



Government trends 2022

Building resilient, connected, and equitable government
of the future

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The 10 government trends reshaping the post-pandemic world

What are the most transformational trends in the public sector today?

William Eggers, Mike Canning, and Beth McGrath

EVERYONE HAD HOPED that by 2022 the pandemic would be over and that nations would be getting back to normal—or at least establishing a new normal. But for many countries, the virus continues to create havoc. The pandemic continues to present unique challenges for governments: a health crisis coupled with massive economic disruption and unprecedented demands for social support.

The Organisation for Economic Co-operation and Development (OECD) put it this way: “The biggest lessons of the crisis are that governments will need to respond to future crises at speed and scale while safeguarding trust and transparency.”¹ Even as the pandemic grudgingly recedes, governments have begun the work of building for the future.

Last year, our *Government Trends 2021* report focused on how governments were seeking to enhance agility, improve operations, and rebuild trust. *Government Trends 2022* continues to build on those themes, but with a strong focus on how governments are striving to become future-ready. The report captures 10 of the most transformative trends in government today, grouped under three themes:

- **Building resilience:** Focus on long-term resilience to future shocks

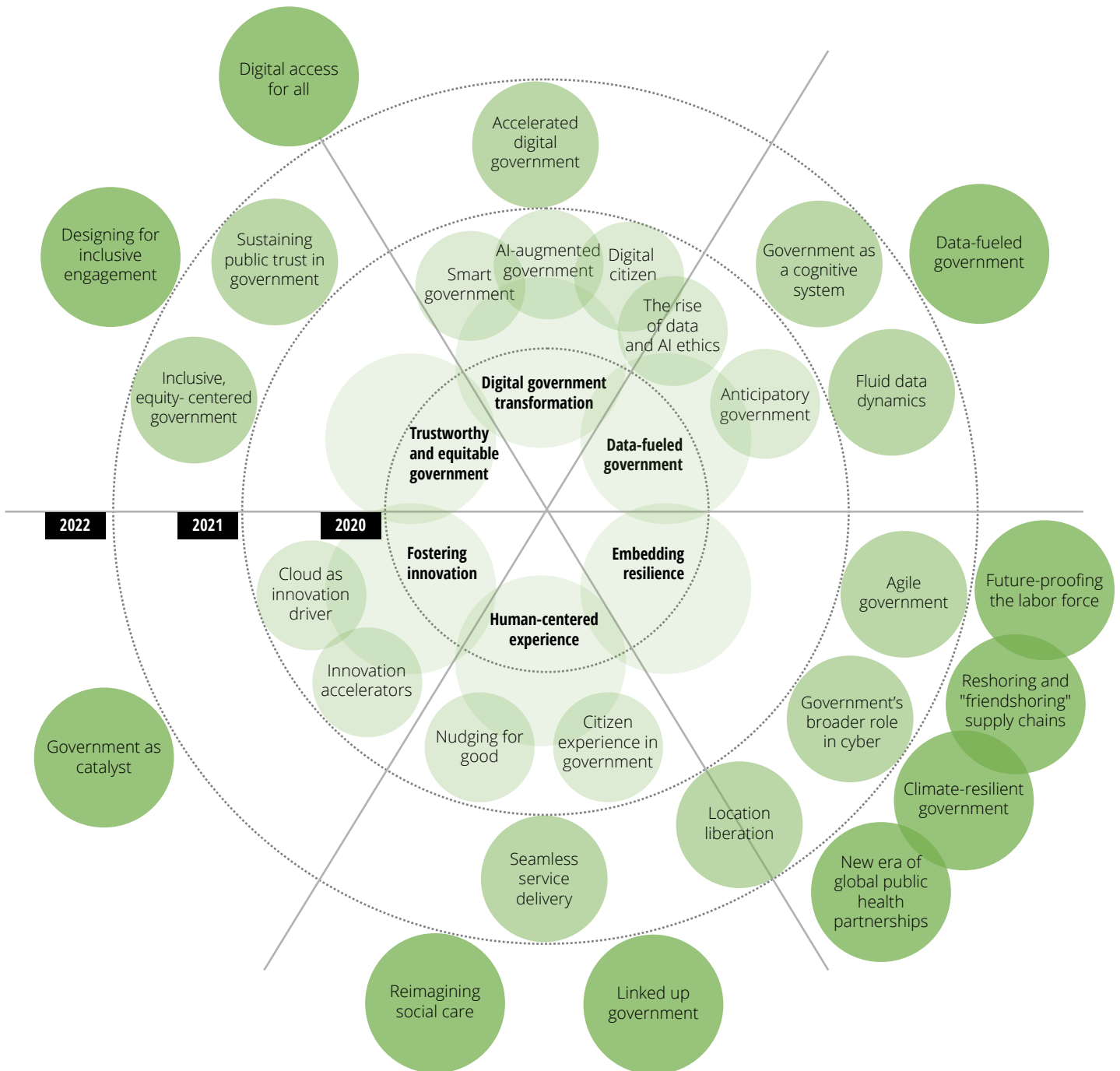
- **Connected for greater value:** Overhaul and integration of structures, systems, and data-sharing to drive greater impact
- **Government for all the people:** Making programs and services truly equitable and inclusive

