinated innovation, and speed versus consistency of co-evolution. Competition with other existing or emerging ecosystems in the same sector can also play a role, because a new ecosystem needs to find a differentiated positioning, such as the degree of openness.

The key question is which side of the market to focus on initially in order to build critical mass.



We have seen many ecosystems start with a rather closed governance model in order to establish high quality and open up later. For example, the Q&A platform Quora started as an invite-only ecosystem that targeted prominent technology entrepreneurs. By building this dense and exclusive network of experts, Quora was able to develop an inventory of high-quality content that then made it easy to attract a broader audience when the platform later opened up. However, there are also examples of ecosystems that start as open to gain traction and become more closed later, such as the knowledge ecosystems investigated by Järvi and her colleagues.³

WHAT SHOULD THE ORCHESTRATOR CONTROL?

As an orchestrator, you face an additional design question: What do you want to do yourself and what do you want to encourage complementors to do? A starting point may be your own assets and capabilities. However, as Hannah and Eisenhardt observe, “Perhaps in complex strategic settings like ecosystems, strategy is more consequential than initial capabilities.”

Good ecosystem strategy may be to identify and occupy potential innovation or capacity bottlenecks that can become an important source of value. Successful orchestrators claim important system control points that allow them to capture their fair share of value. For example, Nest decided to engage in alarm and monitoring itself because these are essential functionalities for controlling the home. Apple pre-installs Apple Maps on the iPhone in an attempt to oust Google Maps. And Google uses its Google Play store to control the otherwise very open Android ecosystem.

There are, of course, many other initial governance questions. For example, when designing a transaction ecosystem, the platform orchestrator must decide whether the matching of producers and consumers should be done by algorithm (Uber) or by users (Facebook); whether pricing should be based on rules and algorithms (LendingClub) or on offer and negotiation (eBay); and whether curation should be done by platform editors (Wikipedia), user feedback (Airbnb), or algorithms (Google Search). These decisions depend on the specific context and get at the heart of the ecosystem’s operating model, value creation mechanism, and differentiation.

Step 4: How Can You Capture the Value of Your Ecosystem?

WHAT SHOULD YOU CHARGE?

When the basic setup of the business ecosystem is defined, the next big design step is to find a way to translate the benefits that the ecosystem creates for its customers into value for its participants. Monetization is one of the biggest challenges of the ecosystem orchestrator, which must balance three competing objectives: maximizing the size of the total pie, enabling all important domains (groups of participants) of the ecosystem to earn enough profit to ensure their ongoing participation, and capturing its own fair share of the value.

To achieve this, the orchestrator must design not only the value proposition for the customer but also the value-sharing model, by defining the value proposition for each group of relevant stakeholders. At the same time, the orchestrator must make sure to own critical control points, such as access to the customer, products with many interfaces, or critical services.

In solution ecosystems, value capture is typically rather straightforward because the solution that the ecosystem creates can be sold as a product or service. The orchestrator can in addition capture value from complementary products or services through access fees, licensing fees, revenue shares, or sales of value-added products or services to complementors. For example, Apple takes 30% of revenues for all apps sold through its App Store, and Nespresso takes a license fee from machine makers such as Krups, Breville, and De’Longhi.

Transaction ecosystems offer many more options for capturing value. The orchestrator can charge for access, for example, with a general access fee to the platform, an enhanced access fee for producers for better targeted messages or interactions with particularly valuable users, premium access fees for consumers, or enhanced curation fees for users who are willing to pay for guaranteed quality. The orchestrator can also charge for usage in the form of a transaction fee, either a fixed fee per transaction or a percentage of the transaction price. In addition, the orchestrator can charge for supplementary products or services (such as invoicing, payments, and insurance), or it can monetize the ecosystem indirectly through advertising revenues.

3. K. Järvi et al., “Organization of knowledge ecosystems: Prefigurative and partial forms,” *Research Policy*, October 2018.

WHOM SHOULD YOU CHARGE?

The second critical question of value capture is whom to charge. Again, the orchestrator has a number of choices, such as charging all participants, charging only one side of the market while subsidizing the other side, or charging most users the full price while subsidizing select marquee users or particularly price-sensitive users.

Our analysis showed that mispricing on one side of the platform is a key reason for failure, in particular in the launch phase (see the next section). For example, Table8, a platform for last-minute reservations in sold-out restaurants, failed because it charged the wrong side of the market. The company learned the hard way that few guests were willing to pay \$20 or more for a reservation in a high-profile restaurant. Competitors like OpenTable that charged restaurants for their reservation service turned out to be more successful. Similarly, eBay had to learn that its established model of charging users to list products and services did not work in China because the practice discouraged sellers to set up online shops, whereas Taobao offered a cost-free system that was financed solely by advertisements.

How can you find the right monetization strategy for a given business ecosystem? In general, monetization should be designed so that it does not stifle the growth of the ecosystem but instead encourages and incentivizes participation and thus fosters network effects. This can be achieved, for example, by charging for transactions rather than access, subsidizing the side of the market that is less willing to participate, or offering rebates for increased usage and rewards for inviting others to join the network. A good starting point is to identify the participants with the highest willingness to pay and charge them according to the net excess value they derive from the ecosystem.

Moreover, monetization should be used to overcome bottlenecks in the ecosystem and to encourage innovation by, for example, subsidizing bottleneck players and offering better terms for new products. Of course, the pricing strategy of an ecosystem can change over time. Many platforms initially subsidize one or both sides of the market to overcome the chicken-or-egg problem during launch. However, most of them realize that it is difficult to transition from free to fee and that they need to offer new, additional value to justify the change.

Step 5: How Can You Solve the Chicken-or-Egg Problem During Launch?

WHAT DOES IT TAKE TO ACHIEVE CRITICAL MASS?

Many ecosystems fail during the launch phase because they cannot solve the chicken-or-egg problem of sufficient participation of both buyers and sellers/producers. They do not achieve the critical mass to secure network or data flywheel effects, whereby scale begets further scale. An analysis of 57 ecosystems in 11 sectors across geographic markets by the BCG Henderson Institute found that half of the investigated ecosystems never took off.

When we looked deeper into the successes and failures, we noticed many misunderstandings regarding ecosystem launch. First, despite the paramount importance of network effects in many business ecosystems, first-mover advantages are often overestimated. It is not about being the first in the market, but being first with a complete solution. The Apple iPod was not the first digital music player, but it was the first to offer a comprehensive solution by combining the hardware product with the iTunes music management software.

