Trending Insights

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Beyond the Great Lockdown: Emerging stronger to a different normal

COVID-19 Action Guide for Executives

IBM **Institute for Business Value**

IBM

This report supplements the COVID-19 Action Guide we released April 10, 2020. We will continue to update our assessments as conditions evolve. See our current collection of business research on this topic.

All around the globe, the COVID-19 pandemic has taken away lives and jobs, damaged industries and enterprises, and turned the unimaginable into the usual. A return to normal, whenever it comes, will be a different normal. What we do right now will define the future, and yet making decisions and acting with assurance has never been more challenging.

Even though each day brings more uncertainties, there are definitive actions that can improve our resilience and strength. A framework that outlines a path forward, lending clarity amid the uncertainty, can make the difference between organizations that thrive and those that don't.

This special report from the IBM Institute for Business Value (IBV) provides such a framework, organized around seven key imperatives that will be useful for any organization's executive team. These seven areas are:

- Empower a remote workforce
- Engage customers virtually
- Remote access to everything
- Accelerate agility and efficiency
- Protect against new cybersecurity risks
- Reduce operational costs and enhance supply chain continuity
- Support health providers and government services.

This guide is practical and actionable, offering a set of activities that should be addressed immediately, if they haven't been already. It also suggests longer-term consequences and persistent changes that COVID-19 has brought to industries, companies and individual habits. These changes require actions now to ensure companies adapt to what will be a new, different kind of normal.

There's much to do and it will seem daunting. The entire executive team will need to be engaged. Our different normal will include new habits—organizational, social and cultural. Each leader will have a role to play in preparing the organization for a successful future. Let's get to it.

Who should read this guide: Executives, government officials and business owners can benefit from the points of view expressed in this guide to chart their path forward beyond what is being called the "Great Lockdown." Each of the seven imperatives naturally falls within the leadership scope of one or more executive, though each organization's success will rely on the team as a whole. Leadership, decisiveness, empathy, and teamwork are essential, now more than ever.

How leaders should use this guide: Consider this guide as a checklist. Leaders can start by reviewing the set of *actions that already should be underway* to promote the health and safety of employees, meet customer needs, stabilize and protect the organization's operations, and address the most pressing community needs.

The guide also includes *actions that should be part of your organization's mid-term plan* as the Great Lockdown eases. Gathered from hundreds of client interactions in organizations around the globe, these actions have been compiled to help executive teams create a different normal together.

In some cases, we refer to IBM examples or experiences that should prove valuable for other organizations, especially those struggling to implement solid business continuity plans. IBM is making available its experience and solutions to accelerate recovery and help organizations emerge stronger as they build their resilience and adaptation muscles.

How long will it take? *Each section of this guide will take less than five minutes to read.* After that initial view, there are additional resources to dive deeper as needed.

Imperative #1: Empower a remote workforce

Suggested leadership assignment: Talent leaders and Chief Human Resources Officers (CHROs)

4 minute read

Among the many economic costs that COVID-19 has exacted, the workplace impacts have been among the most significant. The already-considerable challenges of human capital management in a typical work setting—leadership, workforce engagement, productivity, skills—have been moved into uncharted territory. The current global crisis is acting as an accelerant for massive, instantaneous change—the ways we work, how we communicate with each other and our teams, how we learn and innovate—all of these have been completely transformed in a matter of weeks.

The work of the CHRO has never been more important—or more difficult. Sustaining communication, collaboration, capabilities and culture in a virtual operating model is now the work of HR leaders around the globe. How are they shifting to a full "work-from-home" model that keeps the workforce engaged and productive, setting up virtual agents on the fly, keeping track of essential workers in the midst of a crisis, and standing up a robust online learning platform, all while simultaneously planning for re-entry and an unknown new normal?

One of the essential first steps must be addressing employee health and safety. New IBV research indicates that employees working from home are most concerned about their own and their families' health. For many companies in crisis mode, this has meant shutting down offices and workplaces, rapidly identifying essential workers, and implementing remote work policies with the associated tools and technologies.

But empowering a healthy remote workforce goes beyond providing network-access tools and group-meeting software. Equipping employees to work productively outside a traditional office is also a cultural challenge. For example, how can leaders reflect the values of the company to employees working in their homes? How can teams be equipped to work together when physically separated? How are organizations communicating with the workforce globally and locally?

Leaders who focus on building trust, flexibility and resilience into an adaptable workforce culture are helping their employees be the best versions of themselves—both physically and mentally—whether they are working face-to-face or screen-to-screen. At Citrix, the Chief People Officer has noted that increased public and targeted communications about both the known and unknown have helped instill a sense of calm among their workforce, enabling employees to stay focused and productive.[1] Some organizations have turned to virtual assistants and chatbots to promote frequent and consistent messaging. Even before the current crisis, Siemens enabled an AI chatbot for its HR function called Carl that was answering one million employee queries a month.[2] Virtual assistants can be set up quickly, making them an attractive option for many organizations at this time.

Here are the near-term measures that talent leaders and CHROs should have in place now to help their remote teams be productive and engaged:

- Digital channels and information services that provide employees with 24/7 information, and crisis-related answers to COVID-19 and workforce questions
- Clear identification and authorization of essential employees
- An assessment, with their general counsel, of any legal implications or liabilities associated with current or revised policies for their organization
- Revised policies that specify remote-working expectations and flexible working arrangements with visible, clear support of employee mental health and family obligations
- Safe passage letters for essential employees to allow them to travel to critical sites in the event of ongoing travel restrictions
- Identification of outside service providers that could temporarily provide virtual skills and services to supplement staff who may be infected or need surge capacity to handle the extra load.