The 2022 report distills extensive research on government, including what’s happening in the trenches. Our collaboration this year with Apolitical brings you voices from the frontlines—public servants who are pioneering these innovative trends.

We published the first *Government Trends* report three years ago. At the time, we noted the dizzying pace at which our world was being reshaped and the ways in which governments were adapting to these changes. Little did we know that the rate of change would drastically accelerate due to the pandemic. Three years is a relatively short period, and the themes covered in the first two reports are still relevant today. Figure 1 provides a look at all the trends covered in the first three reports, how they are related, and how they have evolved. Some issues, such as digital government, have been a constant theme through the years. Other issues, such as trust in government and ensuring inclusive services, have come to greater prominence more recently. The chart also shows the growing importance of a resilient government.

FIGURE 1

Government trends evolution 2020–2022



The 10 trends transforming government in 2022

What makes a trend a trend? To begin with, each trend must be evident in governments around the world—it doesn't count if it isn't happening in multiple places. Moreover, a trend must have relevance in governments and economies of various sizes. In addition, each trend must have moved beyond small pilots of experimentation and begun to penetrate the heart of government. On the other hand, they should still be emerging rather than a mature, universal practice.

THEME: BUILDING RESILIENCE

Resilience is the ability to successfully respond to a disruptive event. Building resilience is a long-term exercise. The pandemic isn't the only disruption challenging government—technology shifts, climate change, economic disruption, and supply chain issues are just some of the areas in which governments are striving for greater resilience.

Trend #1: Climate-resilient government: How governments are addressing climate change

Climate resilience has risen to the top of government leaders' agendas, who are increasingly linking climate action to their mission. More and more government agencies, even those not directly linked to the environment, are making climate a priority. For example, city planners are looking at ways to use data analytics to prepare for climate-related disruptions. Governments around the world are also increasingly investing in resilient infrastructure, enhancing communities' capacity to withstand extreme weather events, and ensuring that disadvantaged communities aren't left to address climate-related risks on their own.

Trend #2: Reshoring and "friendshoring" supply chains: Reshaping supply chains to improve economic resilience

Supply chain problems are creating shortages for both suppliers and consumers, in some cases putting a nation's access to critical goods at risk. In

response, governments are encouraging the reshoring of critical supply chains to reduce external dependencies and increase resilience. Where reshoring is not possible, nations are "friendshoring" by creating a network of trusted suppliers from friendly countries.

The pandemic isn't the only disruption challenging government—technology shifts, climate change, economic disruption, and supply chain issues are just some of the areas in which governments are striving for greater resilience.

Trend #3: Future-proofing the labor force: Enabling the adaptive worker of the future

The COVID-19 pandemic massively disrupted the labor force. Even before that, exponential technological advances were constantly altering the labor landscape, widening the skills mismatch and demand-supply gap for specific jobs. Labor force participation rates are declining, and employee stress is growing, leading to what some have called the "great resignation." Governments are trying to bring labor policies in line with this new economic reality, with the broader aim of improving the labor markets' efficiency and future-proofing the labor force. These policies include changes to education, skills training, credentialing, and employment frameworks.

THEME: CONNECTED FOR GREATER VALUE

Government is trying to overcome challenges that limit its ability to deliver greater impact and address critical problems, especially ecosystem challenges that cross interagency boundaries.

Arranging agency structures around “problems” rather than simply departmental boundaries allows governments to respond better to complex societal issues. Data-sharing plays a crucial role in this “silo-hacking” effort by becoming a connecting thread between agencies. Government is also acting as a catalyst in the innovation ecosystem to foster better collaboration and more inclusive societal problem-solving. Finally, international collaboratives are gaining momentum to help prepare the world for future health disruptions.