Second, the size of the network should be measured not by vanity metrics, such as the number of members, but by the number of interactions or transactions, which is how business ecosystems create value. Most network effects are “local” (not only in a geographical sense), so network density may be a more important driver of value for users than network size.

Third, it is not only about the quantity of participants but about the right participants (such as the most attractive restaurants for an online booking platform like OpenTable) in the right proportions (such as a balanced number of drivers and riders for a ride-hailing ecosystem like Uber). Identity and culture are important success factors for a business ecosystem, and it is difficult to change them once they are established. Ecosystem growth is thus strongly path dependent, and the selection of early members and the sequence of attracting members can have a big impact. You can even experience negative network effects from attracting “bad” users, as Chatroulette, the random video chat platform, experienced with its “naked-hairy-men problem.”

WHAT IS THE MINIMUM VIABLE ECOSYSTEM?

An important consideration to increase the odds of a successful launch is to start with a *minimum viable ecosystem* (MVE), a term coined by Ron Adner.⁴ In the traditional approach to launching a new product, the fully developed value proposition of the product is demonstrated in a pilot with limited commercial scale before the broad rollout of the product. By contrast, an MVE initially focuses on a basic value proposition (the core transaction) but demonstrates its commercial viability at scale, directly establishing a dense network of partners and customers. Over time, the MVE can expand its value proposition in a series of staged expansions.

To quickly get to critical mass and build a dense network, many successful ecosystems we observed initially constrained themselves by geography. For example, Airbnb first focused on New York, and even as the company started its international expansion in 2011, it focused on creating critical mass in just a few markets. Similarly, OpenTable conquered one city at a time, following the rule of thumb that once 50 to 100 concentrated restaurants in a city subscribed, enough consumers would use the platform.

On the other hand, many failed ecosystems expanded too quickly. For example, Better Place may have been able to overcome the chicken-or-egg problem if it had focused on its two core markets, Israel and Denmark, where it achieved early success. However, the company moved too quickly to establish toeholds and run pilots in a wide range of new locations and ran out of money before it could secure the critical level of sales volumes to attract and retain partners—most important, automakers.

Other failed ecosystems completely ignored the MVE concept and launched an offering that was too broad rather than focusing on the core transaction. For example, Club Nexus, an early social network created in 2001, allowed students to chat, send emails, post events, buy and sell goods, and post images and articles. The complexity of features made the platform difficult to use and weakened the strength of its network. Facebook learned from this failure and started with only very simple profiles and allowed users to view only other people who went to the same school..

WHICH SIDE OF THE MARKET SHOULD YOU FOCUS ON?

In solution ecosystems, the main challenges are typically on the complementor side: persuading partners to commit to and invest in an unproven business opportunity. It helps if the orchestrator credibly demonstrates its own commitment through a large upfront investment in the ecosystem, as Microsoft did when it entered the video game console market in committing to sell the Xbox at a low price to convince game developers that there would be demand for their products. In addition, Microsoft subsidized some marquee developers to join the ecosystem.

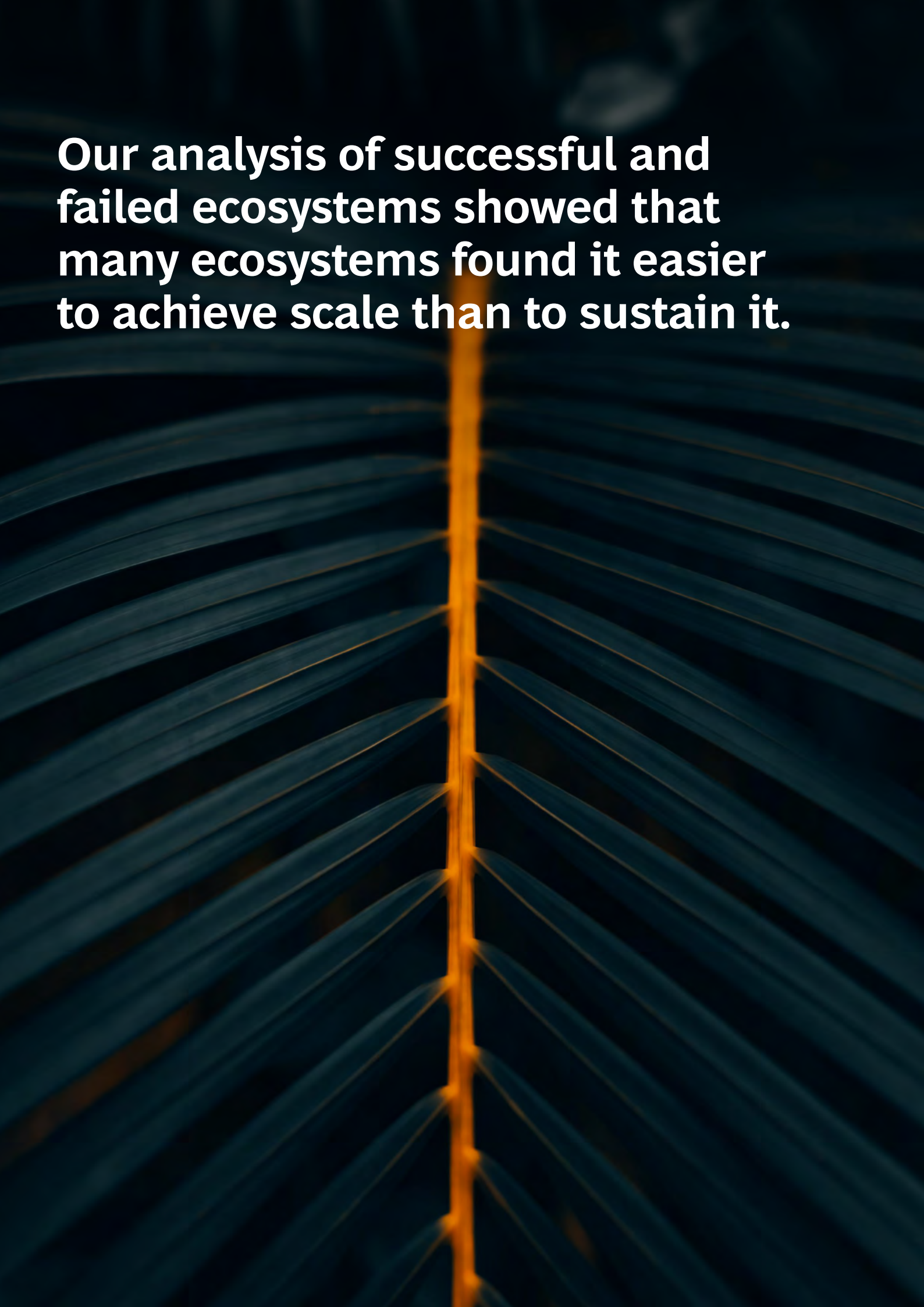
The orchestrator can make it easier to join by providing free or subsidized tools and services for complementors. Some orchestrators even sign conditional contracts with complementors and/or customers obliging them to join the ecosystem if it gets enough members of the other group to participate. If this does not work, the orchestrator can still develop or buy some of the required complements itself to kick-start the ecosystem. For example, Apple launched the iPhone with a number of applications that it developed in-house, including a web browser, mail, contacts, calendar, photos, videos, and iTunes.