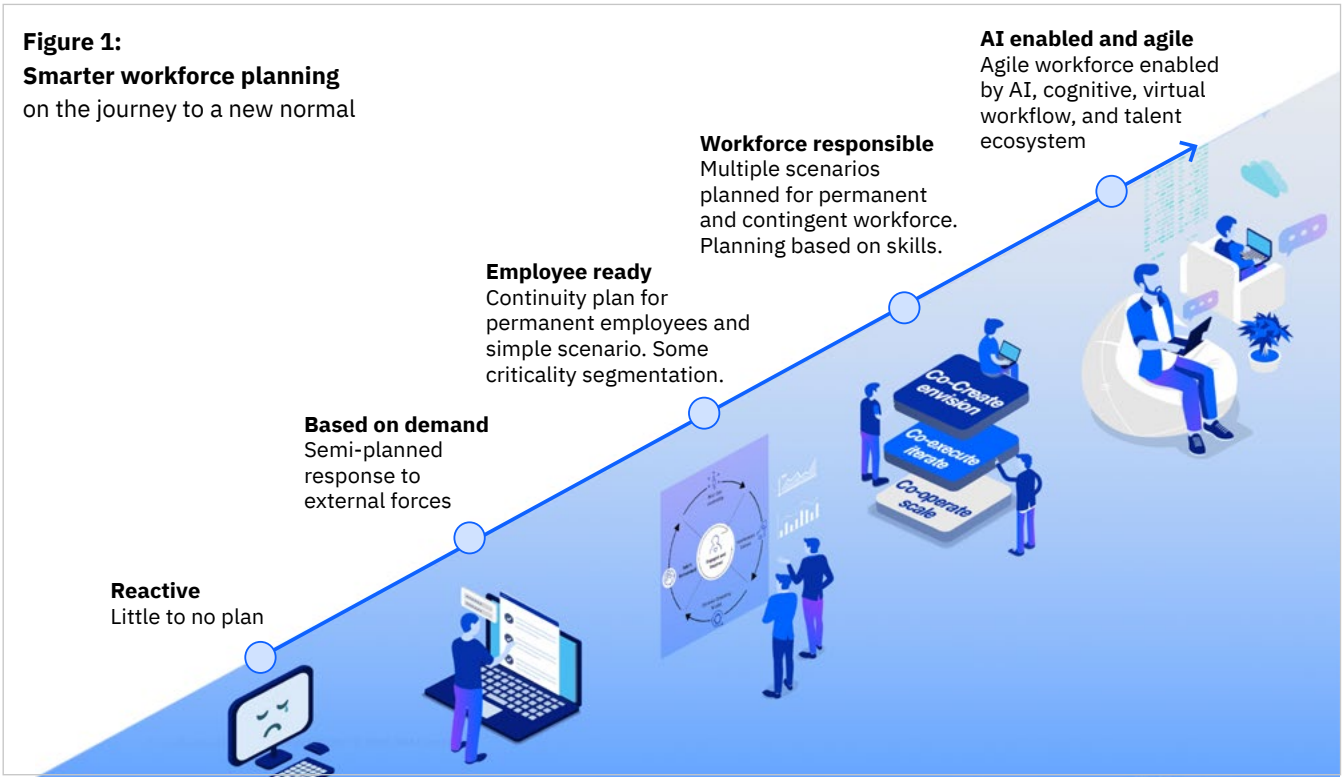
Communication is key. Be aware that what leaders think they're communicating isn't always being perceived the way they intend. Our research shows that 74 percent of executives say they are currently helping their employees learn to work in new ways, yet only a third of surveyed employees said the same: a 36-point gap. Clearly, we need to build feedback loops into all interactions.

Next up for many companies is the move from crisis mode to a different normal, with the return to the workplace an inevitable hurdle to address on the way. An IBV survey of global executives currently in the field indicates that they expect to have two-and-a-half times more remote workers two years from now than they had prior to COVID-19.[3] Thus, the vital longer-term focus for CHROs and the C-suite is building an organization that moves the workforce past crisis-neutral status toward becoming globally resilient and more able to predict crises in the future (see Figure 1).

Talent leaders and CHROs should be developing a long-term plan spanning re-entry and remote work while we move toward a different normal:

- Strategy and company policies that support remote and distributed work, with specific guidance and rules in place
- A clear vision of how culture and management systems are expressed and balanced in a remote setting
- A culture that applies the underlying principles of agility across all aspects of the business, enabled by strong digital communication methods, tools, and ways of working
- Flexible design of both physical and digital workspaces, and workflows that encourages a collaborative culture, rapidly adaptable to change—and as effective in a remote, distributed manner as in a co-located environment
- An accelerated online, personalized skills and development strategy for employees to adapt to new needs and reshaped business
- A renewed vision of talent sourcing, and how work gets done in a remote environment where all resources are now equidistant and accessible digitally, such as job sharing, crowd-sourcing and distributed talent sourcing
- An innovation mindset that takes the opportunity to step back and assess where work could be reimagined, refined, or rededicated.