Trend #4: Linked up government: Building connections for greater impact

Silos within and between agencies administering government programs have long been obstacles to addressing wicked problems, delivering services, and achieving collective results. In response to factors ranging from COVID-19 to rising public expectations for integrated services, governments are creating interagency structures that break down silos and connect government agencies to respond to complex citizen needs. For example, a growing number of states and localities in the United States have created “Children’s Cabinets,” through which the heads of related departments work toward collective goals on a range of issues, from early childhood education to disconnected youth programs.

Trend #5: Data-fueled government: Breaking down silos with turbo-charged data

The pandemic underlined the importance of sharing data. Effective data-sharing requires underlying infrastructure such as cloud and advanced data management tools— emailing spreadsheets just won’t cut it. Agencies that lacked these tools struggled to catch up, and many established a new role: the chief data officer. This trend toward data collaboration seeks to derive greater benefits from shared data.

Trend #6: Government as catalyst: Driving innovation ecosystems

Government doesn’t have to solve every public problem on its own. Some of government’s greatest achievements have been through playing the catalyst role rather than attempting to do all the heavy lifting on its own. Governments can catalyze innovation in many ways, serving as enabler, funder, convenor, or ecosystem integrator. Governments can accelerate solutions by linking external innovation capabilities to public problem solvers or by advancing next-generation technologies.

Government is also playing a broader, catalytic role in the innovation ecosystem to foster better collaboration and more inclusive societal problem-solving.

Trend #7: New era of global public health partnerships: Collaborating for better health preparedness

The pandemic proved that as our world becomes more interconnected we become at greater risk of pathogenic spread. But it also showed how interconnection could help develop a collective and coordinated response to tackle a crisis of this or even greater magnitude. Aided by increasing digitization, international collaboratives are gaining momentum to help prepare the world for future health disruptions. More and more governments are collaborating with international organizations to develop early warning capabilities, accelerate scientific research and development, and build health capacities in less developed nations.

THEME: GOVERNMENT FOR ALL THE PEOPLE

The pandemic has thrown a spotlight on diversity, equity, and inclusion. As governments moved services online during the pandemic, it became critical to improve digital access. Moreover,

government leaders are reimagining social care programs to improve the delivery of services and drive greater impact in disadvantaged communities.

Trend #8: Digital access for all: Equity in digital service delivery

Remote work, virtual classes, and telehealth represent just a few of the ways governments used digital tools to respond to the COVID-19 pandemic. However, this also brought forth the digital divide and equity issue. For example, 40% of the global population still lacks internet access. Governments are acutely aware that inadequate access to digital connectivity and tools could mean billions of constituents being left out of the broader digitization movement. In response, governments are improving digital access—availability, affordability, and adoption to bridge the digital divide. They are also redesigning digital platforms, ecosystems, and infrastructure to help disadvantaged populations access services and social care.

Trend #9: Designing for inclusive engagement: Digital communications for

richer community connection

Government's ability to cut through the noise and deliver accurate, important messages to the people who need them is crucial to the success of public sector programs. Good communication can help build trust, which is important for driving inclusive engagement. Governments are reimagining traditional methods of communication, focusing on how to engage marginalized communities, and doing so through new mediums.

Trend #10: Reimagining social care: Recasting the social safety net

The pandemic has put enormous pressure on social care systems. It has compelled governments to re-examine how they can provide equitable, seamless, and effective social care services. As a result, social care leaders are increasingly integrating data across multiple sources to develop early interventions, adopting a human-centered mindset to design and deliver programs, and providing more holistic “wraparound” support to help recipients quickly gain stability. Also, they're investing in building the resilience of individuals and communities.

Moreover, government leaders are reimagining social care programs to improve the delivery of services and drive greater impact in disadvantaged communities.

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About the authors

William Eggers | weggers@deloitte.com

William Eggers is the Executive Director of Deloitte's Center for Government Insights where he is responsible for the firm's public sector thought leadership. He is the author of numerous books including *Delivering on Digital: The Innovators and Technologies that are Transforming Government*, *The Solution Revolution*, *The Washington Post* best seller *If We Can Put a Man on the Moon and Governing by Network*. He coined the term Government 2.0 in a book by the same name. His commentary has appeared in dozens of major media outlets including the *New York Times*, *Wall Street Journal*, and *The Washington Post*.

Mike Canning | mcanning@deloitte.com

Mike Canning, principal, Deloitte Consulting LLP, leads Deloitte's US Government & Public Services (GPS) Industry. He specializes in helping health plan organizations solve major issues including strategic planning, mergers and acquisitions (M&A) activities, business transformations, and implementation of large-scale projects. Currently, he is also serving on Deloitte's Board of Directors.