Transaction ecosystems have an even larger number of levers at their disposal to kick-start the platform. Sometimes they can build on the existing infrastructure or customer base of a linear business model, as Amazon did when it opened its established e-commerce system to external producers and launched Amazon Marketplace. Or they can piggyback on an existing transaction ecosystem, like PayPal did on eBay's online auction platform.

If this is not possible, the critical question is which side of the market to focus on initially in order to build critical mass. Most ecosystem orchestrators that we analyzed focused first on building supply, and they used various levers to do so. Some seeded and subsidized one side of the market. For example, Uber initially guaranteed drivers \$40 per hour as long as they kept the app running and maintained an acceptance rate of 70%. Some attracted supply by providing free or subsidized tools and services (Airbnb), subsidizing marquee producers to join the platform (Twitter), or creating an initial offering by acting as a producer themselves (Quora, Reddit). An interesting strategy can be to create standalone value for one side first. For example, OpenTable started by building a suite of software tools for restaurants to replace their manual booking processes, which created the technical preconditions and a loyal base of suppliers for its online-booking platform.

4. Ron Adner, *The Wide Lens*, Penguin Group, 2012.

Our analysis of successful and failed ecosystems showed that many ecosystems found it easier to achieve scale than to sustain it.



Supply-constrained ecosystems should not shy away from more traditional levers. Most successful food delivery platforms, for instance, started by hiring a field sales force that simply walked into restaurants during their downtime and talked to owners to persuade them to join their ecosystem. Many ride-hailing platforms used referrals to incentivize existing suppliers to bring new suppliers to the platform.

Some transaction ecosystems are not supply-constrained and should focus on growing the demand side. For example, TaskRabbit had thousands of people on the waitlist to provide services but had more trouble building demand. The company deliberately constrained supply by charging a fee and processing background checks in order to increase the quality of the offering and thus attract demand.

Other ecosystems follow a zigzag strategy to bring on both sides of the market at once. For example, Alibaba worked hard on getting Chinese suppliers and foreign buyers on board simultaneously when it first launched. YouTube also pushed participation by both sides simultaneously and alternated between strategies to get more people to upload and more people to view. The Japanese firm Recruit, which builds ecosystems to reinvigorate mature service markets, deploys what it calls its Ribbon Model to alternate between building supply and building demand.

And finally, some successful platforms use context-dependent creative and even devious tricks to overcome the chicken-or-egg problem. Twitter achieved its breakthrough by traditional push marketing with a big-bang event at the 2007 South by Southwest (SXSW) tech festival. Airbnb, instead of building supply from scratch, used readily available information on property owners who wanted to rent out their properties from Craigslist, a popular online classified website. And Uber launched Operation SLOG (Supplying Long-term Operations Growth) to aggressively attract drivers from rival ride-hailing service Lyft.

We conclude that successfully launching a business ecosystem is a big challenge that requires more than a strong initial design. It takes persistence, deep pockets, and sometimes the willingness to follow unusual and creative approaches that may not be financially sustainable, in order to kick-start the ecosystem. However, if the ecosystem is to be viable in the long run, it also needs to be designed for evolvability.

Step 6: How Can You Ensure Evolvability and the Long-Term Viability of Your Ecosystem?

HOW CAN YOU SCALE THE ECOSYSTEM?

In contrast to most traditional business models, many business ecosystems have the potential not only for supply-side economies of scale but also for demand-side economies of scale and the resulting positive feedback loops. In particular, demand-side scale effects enable many ecosystems to grow quickly and exhibit winner-takes-all or at least winner-takes-most characteristics (at least for some time). However, some ecosystems have only limited demand- and supply-side economies of scale. And many ecosystems have failed because they did not solve the scalability challenge.

Demand-side economies of scale make networks more attractive to users as more users participate in the ecosystem. They can be based on direct (same-side) or indirect (cross-side) network effects. More traditional market-building instruments, such as a strong brand, can reinforce these network effects. Demand-side economies of scale are larger for ecosystems with global business models (travel booking platforms) than for multilocal ecosystems (food delivery platforms), where the network effects are limited to small local clusters. Moreover, an ecosystem may experience negative network effects and declining quality from growing the network, for example, if it becomes increasingly difficult to find the best match in a growing transaction ecosystem. Such negative network effects can be limited through effective (and scalable) curation using data, algorithms, and social feedback mechanisms.

Supply-side economies of scale can be based on falling fixed or variable costs. They are particularly strong in many digital ecosystems, which are frequently characterized by asset-light business models (Airbnb achieved a dominant position in the hospitality market without owning a single hotel), low-to-zero marginal cost (no significant effort of serving an additional customer on the Amazon Marketplace), and increasing returns on data (more effective matching of riders and drivers on a growing ride-hailing platform). Supply-side scale effects can be limited by sticky costs, for example, if competition between ecosystems requires ongoing high marketing and recruiting investments (food delivery platforms) or if a fast rate of technological innovation requires ongoing high research and development expenses (ride hailing). Moreover, the rising cost of complexity and quality control may counterbalance positive scale effects as the network grows.

We suggest a simple matrix to analyze the scalability position of your ecosystem. (See Exhibit 3.)

Airbnb is an example of an ecosystem with both substantial demand-side economies of scale (indirect network effects) as well as supply-side economies of scale (from spreading the high fixed-cost for technology and marketing). We characterize this model as a *flywheel*, with winner-takes-all-or-most characteristics.