Figure 1:
Smarter workforce planning
on the journey to a new normal



Imperative #2: Engage customers virtually

Suggested leadership assignment: Chief Marketing Officers (CMOs)

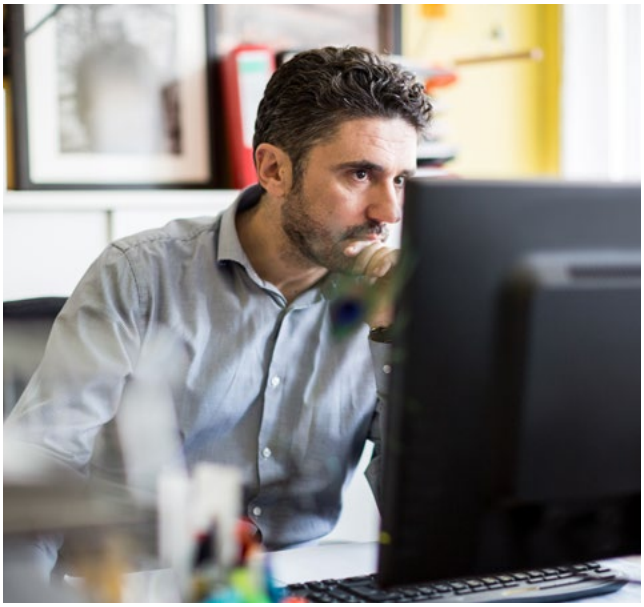
3 minute read

In this pandemic, with its extreme social distancing requirements, customers have questions—many unique to this situation that haven't been asked before. Service centers, government call-in lines, and healthcare providers have been swamped with massive call volumes. Though many of the questions have motivations in common, they invariably can't be found in a typical FAQ on the website. And training a large group of service representatives to deliver accurate answers in a rapidly-changing environment uncovers stresses in the current contact center model.

Exponential demand can be met by the exponential power of digital tools. Conversational AI needs to become pervasive, whether chatbots, virtual agents and other automated processes, which have been gradually making their way into business and government operations in recent years.

Back in 2018, Vodafone deployed a virtual agent called TOBi to supplement its human customer-service agents.[4] Now, that same approach is being used to address COVID-19-fueled outreach to hospitals, health agencies, government services lines, and more (see sidebar, "Watson Assistant" on page 15).

Given the resource efficiency and effectiveness of these tools and procedures, and the speed with which they can be embedded (virtual assistants can be stood up in a matter of hours, in some cases), they are likely to become core business tools in the post-crisis era. Indeed, 97 percent of executives say their organization will deploy more AI tools in the next two years than they had prior to COVID-19.



Here are virtual-engagement efforts that CMOs should already have in process:

- Effective digital messaging on websites and apps that clearly communicates to customers
- Shifting customer service representatives from call centers to work-from-home
- Automation of high-volume requests, voice and chat virtual agents and cloud-based interactive voice response (IVR)
- Deflecting from voice to messaging to improve response times, automation and agent efficiency
- Measurement and testing mechanisms, to gather data on effectiveness and outcomes, and refine processes
- Building, training and deploying conversational functionality into as wide a range of applications, devices and channels as possible.

Even as face-to-face interactions are reestablished, CMOs are realizing that sales and services practices have been indelibly altered. Customers aren't likely to give up on speed-of-response that virtual engagement formats offer.

Virtual engagement with clients and partners will remain a core part of doing business even as we reestablish face-to-face interactions. Sales and services practices will be indelibly altered. Customers are becoming accustomed to the speed-of-response that virtual engagement formats provide. At the same time, businesses will want to generate differentiation in the digital space, creating real-time experiences that are authentic, relevant, and distinctive.

Here are the attributes CMOs should expect and work toward over the longer term:

- Develop a center of excellence for virtual customer engagement that can be transitioned to core business post-crisis
- Expand agent-at-home practices, even when in-office work restrictions are lifted
- Explore next-generation contact centers "as a service"
- Adopt messaging versus voice as a scalable, lower-cost service channel
- Establish a digital self-service environment with relevant, timely communication that provides the value, data, and insights that customers need and want.
- Develop new digital business models, in response to re-shaped marketing and behaviors, as well as new cost structures and ecosystems.
- Accelerate the redesign and integration of customer digital experiences across the enterprise and create end-to-end virtual client journeys, with high specificity, individuality, brand personality, and satisfaction
- Focus on data architecture and AI transformation to deliver new, integrated, and real-time personalized experiences
- Leverage cloud-based commerce platforms augmented with AI, blockchain and other advanced technologies to execute a digital transformation.

Imperative #3: Remote access to everything

Suggested leadership assignment: : Chief Technology Officers (CTOs) and Chief Information Officers (CIOs)

3 minute read

When shelter-in-place orders were issued, uncomfortable questions arose for many businesses: Can we get everything we need, and do everything we need to do, from out-of-office locations? How do we transition—practically overnight—from our existing model to a virtualized one?

Fortunately, IBM, as a tech-at-its-core business, was already configured to operate in this way. But for many organizations it has been a "can-we-do-this?" situation. Business continuity plans have been put to the test, with often undesirable results.

What's needed is a technical architecture and operational resiliency that offers maximum flexibility, and supports a virtual delivery model, which is highlighted in Imperative 4: Accelerate agility and efficiency.

As CTOs and CIOs press to adjust to the current reality, here's what should be in place, at the most basic level:

- An inventory of high-value assets, including application platforms, services, and datastores organized by availability and criticality
- Updated roster of crisis roles and responsibilities, to enable rapid, iterative decisions
- An effective 24/7 support capability for the IT operation, to facilitate remote workforce and partner operations
- Distribution of mission-critical tools to varied locations and access points, including independent cloud instances
- Robust platforms for remote work, including virtual private networks (VPNs) and cloud-based productivity apps

- Back-up infrastructure capabilities for critical services and tools, including remote work support for clients and customers
- An ongoing process to assess and address logistical support gaps with customers, employees, partners, and community stakeholders.