Beth McGrath | bmcgrath@deloitte.com

Beth is the global leader for the Government and Public Services Industry. She is committed to strengthening synergies across global Industries and Government and Public Services with a focus on client mission needs and solutions. As a member of the US Federal Strategy & Operations practice, she advises federal government and commercial organizations on strategies that help further innovation and improve business operations.



Climate-resilient government

How governments are addressing climate change

Bruce Chew, Irena Pichola, Richard Longstaff, Tiffany Fishman, and Hiroshi Hamasaki

THE DROUGHT-FUELED BUSHFIRES that ravaged much of southern Australia in 2019 and 2020 not only darkened skies and destroyed wildlife, they also damaged critical energy infrastructure, leaving tens of thousands of homes without power during the disaster. Months later, a different kind of weather event on the other side of the world left another government unable to provide electricity to its citizens: In February 2021, unusually cold temperatures in Texas froze natural gas wells, wind turbines, and coal piles, causing the state’s power grid to collapse and leaving millions to face harsh conditions without power.

As extreme weather exacerbated by climate change continues to disrupt the delivery of water, power, and other services, government agencies around the world are prioritizing *climate resilience*—the

ability to respond, recover, and adapt to the adverse effects of climate change.

Agencies are institutionalizing climate resilience by linking climate action to their missions, future-proofing critical infrastructure, embedding environmental justice in their programs, collaborating with public and private partners to unlock collective action, and enhancing their data analytics capabilities to prepare for future climate disruptions.

Trend drivers

- **Lessons learned from the COVID-19 response** have underscored the need for greater resilience in the face of disruption,

whether it comes from climate, public health, or other causes.

- **The increasing frequency and severity of extreme weather events** has instilled a sense of urgency within the public sector.
- **Frequent disruptions to operations, supply chains, and human lives** are compelling broader climate action.
- **The cost of inaction is too high** from an economic, social, and continuity of operations perspective.
- **Investments in climate adaptation** can create jobs and spur significant economic growth.

Trend in action

A climate-resilient agency has a greater ability to pursue its mission in the face of climate-related disruptions and to protect individuals and communities from the adverse effects of climate change.

Consider the mobility sector. Disruptions to the transportation network during extreme weather events not only affect the movement of goods and people but also limit access to employment and critical services such as health care. To mitigate future disruptions, Great Britain's national railway manager, Network Rail, is working to improve its climate resilience. In response to projections of increased rain and flooding over time, Network Rail has implemented an integrated draining management policy and is investing in drainage systems along key routes to protect the infrastructure from flooding and to minimize climate-related disruptions to passenger transport.

LINKING CLIMATE TO THE MISSION

Climate change is increasingly shaping agency missions at all levels—central, regional, and local. In the coming decades, it could significantly alter the operational landscape and may compel some

agencies to rethink entire programs. Government entities must understand and embrace how climate change affects their missions—and act in a way that both *aligns* with and *advances* their objectives.

Climate change is increasingly shaping agency missions at all levels—central, regional, and local.

The US Department of Defense (DoD) has linked climate resilience to its mission, noting that temperature extremes, rises in sea levels, and extreme weather events increasingly damage military installations, impair military capabilities, create harsher operational conditions, and fuel global instability and conflict. Acknowledging climate change as an existential threat to national security, the DoD has released a climate adaptation plan to future-proof military installations, build a climate-ready force, secure supply chains against extreme weather events, and inculcate climate-informed decision-making.