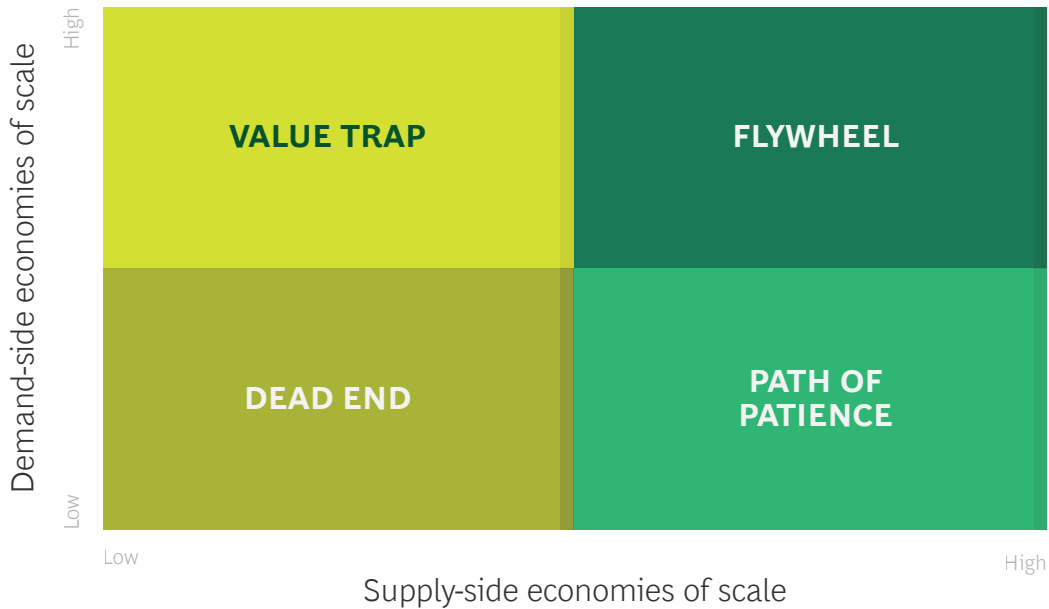
Some ecosystems have supply-side economies of scale but only limited demand-side economies of scale, such as additive manufacturing and many other solution ecosystems with small network effects. They need to follow a *path of patience* when it comes to growth, but they also have a good chance of achieving a profitable and defensible position.

More critical are ecosystem models that have high demand-side economies of scale but limited supply-side scale effects. We call them *value traps*. Ride-hailing platforms may be an example. The model clearly has substantial positive indirect network effects that support explosive growth, but it lacks substantial scale benefits on the supply side, mainly because of the high recruiting and retention cost for drivers. Such businesses can struggle to become sustainable.

And then there are examples of ecosystem plays that have neither substantial supply- nor demand-side economies of scale. We call them *dead ends*. An example is the original Yahoo internet portal and search engine, which started as an employee-edited hierarchical database that classified webpages using a tree structure of categories. This model worked well for some time, but as the internet grew exponentially, it became apparent that it was not scalable, and Yahoo was overtaken by Google with its automatic and easily scaling page-rank algorithm.

It is important to understand the scalability position of your emerging ecosystem and to adapt your ecosystem design and ecosystem strategy accordingly. However, scalability is only the first step toward long-term viability. To thrive in the long run, your ecosystem also needs to be defensible.

Exhibit 3 - How Scalable Is Your Ecosystem?



Source: BCG Henderson Institute.

HOW CAN YOU DEFEND THE ECOSYSTEM?

Ecosystems have some built-in defensibility advantages, and many exhibit natural winner-takes-all-or-most characteristics. Once they have achieved a dominant market position, strong barriers to entry result from the network effects and scale advantages on costs and data mentioned above. Moreover, ecosystems compete at the system, not at the product, level, which gives them a deeper type of competitive advantage that is more difficult to copy and attack than just a superior product or service.

However, our analysis of successful and failed ecosystems showed that many ecosystems found it easier to achieve scale than to sustain it. Defending a strong position as an ecosystem is challenging because an attack can target either the demand or the supply side of the market. We identified four main mechanisms of attack that ecosystems need to be aware of.

First, *multihoming* happens when suppliers or consumers participate in multiple competing ecosystems at the same time, or easily switch between ecosystems. Restaurants may find it attractive to offer their dishes on multiple food-delivery platforms, for instance, and consumers use different hotel-booking platforms to chase the best offering. Multihoming is a particular risk for an ecosystem if switching costs are low. For example, because credit cards tend to have low annual fees, many people carry multiple cards in their wallet. By contrast, only few people can afford to carry both an Android and Apple phone, so they tend to choose one model and stay with it for at least a couple of years.

Second, *disintermediation* happens when partners from two sides of a transaction ecosystem bypass the matching platform and connect directly. For example, Homejoy, an online platform that connected customers with home service providers, including house cleaners and handymen, suffered from disintermediation as customers who were satisfied with the service of a cleaner did not return to the platform but hired the person directly. Homejoy closed down in 2015.

Third, *differentiation and attack from niches* happens when a subset of users have distinctive needs or tastes that can support a separate ecosystem and take away market share from the dominant player. For example, Upwork, the leading marketplace for freelance labor, found it difficult to establish a defensible dominant position (and earn a decent return) because of market fragmentation and competition from hundreds of niche players that focus on specific industries, job types, or locations.

And finally, *ecosystem carryover* happens when a successful business ecosystem expands into a neighboring domain. It is an important route for ecosystem growth and expansion, as we will discuss in the next section, but also a significant threat for established ecosystems. A special case of ecosystem carryover is nested ecosystems. For example, we could imagine that ride-hailing platforms at some point may come under pressure from broader mobility-as-a-service ecosystems that include multimodal transport solutions, which may in turn be attacked by even broader smart-city ecosystems.

Digital technologies, while offering new ways of exploiting network effects and supply-side economies of scale, also make it more difficult to defend an established position. Digital business models have much lower entry barriers than traditional brick-and-mortar businesses. It is so easy to create a digital platform today that you do not even need to program your own software but can build it from components available on cloud-services platforms. Digital network effects as a barrier to entry are much weaker than the physical network effects of a railway or telephone network. Moreover, they can quickly be reversed once a network starts losing users and gets into a downward spiral, as once-dominant platforms like Second Life and BlackBerry have painfully experienced. And finally, the high rate of innovation and technological disruption in this field means that established ecosystems will always be challenged by new players with a better concept and a more exciting offering. Think of how Myspace killed Friendster, only to be subsequently killed by Facebook.