CTOs and CIOs need detailed business continuity plans that make the most of digital technologies to create operational resilience and flexibility.

To enhance IT resilience, some operations have added "burst capacity." Many financial institutions, for instance, have faced surges in IT demand due to the massive volatility of transactions. So they have provisioned incremental mainframe capacity, to enable high-performance of transactional throughput. Other organizations, operating at or beyond their nominal capacity, have increased reliance on cloud platforms, which can bring added benefits of streamlining operations, lowering costs, and improving scalability and agility.

Adjusting quickly to current conditions, organizations can simultaneously position themselves for stronger competitiveness in the longer term. In fact, 84 percent of executives in our currently fielded surveys expect more customers to interact online more often in the future.

Here's what should be included in CTO/CIO plans:

- Business continuity planning has moved from a check-the-box-practice to an essential strategic capability (and now a vital asset for the organization's future well-being). Large business continuity plans should be broken into smaller sub-plans, tied to geographic sites and locations, which include end-to-end integration with outside providers that could temporarily provide virtual fill-in, and augment focus on cybersecurity risk mitigation.
- Systems and processes will be built and operated to higher standards of responsiveness, including faster test time and recovery
- Location and scale flexibility, reducing reliance on physical, location-dependent IT assets, resources and operations, with long-term benefits for budgets and staffing
- Consolidation of infrastructure and simplification of operational support processes around a standard cloud-based platform.
- A permanent shift to cloud archive and storage, including replacing manual tape environments that are location-dependent and difficult to access under shelter-in-place orders
- Deeper commitment to automation and virtual workflow orchestration, along with a greater commitment to open (non-proprietary), interoperable services
- Ability to generate whole-of-business insights on demand
- Governance and productivity monitoring, with faster cycles of leadership updates, more organizational and operational lesson-sharing, heightened cross-functional communication, and decision making.

Imperative #4: Accelerate agility and efficiency

Suggested leadership assignment: Chief Operations Officers (COOs)

4 minute read

Up through 2019, the standard operating model for businesses, governments and other organizations was location-based: people would go to work, rather than work coming to them. Customers or clients would physically transport themselves to a specific site to get something done—access government benefits, visit a doctor, buy groceries, or attend events, for example.

COVID-19 changed all that. Now, work has to come to us, wherever we happen to be. And we engage with employees, customers, and suppliers virtually. A few organizations have handled this forced "digital transformation" smoothly, others more fitfully.

The key to continuing a successful virtual-to-physical transformation, to taking advantage of new-found agility and innovation, lies in the cloud. Going forward, organizations will need to continue modernizing operations to realize the immense benefits of cloud-native capabilities: location independence, talent flexibility, scalability, resilience, interoperability, and seamless transition to a virtualized engagement and delivery model—what we call *cloudified delivery*.

Wherever an organization is on the digital transformation path, COOs can find several operational lessons from what we have learned so far. First, where cloud was once a desired future end state, it is now an indispensable, immediate environment. Second, organizations can move faster than they realized and be nimbler than they believed possible. Third, earlier rationalizations that prevented successful—and speedy—digital transformation can no longer be tolerated. Becoming an agile digital enterprise is essential, and it needs to happen now.

This is being borne out by changing attitudes of CEOs and others. Seventy-nine percent of executives say they will prioritize enterprise agility as a central business competency over the next two years.

This shift is especially important in healthcare, where there have been numerous recent advances. One provider, for instance, swiftly deployed a COVID-19 app for home-based patients, helping more than 3,000 people self-monitor symptoms and connect to doctors remotely.[5] In another example, a large European government agency scaled-up its online social services benefits application, to meet surging user demand.[6] Meanwhile, virtual desktop infrastructure (VDI) is being rapidly deployed to help overcome the impact of social distancing.

All of these efforts—enabled by secure cloud technology—accelerate efficiency, support new work practices, and serve as driving forces for transformation and modernization. Organizations embracing public and hybrid cloud are already using this crisis as an opportunity to emerge stronger, better, and more resilient.

Secure cloud technology holds the key to nimble actions that COOs have needed during the COVID-19 crisis. And now, 79% of execs tell us they'll prioritize enterprise agility.

Resiliency comes from a combination of planning, governance, and agility. COOs should have these capabilities already in place:

- A cross-functional leadership cadence for high-impact decisions that encompasses internal and external teams
- Redesigned target operating models for a virtual workforce, with remote workforce management, including secure, cloud-based productivity platforms and zero-trust interaction models that operate independently of device profiles or VPNs
- Greater transparency, visibility, and accountability through common performance enterprise metrics, digitally instrumented.
- Workforce and workplace flexibility and resiliency, including modular, localized, and distributed infrastructure and on-demand resource mobilization capabilities at scale (often in collaboration with partners)
- Cloud-based, secure delivery platform with resilient and scalable infrastructure, pervasive platforms and tooling, and embedded security and privacy, all to lay the foundation for cloudified delivery
- User choice that is scaled and accelerated for commodity applications/devices while standardizing productivity offerings to promote collaboration and innovation at scale
- Ubiquitous virtual knowledge management and holistic talent management in a "virtual-first" world
- Repackaged offerings for discovery and engagement through digital storefronts, and offerings designed for delivery "as-a-service," where possible.