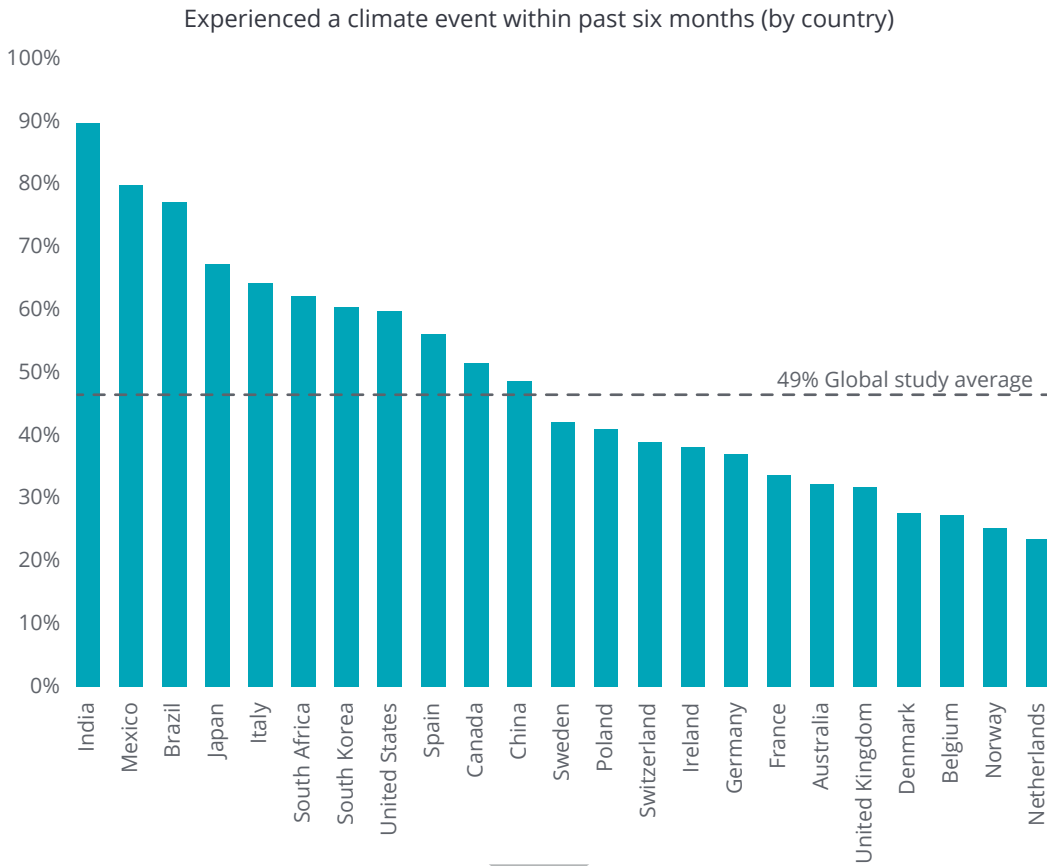
INVESTING IN SOCIETAL RESILIENCE

Governments are also increasingly investing in resilient infrastructure, enhancing the capacity of the community to withstand extreme weather events, and ensuring that disadvantaged communities aren't left to face climate-related risks on their own. The cost of waiting can be extreme; note the US\$32 billion cost that Indonesia is expected to incur to move its capital away from Jakarta, one of the world's fastest-sinking cities.

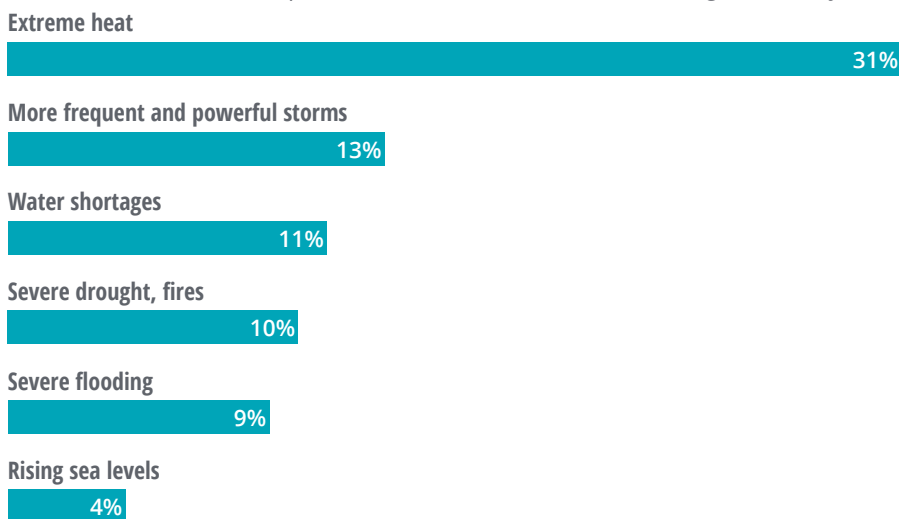
In September 2021, Deloitte's State of the Consumer Tracker surveyed 23,000 people across 23 countries. Nearly half of respondents had directly experienced at least one climate event in the past six months.⁸

FIGURE 1

Nearly half of the respondents have directly experienced at least one climate event in the past six months



Climate events experienced within the last six months (global study average)



Note: N = 23,000 persons across 23 countries

Source: Deloitte State of the Consumer Tracker (September 2021).