If you want to design your business ecosystem for evolvability and long-term viability, you need to build in some characteristics that make it easier to defend. How can you evaluate how well your ecosystem is prepared? Here are four essential questions:

- How strong are network effects in your ecosystem?
- To what extent can your ecosystem benefit from supply-side economies of scale?
- How high are multihoming and switching costs on the demand and supply side?
- To what extent is your ecosystem protected from specialized niche competition?

The application of the four defensibility tests to ride-hailing platforms such as Uber, Lyft, and Didi uncovers the fundamental challenges of their business models. On the positive side, there is only limited threat from niche specialization in ride hailing, and the platforms can clearly benefit from substantial indirect network effects. However, these effects are only local and difficult to transfer to new cities. More importantly, ride hailing suffers from multihoming and low switching costs for riders, who have a high incentive to use multiple ride-hailing services, as well as drivers, who can easily switch between platforms or even serve multiple platforms at the same time. As indicated above, the resulting high recruiting and retention costs for drivers lead to limited supply-side economies of scale, further reducing barriers to entry.

By contrast, video games score better in the defensibility test. They exhibit moderate, but global, indirect network effects, benefit from substantial supply-side economies of scale (low marginal cost of selling an existing game), and experience limited threat from niche specialization. However, the industry suffers from multihoming of game developers, who have high incentives to work for multiple console producers, as well as of players, who are further encouraged by subsidized console prices. As a result, Microsoft, Nintendo, and Sony have formed a rather stable oligopoly for an extended period of time, but market shares have varied from console generation to generation, depending on the newly introduced games and hardware features.

What can you do as an orchestrator to improve the defensibility of your ecosystem? Of course, you can try to increase barriers to entry. For example, you can reduce the incentive to multihome by building proprietary standards that suppliers must follow or by creating loyalty programs for users. You can also implement a rather strict governance that requires suppliers to commit exclusively to your ecosystem. However, this will also limit their incentive to join your ecosystem in the first place.

The most effective defense, however, is to ensure that you offer the best available product or platform and the best overall ecosystem solution. Having only a superior product or platform is no longer sufficient in an ecosystem world, where competition happens at the system level. In many ways, the BlackBerry was superior to the iPhone—in terms of data security, keypad, and battery life—but Apple offered the far better overall solution with its ecosystem of app developers.

At the same time, you must not neglect your core product. In 2004, Microsoft's Internet Explorer captured close to 95% market share and was widely considered to have won the browser war. However, with no serious competitor left, Microsoft underinvested in the further development of the browser and its underlying ecosystem. Inferior product execution and product innovation from 2004 to 2015 allowed Firefox and Chrome to enter and eventually dominate the market.

In the end, the only way to defend your leading position as an ecosystem is to be the technology and innovation leader in your industry, to encourage all partners in the ecosystem to relentlessly innovate, and to continuously adapt and reinvent your ecosystem, before others do.

HOW CAN YOU EXPAND THE ECOSYSTEM?

The exact route of expansion of a business ecosystem cannot and should not be planned in advance. A key benefit of ecosystems is their responsiveness to changing consumer needs and technological opportunities. It is thus important for an ecosystem orchestrator to be open to the creative potential of consumers and complementors, and to build flexibility and adaptability into the model.

An ideal ecosystem architecture uses a modular setup with clearly defined interfaces, such as APIs in digital ecosystems. They define how ecosystem members connect to the overall system and should provide the element of stability of the ecosystem. When complementors can rely on the stability of interfaces, they can flexibly innovate and add new functionalities to the system. Even major technological changes in the core product or platform can be easily accommodated, as long as the interfaces remain stable. In this way, Microsoft managed to defend Windows as the dominating PC operating system over three decades, in spite of substantially changing technologies and customer preferences.

Three pathways for expansion should be considered in ecosystem design. First, expansion can happen by *adding new products or services* to an existing ecosystem. For example, LinkedIn started as a social network, allowing users to connect with other professionals through simple profiles. Over time, it added further services, such as a marketplace for online recruiting, advanced messaging features, and a content publishing platform. Second, an existing ecosystem can be used to *expand into adjacent markets*. For example, Uber started as a ride-hailing service and successively expanded into other mobility-related services, such as food delivery, e-bikes and scooters, and courier services (which shut down in 2018). And finally, *ecosystem carryover* is a strategy that leverages the success of one ecosystem to create advantage in constructing a new one. For example, Apple used its strong position in the music player ecosystem to conquer the smartphone ecosystem by positioning the iPhone as the next-generation iPod. In this way, the iPhone started with a built-in, loyal customer base, which gave Apple a decisive competitive advantage in this emerging market.

As these examples indicate, many different assets can serve as a basis for ecosystem expansion. It could be existing relationships to customers and/or complementors that can be transferred to new applications, as in the case of the iPhone. It could be idle capacity, as in the case of Amazon, which used server capacity from its retail operations as a starting point for building Amazon Web Services. It could be technology, as in the case of Alphabet, which used its Google navigation technology to build the Waymo ecosystem for self-driving vehicles. And it could be data, as in the case of Alibaba, which used information from transactions on its Taobao marketplace to build the Ant Financial ecosystem. Whatever the critical assets for future expansion will be, ecosystem orchestrators need to ensure in their ecosystem design that they control them.

HOW CAN YOU PROTECT AGAINST BACKLASH?

A number of large platform-based ecosystems have recently experienced a substantial backlash from consumers and regulators. For example, marketplaces such as Amazon and eBay were criticized for not collecting sales taxes to gain a competitive advantage. Uber and Airbnb were accused of escaping regulation in the transportation and hospitality sector in order to avoid costly requirements for safety, insurance, hygiene, and workers' rights that apply to taxis and hotels. And Facebook was harshly criticized for its data privacy policies and for false and misleading stories disseminated on the platform.

It is true that many ecosystem models have successfully exploited missing regulation for new technologies or gaps in existing regulation. However, as ecosystems begin to dominate larger parts of our economy, social and regulatory scrutiny will increase, and members of an ecosystem must accept, anticipate, and address their growing responsibility. To this end, it is important to design

your ecosystem not only for legal compliance but also for long-term social acceptance, and to make it robust in the face of shifts in public values and perceptions. For example, the high energy intensity of many digital business models has recently been increasingly criticized, and designing an ecosystem with a favorable climate footprint may soon become an important competitive advantage.