Ultimately, as COOs assess longer-term priorities, the benefits of operating in unison across a larger operational footprint will be magnified. Because of COVID-19, the transition to radical agility is accelerating swiftly across the globe with profound implications.

COOs should be planning for these changes:

- The services economy will surge, driven by cloud-enabled operating models. This will be characterized by mass adoption of mainstream, commodity services, but also niche adoption of specialized services. And one of the most important "services" will be on-demand access to specialized resources.
- Mission-critical operations and assets will move exclusively to the cloud—to enhance resilience, but also to enable workload commoditization and cost optimization
- Effective, secure and agile multicloud management will therefore become a mission-critical competency, in tandem with accelerated mainframe modernization and significant data architecture transformation
- Financial models will adjust in real-time to dynamic operational factors, based on heightened data input from services partners within the cloud ecosystem/trust network
- On-demand sourcing will become simpler, more common, and more necessary, through trusted, blockchain-enabled platforms.
- Customer engagement will be optimized for acquisition, servicing, and retention in the virtual world. Location-dependent experiences will be complemented by virtual engagement platforms that promote digital fandom.
- Increased automation, application of AI and other advanced technologies will drive efficiency, along with quality, security, collaboration, and innovation. The shift to digital services will reduce organizations' dependence on travel and physical presence.
- Cloudified delivery models, which allow delivery at scale across the globe and help reduce the risk of disruption, will become the norm.

Imperative #5: Protect against new cybersecurity risks

Suggested leadership assignment: Chief Information Security Officers (CISOs)

3-1/2 minute read

As the world struggles with the impacts of COVID-19, cybercriminals have mobilized. Capitalizing on the pandemic, they are launching novel attacks, using tactics from phishing campaigns and malicious domains to targeted malware and ransomware. Since February when the outbreak went global, IBM X-Force has observed a 4,300 percent increase in coronavirus-themed spam. Cybercriminals are using the coronavirus outbreak to drive their business, with virus-themed sales of malware assets on the dark web and even virus-related discount codes. They are also rapidly creating domains: COVID-19-related domains are 50 percent more likely to be malicious than other domains registered during the same time period.[7]

Organizations insufficiently prepared have been caught completely off guard. In fact, 76 percent of organizations don't have an incident response plan applied consistently across the business.[8] Strikingly, one in four organizations don't have a plan at all. But even those with resilient operations are being stretched to their limit by this pandemic's unprecedented scope.

Everyone should be reassessing their own cyber-resilience, in light of current conditions. And again, we see this being borne out in the data with nearly 30 percent more executives telling us they now prioritize cybersecurity as a business competency compared to before COVID-19.

The rapid shift to remote work has opened new loopholes for cybercriminals. Many displaced workers lack the secure equipment or protocols to maximize digital safety. With employees accessing corporate networks via personal devices, hackers are probing Wi-Fi configurations and VPN connections for vulnerabilities. As people congregate on cloud-based productivity platforms, malicious actors are exploiting the situation, including hacking into and disrupting live meetings.[9] In a recent online poll by Threatpost, 40 percent of respondents reported increased cyberattacks as they enable remote working.[10]

CISOs must lead the effort to upgrade their organizations' planning and response mechanisms. Here's what should already be in place:

- A crisis command center, with cross-functional members, to proactively track operational health and risk metrics, including employee, client, partner, and third-party-supplier risks
- An incident response playbook based on live-simulation exercises that test organizational preparedness
- Virtual cyber-incident reporting and response, including a preferred set of forensic tools that are remotely deployable, with clear chain-of-custody rules for digital evidence
- Security for their growing remote workforce, including unified endpoint management for mobile devices and laptops, as well as identity and access management to safeguard users, applications, and data
- Access to remote and virtual security experts and analysts who can rapidly extend security team capacity, or make specialized skills and subject matter expertise available on demand

The rapid shift to remote work has opened new loopholes for cybercriminals who may target displaced workers lacking secure equipment or protocols.

- Specific controls, sharing privileges, tools, and storage for specially-designated "sensitive" materials and information
- Proactive communication of new threats and phishing risks across the organization and with external partners
- Deployment of increased VPN capacity, Endpoint Detection capabilities, and other secure connectivity and inspection technologies
- Clear guidelines for approved collaboration apps and training on how to use them securely.

Many organizations are stepping up their actions. One European insurer has, in recent weeks, quickly established a new central, virtual hub for cybersecurity incident response, to monitor threats across entities and launch local and group-level responses.[11]

As more workloads and users move to cloud operations, accelerated by the current work-from-home requirements, cybersecurity resilience will evolve from a baseline performance requirement into a driver of a competitive advantage. What began as extraordinary will become systemic.

Among the steps CISOs should take toward building a more mature cybersecurity operation:

- *Implement security telemetry and analytics.* Early detection and response requires automated data collection. With modern telemetry and log file capture, attack vectors can be modeled, signatures created, and breaches re-created.
- *Develop security automation capabilities.* Investments in automation can pay for themselves: organizations that had not deployed security automation experienced breach costs that were 95 percent higher than breaches at organizations with fully deployed automation.[12]
- *Consume and contribute to threat intelligence.* Cloud-based security services monitor traffic over an operational footprint far larger than any single organization, contributing threat intelligence data that enhances cyber-resilience for all organizations; tapping into such threat intelligence expedites detection and response.
- *Prioritize collaboration and continuous learning.* Cyber-resilient organizations operate in a continuous cycle of discover, learn, adapt and iterate. In times of crisis, effective threat remediation comes down to the ability of individuals to work together on complex problems.
- *Raise security awareness.* Security is a strategic capability. One study revealed that 51 percent of cyber-resilient organizations communicate the effectiveness of cyberthreat prevention, detection, containment, and response efforts to the C-suite and board of directors.[13]
- *Accelerate advanced threat mitigation efforts.* CISOs need to be proficient in forensics analysis and threat hunting, considering the benefits of multicloud administration for enabling specialized services that can help deter and remediate advanced threats.
- *Build digital trust.* Consider how the cloud ecosystem is evolving into a trust network. In a world of interdependent partners, security is a shared responsibility and resilience is a collective business benefit. Leaders should work with partners to establish common governance around users, identities, endpoint devices, and operational assets.

Imperative #6: Reduce operational costs and enhance supply chain continuity

Suggested leadership assignment: Chief Financial Officers (CFOs) and Chief Supply Chain Officers (CSCOs)

3 minute read

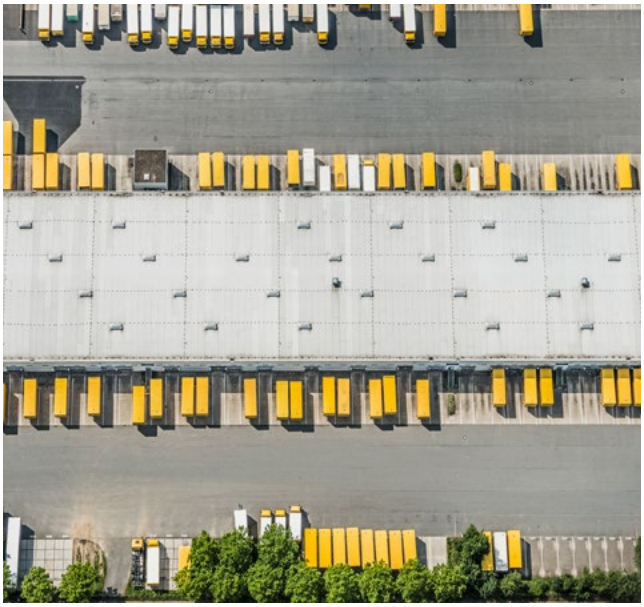
Companies create supply chains expecting that materials and other inputs will be available when, where, and how they are needed. The COVID-19 crisis has shattered this premise, driving home the need to make supply chains more dynamic, responsive, and interconnected to an organization's ecosystem and processes.[14]

Organizations also face significant challenges when it comes to liquidity. Some scenarios suggest that more than 20 percent of global public companies will run out of cash in the next six months without some form of intervention.[15] While the impact of the COVID-19 crisis varies significantly by industry, thriving will require rebalancing and aligning for the new normal.

Today's supply chains are incredibly complex, with myriad partners spread across multiple geographies as part of an intertwined global trade ecosystem. Understanding supply chain risks requires gaining visibility far beyond the top tier into tier 2 and tier 3 suppliers that, despite their relatively small sizes, can quickly and significantly disrupt production. The knock-on impacts of shutdowns early in 2020 sparked strong interest in geographical diversification of supply chains. Recent reports show that over 90 percent of the Fortune 1000 companies have tier 2 suppliers in the regions of China most affected in the initial phase of the global COVID-19 pandemic.[16]

The ability to generate granular, real-time data about supply chains has gone from nice-to-have to necessity. Volatility has become hyperlocal, with excess inventory in one city and dire need in another. Meanwhile, macro data about COVID-19's spread and patterns is being layered onto supply and inventories data to predict flow and demand. For many businesses, saving a few days can make a huge difference in both preparing for, and recovering from impact.

Fortunately, the tools and approaches available to address costs are massively more sophisticated and effective than the "belt-tightening" approaches of previous recessions. It's now possible to create opportunities to leapfrog to a new performance frontier that is more efficient and effective. CFOs and CSCOs must analyze today's pain points to better prepare for tomorrow. While no one can foresee what's in store, organizations can leverage AI and other



technologies—such as automation, blockchain, IoT, 5G, and edge computing—to smartly rebalance costs, build a smarter global supply chain, and help turn the unimaginable into the anticipated.

Already, there's been a heightened premium on agility, with some European firms moving from ocean freight to more expensive, but faster, rail transport.[17] One course to resilience may be teaming up with supply chain partners to establish a coordinated crisis-support system.

Beyond supply chain, as businesses get reshaped and financials are under stress, there will be a clear premium for agility and speed in adjusting business models and cost structure to emerge stronger in the "different normal". This will bolster decisive actions in reconsidering business fundamentals and priorities, organization models, cost structures, and how business is conducted and work gets done. We anticipate it should accelerate the surge of cloud-based, as-a-service models, the reinvention of essential enterprise workflows with automation, AI, blockchain, IoT and other emerging technologies, as well as some other radical cost take-out measures and business re-compositions through mergers and acquisitions.

During this crisis and in the different normal ahead, integrated data and technology are critical to CSCOs and CFOs forging smarter supply chains that can help cut costs, and enable fast response to both business opportunities and future disruptions.

Here's what CFOs and CSCOs should already have in place:

- Strengthened cash and liquidity management with associated protective measures and access to alternative sources of funding, including government stimulus and aid
- Assessment of supply chain risks, including tier 2 and tier 3 suppliers
- Real-time tools and analytics to address volatility in demand, optimize orders/inventory and speed reactions to disruption
- Re-evaluation of sourcing strategy and supplier networks, weighing global versus local
- Inventory re-allocation and prioritization based on criticality
- Local visibility on inventory fluctuations and logistics constraints, including labor
- Consider segmenting customers by relative priority and confidence on ability to deliver
- Rapid cost take-out wherever there are temporary demand reductions
- An assessment of ongoing investments in view of the future environment and the adaptation that an enterprise will require to emerge stronger.