There are also increasing concerns that dominant ecosystems may become too big to control and could abuse their market power. Existing antitrust legislation in most countries is not well suited to regulate business ecosystems. To avoid a regulatory backlash, ecosystem orchestrators should anticipate such concerns, continuously challenge their ecosystem design, and work with regulators to ensure broad social acceptance. More important, they should preempt regulation by self-regulating and not abusing their central role in the ecosystem and their ecosystem's role in the economy. In the long run, a business ecosystem will prosper only if it continues to create tangible value for its customers and ensures fair value distribution among all contributors to the ecosystem.

Designing a business ecosystem is a major undertaking. The six steps and underlying interdependent design choices we present here can help. A business ecosystem that is well designed in this way has the potential to create entire new industries or substantially shape and transform existing industries.

At the same time, it is important to accept that business ecosystems cannot be entirely planned and designed—they also emerge. Ecosystem design must ensure that the basics are in place and strategic blunders are avoided, but it must also leave room for creativity, serendipitous discoveries, and emerging customer needs. Ecosystems that are successful in the long run need to be adaptable and be ready to modify their designs in anticipation of shifts in markets, technologies, regulations, and public sentiment. They must also be ready to embrace the serendipity of unintended and unforeseen opportunities.

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April 2020

Advantage Beyond the Crisis

by **Kermit King, Dan Wald, and Justin Manly**

The only certainty about the COVID-19 pandemic is that it will eventually end, and when it does, many of the changes it has brought will recede. Like wildlife returning to Chernobyl, prior conditions will reappear. Consumers will once more shop and socialize, supply and demand will rebalance, and markets will recover. History tells us, however, to also expect some lasting change in the wake of crisis—such as Glass-Steagall after the Great Depression, increased suburbanization after World War II, and heightened security following 9/11. Similarly, in the wake of turmoil, company performance and position can shift either temporarily or permanently. This outcome depends on the interplay of customers, competitors, and regulators. It also depends, importantly, on the decisive actions companies and their leaders take in the middle of the crisis.

Companies that master both the *transitory* and the *transformational* response to a crisis reap long-term rewards. Transitory responses entail **rapid actions that are critical for survival**, including protecting employees, managing cash, and flexing supply chains to meet demand. But occupying new positions and building new advantages requires transformational moves and investment. In a crisis, when the immediate response can be all-consuming, transformational moves are harder. They are also smarter, and they create opportunities to win in the long term.

Two leading US watch manufacturers, Bulova and Waltham, traversed the serial crises of the 1920s to 1940s. Both launched immediate responses, for example, by extending terms to retailers in the Great Depression and by later successfully shifting production to wartime instrumentation. Beyond this, Waltham largely pursued a course of tight cost management, curtailing advertising, innovation, and investment in sales and distribution.

In contrast, Bulova consistently invested in new sources of advantage, acquired multiple domestic and international competitors, and innovated as it spent. During this time, the company launched the industry's first-ever million-

dollar advertising campaign and the world's first television commercial, and it was an early innovator in electric clocks and clock radios. Bulova's leaders also cultivated close government relationships, selling products to the government at cost and opening a watchmaking school that employed disabled veterans—all while aggressively lobbying to impose tariffs on imported watches.

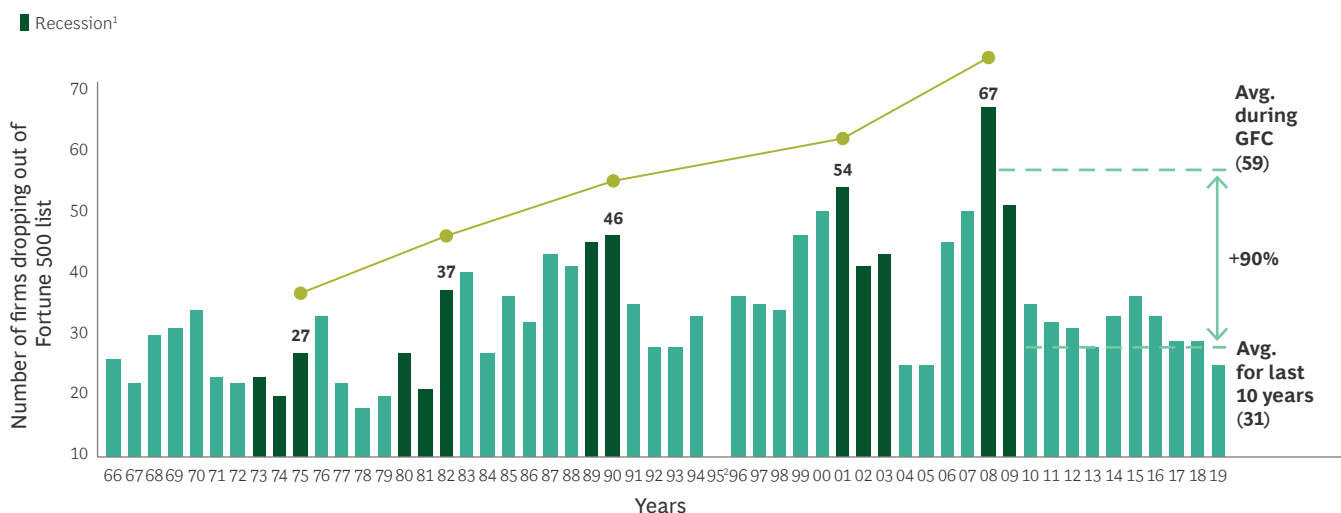
Bulova became one of the era's ten best-performing stocks, and from 1931 to 1954, its value appreciated by a factor of 24.

Waltham went bankrupt.

Exhibit 1 shows the prevalence of this storyline. Volatility in company position is greatest in times of crisis and has steadily increased with successive crises over the last 50 years. Fortune 500 churn during the last recession was 90% higher than the average of years since.

Bulova's example suggests that winning beyond a crisis requires finding transformational opportunity signals in the midst of transitory noise.

Exhibit 1 - Positional Churn Highest During Crises, Increasingly over Time



Sources: Fortune 500 Listings; NBER; BCG analysis.

¹Officially designated by National Bureau of Economic Research.

²A different list compilation methodology was used in 1995, producing a large change; 1995 is therefore excluded.

The Five-Point Approach to Transformational Responses

Our experience with companies that have mastered the ability to identify transformational opportunities suggests five points of action:

1. Detect and discern critical shifts. Stay ahead of the curve by setting up three war rooms: one for customers, one for competitors, and one to consider regulatory issues. Building these cross-disciplinary teams will help companies determine which signals related to demand and competition are most relevant to monitor, which are likely to persist after the crisis, and which reveal opportunity. In a crisis, the detection cycle is fast and can even occur on a daily basis. In a prior crisis, one cruise company war room monitored credit card spending, detecting timing and patterns of early returning travelers. Currently, a client is looking at road congestion levels in China to discern the shape of the postcrisis rebound.

Such insights must be integrated into all three war rooms to discern patterns of longer-term opportunity. Following 9/11, for example, Qantas was able to guide its expansion plans and gain market share by monitoring customer data in addition to its competitor capacity and routes. CGI, a technology consulting firm, gathered detailed survey results through one-on-one field interviews with a quarter of its customers conducted by local senior executives. The results yielded competitive insights that led to a series of adjacent acquisitions through the downturn from 2007 to 2009, in turn driving 50% of CGI's go-forward growth.

An essential role for the war rooms is to assess which changes are transitory and which are likely to be permanent—and to recommend actions for each. Temporary crisis behavior, like grocery stockpiling, may represent a closing window that requires rapid deployment to capture incremental revenue. More permanent behavior, however, often emerges where a preexisting trend or advantaged offering gets a crisis nudge—pushing consumers to trial new options or resulting in a shift of cost-benefit trade-offs. In the current crisis we already see candidates: telemedicine in health care, increased retail click-and-collect, more resilient supply chains, greater caution in travel and tourism, and normalized remote work. Capitalizing on these more permanent opportunities requires longer bets and capability builds, [with historical examples able to inform companies today.](#)

2. Outflank the competition. As business customers and consumers rapidly react to the terms of crisis, new brand perceptions, purchase behaviors, and demand patterns create competitive openings. Companies that capitalize on these openings faster than the competition can change the field of play in ways that reward beyond the disruption. In the last recession, cost-conscious buyers began to delay new car purchases in favor of increased DIY maintenance and repair. Auto parts companies were implicitly positioned to benefit from this tailwind, but the spoils were shared unequally. AutoZone moved swiftly to expand its suburban demographic through investments in employee training and in-store technology. The company increased its private-label brand inventory to 50% of its offering, appealing to customers looking for low-cost parts. It also expanded video resources for DIY mechanics. A key rival of AutoZone pursued a less aggressive response. As a result, AutoZone grew at a 50% higher rate than this direct competitor and beat its shareholder returns by ten points in the three years following the recession.

3. Accelerate restructurings or investments. In normal times, major restructurings or investments, even when clearly advantageous, often stall in the face of trade-offs and constraints. Revenue risk during transition, channel conflicts, or stakeholder inertia may delay action. A crisis, on the other hand, can lower barriers and opportunity costs, paving an easier path for action. Prior to the Great Recession, the US auto industry was faced with an inefficient and uncompetitive dealer network. While the “Big Three” automakers had long sought dealer consolidation, the recession and bailout opened a window of opportunity. Each manufacturer made sweeping moves. GM, for example, closed 40% of its 6,000 dealerships. Retained dealerships became larger, better managed, and more profitable as the industry experienced a decade of growth and margin improvement.

In the current pandemic lockdown, many valuable assets are idled, especially among retailers and businesses that are capital and fleet intensive. One countervailing benefit is the lowered cost of renovation and retrofitting. In this environment, companies can invest in value-boosting initiatives with a lower risk of sales forfeiture today than in the future—such as making stores attractive, lowering compliance risk, and enhancing production efficiencies. Stena Bulk, a European shipping company, recently announced that it is installing emissions scrubbers on 16 vessels to comply with newly tightened regulation. Scrubber investment is moving forward during a time of reduced shipping routes and staff.

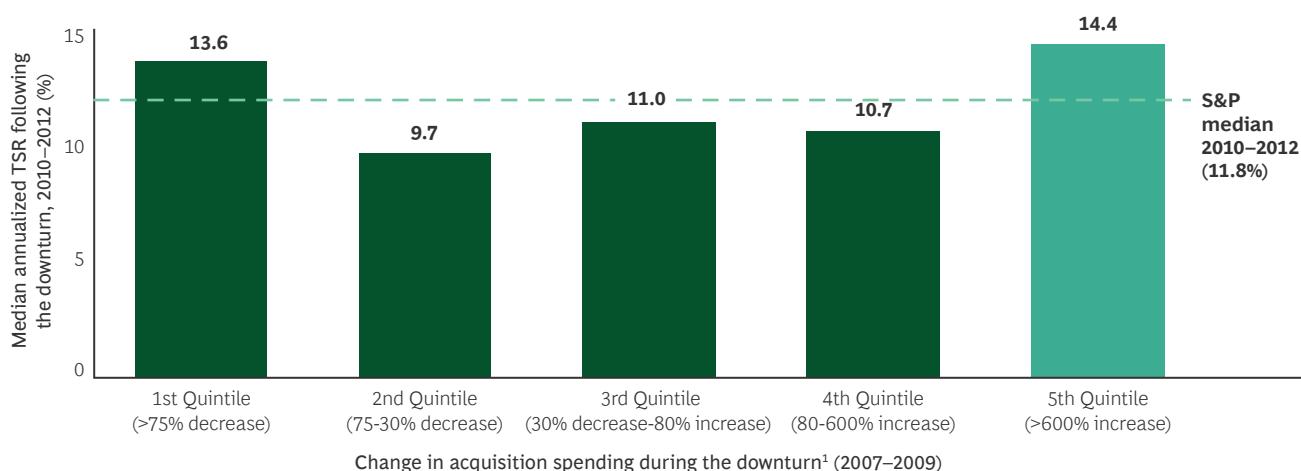
Similarly, in the course of long-range planning, many companies contemplate attractive adjacent growth moves, only to sideline them in the shadow of a dominant core. Crises can shift this balance if the adjacency has better growth exposure once the crisis is over. In the last downturn, Aggreko, a mobile-power-generation company, saw a decline in the use of its equipment for events and construction. In response, the company swiftly shifted its focus from these applications to delivering emergency power generation in rapidly developing economies (RDEs), an on-trend shift aligned with RDE growth and the effects of climate change. These new geographic and application adjacencies increased sales from \$1.2 billion to \$1.8 billion in two years, and the company beat the S&P in value creation by nearly six-fold across the downturn.