As we anticipate the different normal yet to come, the goal is to better integrate data and technology to build smarter, better supply chains. This will help in the current ongoing crisis, as well as future unanticipated "black swan" events and position businesses for better outcomes when opportunity arises—as well as systemic operational cost reductions.

Two central tools are: the use of digital twins, which can simulate virtually a wide range of outcomes, and the creation of a control tower that provides a centralized digital hub of enterprise-wide operational visibility and AI-supported decision-making. Along with a data-centric, collaboration culture, this can eliminate silos. Intelligent workflows break down silos, leveraging convergent technologies to deliver end-to-end self-learning and self-correcting supply chains.

In combination with connected IoT and blockchain capabilities, these tools enable organizations to see where their products are in real-time across the world, while helping CFOs and CSCOs better understand the upstream and downstream impacts of potential vulnerabilities and disruptions. All of which also can enable more rapid response, and typically at a lower cost than traditional tools.

Here's how CFOs and CSCOs can define smart supply chains and reshape their operations in the longer term:

- Increase reliability and efficiency by using hyperlocal data and assessment to fit supply to demand—not just globally or regionally, but in direct, on-the-ground ways—combining public external, proprietary and strategic partner data
- Deploy continuous collaborative planning, leveraging real-time data and coordination across the end-to-end supply chain, to help predict disruptions and vulnerabilities, support rapid scenario planning, and provide insight on corrective actions
- Introduce integrated AI and digital control towers to enable end-to-end visibility of supply chain flows and accelerate decision-making
- Redesign supplier networks that enable operational flexibility
- Optimize costs to preserve liquidity and fund growth, and reassess and redesign cost structures with zero-based cost budgeting (in which all expenses must be justified and approved for each new period)
- Evaluate immediate and long-term balance between lean operations and risk mitigation, using modeling and scenario analysis through digital twins
- Re-evaluate your production, distribution and office building real estate footprint. Consider edge- and AI-enabled automation of production optimization, asset maintenance, and buildings for intelligent and efficient operation and utilization.
- Accelerate adoption or development of cloud-based as-a-service platforms, and alternative delivery models through partnerships and extended networks
- Make a step-change in cost-to-serve and agility with the reinvention of essential enterprise workflows with automation, AI, blockchain, IoT and other emerging technologies.

Imperative #7: Support health providers and government services

Suggested leadership assignment: Chief Medical Officers and Public sector leaders

3-1/2 minute read

Just days before most non-essential US businesses were ordered to shutter, the US Centers for Disease Control and Prevention's COVID-19 Response Plan declared: "For the majority of people, the immediate risk of being exposed to the virus that causes COVID-19 is thought to be low."[18] Soon after, the data changed, and so did the plan.

The radical shifts engendered by the coronavirus have fallen particularly hard on health providers and agencies, as well as many government services. If any area of society requires the added agility that technology provides right now—to deliver the assistance that so many citizens need—it is these.

One key element is expanding and building on the potential of the human-centered technology interface, to meet changing needs. This begins with helping those racing to find the right treatments, vaccines and cures: scientists, researchers, and health experts, inside and outside government. But it also includes the providers helping to manage the physical, mental, and economic health of citizens today.

A new technology organization run by volunteers called U.S. Digital Response, is already helping municipalities automate their COVID-19 reporting mechanisms; it is also helping local governments provide virtual access to citizen-services previously available only through in-person visits.[19]

Other health and government agencies are augmenting their human contact-center agents with virtual agent technology (VAT), a form of artificial intelligence that answers some customer inquiries without human intervention (see sidebar, "Watson Assistant"). With common questions answered more quickly through automation and AI, human agents are freer to engage in areas that are more complex or require a personal, empathetic touch, such as when someone is reporting a death. For example:

– In New York, the *County of Otsego* is making COVID-19-related information available to help citizens quickly get their questions answered regarding the pandemic. Otsego County's COVID-19 virtual agent answers citizens' questions, such as: "How do I apply for unemployment?"

– The *Czech Ministry of Health* is using COVID-19 virtual agent technology–called "Anežka"–to advise citizens about prevention, treatment, and other topics on the pandemic.

Virtual agents and other digital assistants are also speeding and scaling benefit-eligibility determination capabilities. In five weeks since the Great Lockdown began, more than 26.5 million people in the US have filed claims for unemployment insurance, more than 10 times the number in any previous period.[20]

Processing these claims quickly is critical for those who might not otherwise have access to food, medicines, or housing. Virtual agents are being trained to collect information from applicants in advance of human intervention, and then provide human agents with suggested responses and context. Data and analytics operating in the background can target the right interventions to the right people, as well as help reduce fraud by enabling identity verification and authentication.

Here's what health providers and public sector leaders should have in place now:

– Ongoing assessment of the pandemic's impact on citizen services and case management
– Scaling of benefit-eligibility determination capabilities to handle significant increases in applications
– Virtual agents as a tool to answer frequently asked questions and free-up human agents

It's become critical to expand the uses of human-centered technology interfaces, to help those racing to find the right treatments, vaccines and cures, as well as to help manage physical, mental and economic health.