4. Capture low asset values. In a crisis, the world goes on sale. Exhibit 2 shows the extent to which companies leaning heavily into M&A from 2007 to 2009 outperformed the market.

PepsiCo had long seen strategic advantage in buying back a network of independent bottlers for reasons of quality, channel investment, and coordination. Early in the last recession, PepsiCo jumped at the opportunity, acquiring the weakened network at a discount after it had seen a \$2.5 billion year-on-year decline in enterprise value. The \$200 million of cost efficiencies enabled by the move better positioned PepsiCo to weather the rest of the downturn.

Similarly, Macquarie Group, an Australian investment bank specializing in infrastructure, entered the same downturn with a healthy cash position compared with its potential targets. In 2010, it saw the opportunity for adjacent US expansion through a favorable acquisition of Delaware Investments. This led to a string of serial moves, which culminated in Macquarie’s transformation into a diversified investment bank and asset manager in a period when others retrenched. In this vein, companies should consider the full implications of M&A in the crisis of today.

Exhibit 2 - Companies That Significantly Increased M&A Spending During the Great Recession Saw the Highest Total Shareholder Return



Sources: S&P Capital IQ; BCG analysis.

Notes: Data includes 194 companies listed in the S&P 500 in 2008. Data limited to companies with non-zero, dividend-adjusted stock price at the end of 2009 and 2012. Data excludes companies reporting zero acquisition spending in 2007 or 2009 and companies that decreased acquisition spending by >90%. Annualized TSR covers the period from the start of trading on January 1, 2010 to December 31, 2012.

¹Acquisition spending is calculated as the maximum of cash spent on acquisitions or the total transaction value when available for deals.

5. Build a government affairs capability. As in prior crises, enormous stimulus packages and regulatory action are taking shape in response to COVID-19. Exhibit 3 shows how nearly \$6 trillion in subsidies have been proposed across major markets thus far.

Meanwhile, regulatory regimes could unpredictably tighten or relax, from truck driver scheduling to food-labeling requirements. The likely magnitude, scope, and competitive impact of government influence argues for commensurate corporate engagement. Facing regulation or stimulus, companies must develop a firm ask from their government, as well as a credible narrative of how their actions are good for society, customers, employees, and the business itself. During the last recession, IBM advocated for relief under the American Recovery Act, helping to secure \$30 billion for the technology sector. Following the act’s passage, IBM launched a \$2 billion kick-start fund, extending loans to eligible projects, including a new health care service that enabled data exchange between physicians and patients. By 2013, IBM had received \$180 million in stimulus awards.

Additionally, board members, too, have a role to play. Thanks to their varied backgrounds and contacts, each can help shape the message, create advocacy, and engage policymakers. Following 9/11, a \$12.5 billion rescue package for airlines failed in the US House of Representatives. Within a week, board members from the six main US airlines engaged directly with congressional leaders—Congress promptly approved \$15 billion in airline support.

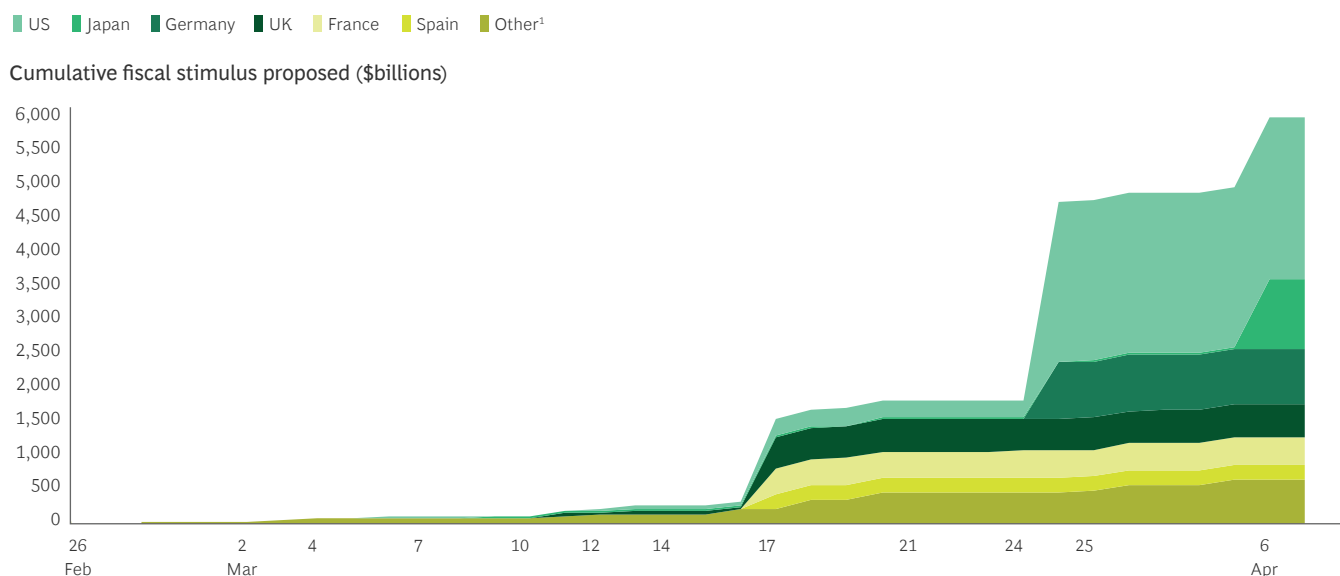
A century of company performance shows that, in the fog of crisis, longer-term opportunity is both abundant and obscured. Companies that penetrate the mist, that see and seize the chance for transformational moves and investment, can find advantage in the fog. When it clears, they will look around and find themselves in the lead.

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Exhibit 3 - Global Stimulus Figures Climbed to Almost \$6 Trillion by Early April 2020



Sources: Investopedia; government and news press releases; BCG analysis.

¹17 governments and international organizations have proposed a collective \$630 billion in stimulus, including Argentina, Australia, Brazil, Canada, Chile, Hong Kong, the IMF, India, Italy, Poland, Portugal, Russia, South Korea, Sweden, Switzerland, Turkey, and the World Bank.

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