– A multichannel communications platform to collaborate internally, including video, document sharing, and instant messaging
– A contingency system for emergency communications to citizens to enable ongoing citizen awareness and engagement
– A clear plan to deploy a monitoring and feedback system from citizens and employees to enable safe and effective return to work.

The long-term implications of the pandemic will include new expectations on the part of citizens for instant and remote access to health and government information and services. Meeting those expectations will improve health-system awareness and resiliency as well as assist in managing the fallout from lost jobs. Developing a sophisticated strategy that combines the strengths of humans and machines will also be central in preparing for the effective re-integration of newly-remote work teams across these areas and industries—and, indeed, across the economy and society.

The next-stage, longer-term priorities for health providers and public sector leaders should include:

– Providing intuitive easy-to-use interactions with all tech-based touch points with citizens
– Upgrading virtual assistants to augment and optimize the effectiveness of human case workers
– Deploying cohesive data analytics to target the right interventions for the right people
– Establishing a "single view" of a citizen to streamline government interactions from a citizen perspective and improve collaboration to meet citizen needs
– Focusing on fraud and error reduction and program integrity via identity verification and authentication and real-time tracking for prevention of improper payments
– Upgrading analytics for tracking public health cases, vaccines, distribution, and equipment.

Watson™ Assistant: Delivering fast, accurate answers

When COVID-19 struck, citizens went looking for answers—about symptoms and testing sites, about the status of schools and transportation, about a whole range of public services. It caused an immediate strain on government agencies, hospitals, schools, non-profits and other businesses. Wait times for answers stretched into hours.

All of which hampered efforts to keep citizens, customers and employees as safe as possible. IBM stepped in, bringing together its existing Watson Assistant's natural-language processing capabilities from IBM Research and Watson Discovery's state-of-art enterprise AI search. The goal was to train Watson Assistant to understand and respond to common questions about COVID-19, available on the IBM public cloud.

"Helping government agencies and healthcare institutions use AI to get critical information out to their citizens remains a high priority right now," explained Rob Thomas, general manager, IBM Data & AI. "The current environment has made it clear that every business in every industry should find ways to digitally engage with their clients and employees. IBM is taking years of experience with advanced AI technologies and applying it to the COVID-19 crisis."

Leveraging currently available data from external sources including the US Centers for Disease Control & Prevention, Watson Assistant has been deployed to help government and healthcare agencies around the US and across the world, from the city of Lancaster, California, in Los Angeles County, to New York's Otsego county, the Czech Republic's Ministry of Health to Greece's Hellenic Ministry of Digital Governance. For the University of Arkansas Medical Sciences Center, IBM deployed a virtual agent in nine days which quickly answers questions about testing, symptoms or resources, routing relevant inquiries to a mobile COVID-19 triage clinic electronically to help speed response.

Children's Healthcare of Atlanta built a "COVID-19 Pediatric Assessment Tool" using the Watson virtual agent that walks parents through a series of questions and suggested next steps they should take following the healthcare system's established protocols. In Spain the Andalusian government's virtual agent responds to citizen queries about COVID-19 via both the app "Salud Responde" and the Public Agency for Health Emergencies website. In the United Kingdom, an English and Welsh speaking virtual assistant called CERi will soon go live to support healthcare workers and the general public in Wales.

Preparing for a different normal

Fortunately, the world rarely experiences a global public health crisis like COVID-19, with mass deaths impacting populations and disrupting economies. We have never been forced to hide in our homes, from coast to coast and country to country, to avoid infecting others and being infected ourselves.

The protocols of protection are in themselves exacting an enormous toll: jobs lost, plans disrupted, futures put on hold. We don't know what the final impact will be, or when the situation will resolve, when we will get ahead of the curve, or how the world will look once we do.

But one fortunate aspect of the era we live in is the sophistication of our digital world. We have a network of virtual connections. A broad array of devices and software and technologies allows us to operate, plan and respond to this crisis in a way that past eras never could. The changes we are experiencing are, in this way, preparation for the future.

Distributed work, virtual engagement environments, enhanced data and analytics, AI and machine learning: all of these were available, already in use in various ways and to varying degrees. Now we have the opportunity to employ them more fully, to help us deal with the strangeness of these days. In the process, we not only continue to meet immediate needs, we enable our collective human ingenuity to transform possibilities into realities.

The emotional challenges are as profound as the practical ones, providing insight and wisdom that will help us adapt. We have been re-learning the value of creativity, fluidity and adaptability. We are finding our way past unimaginable challenges, relying on both our resourcefulness and that of our teams. When so much is still unknown, there is no one "right way"—only a mix of ever-evolving possibilities and our conviction to create a better future. The goal is to propel those possibilities toward a vision of tomorrow. This crisis will pass. What comes next is up to us.

Study methodology

Two original surveys, combined with numerous secondary sources, generated the insights and data in this report.

In March 2020, the IBM Institute for Business Value (IBV), in collaboration with SurveyMonkey, commissioned a series of weekly pulse surveys of US consumers and employees. Topics surveyed ranged from experiences and perceptions of remote working, to views around re-engaging with mass transit and recreation.

In early April 2020, the IBV, in collaboration with Oxford Economics, commissioned an extensive survey of C-suite executives from around the world on their perceptions and planned actions related to the COVID-19 pandemic. We also asked them about the likely temporary and permanent impacts once the world stabilizes into a new, different normal. Included in this report are data from the first tranche of respondents—executives from the US, UK, and Australia, 48 percent of whom are Chief Executive Officers.

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Produced in the United States of America
April 2020

49031849USEN-00