Data analysis will play a key role in understanding and mitigating these risks. To aid decision-making, in 2021, the US Federal Emergency Management Agency introduced the National Risk Index, a web-based tool that maps the nation’s vulnerability to 18 different risk factors at the county and census tract levels. The tool is designed to help agencies and communities direct their resources and actions where they’re needed most.⁹

Government investment in large infrastructure projects to build resilience against climate change’s disruptive effects is most obvious in coastal cities, which face the greatest risk from rising sea levels and extreme weather. Across the world, these cities are turning to hard engineering solutions such as sea walls or surge barriers; Venice (Italy), one of the world’s most flood-prone cities, has built a system of flood barriers—Modulo Sperimentale

Elettromeccanico (MOSE)—to protect against rising sea levels and high tides.¹⁰

To build truly resilient societies, however, such investments must protect *everyone*, including those with few resources to deal with failing power or water systems.¹¹ Adopting an equity lens can help governments evaluate not only the environmental impact of their actions but the broader social and economic outcomes.¹² One example of this approach is the US Federal Justice40 initiative, which aims to address historic underinvestment by delivering “40% of the overall benefits from relevant federal climate investments to disadvantaged communities.”¹³

In Deloitte’s September 2021 State of the Consumer Tracker, two-thirds of respondents want their national governments to do more to fight climate change.¹⁴

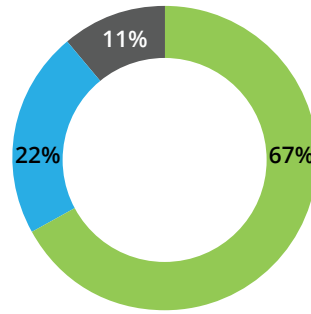
Governments are also increasingly investing in resilient infrastructure, enhancing the capacity of the community to withstand extreme weather events, and ensuring that disadvantaged communities aren’t left to face climate-related risks on their own.

FIGURE 2

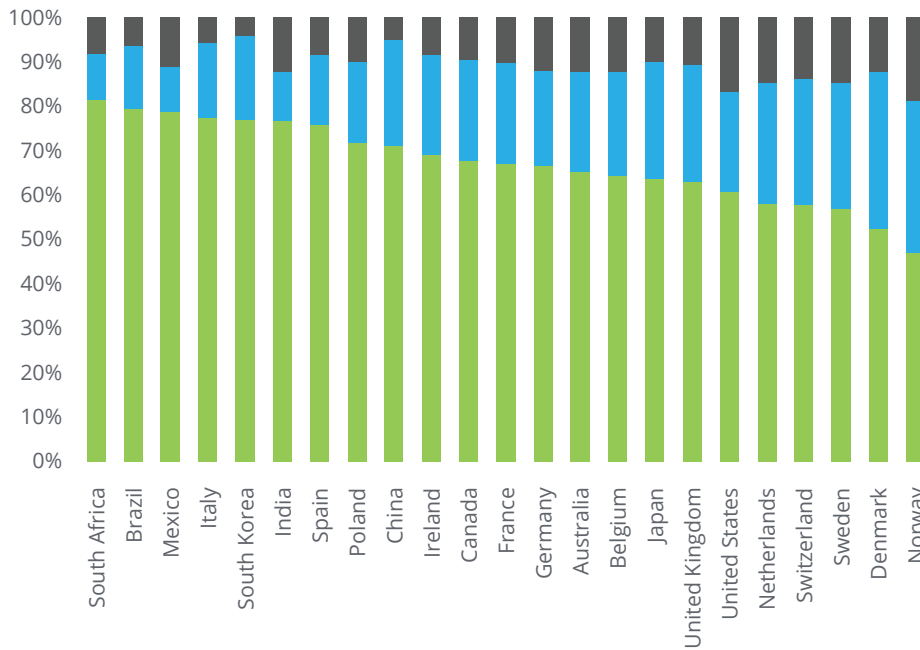
Two-thirds of the respondents want their national governments to do more to fight climate change

■ Agree ■ Neutral ■ Disagree

My country's national governments should do more to fight climate change (global study average)



My country's national governments should do more to fight climate change (by country)



Note: N = 23,000 persons across 23 countries.

Source: Deloitte State of the Consumer Tracker (September 2021).

BUILDING DATA-DRIVEN ANTICIPATORY CAPABILITIES

Resilience begins with *information*—understanding and weighing specific climate threats and their likelihood, potential impact, and community vulnerability to those threats. Governments need this level of specificity to take effective and meaningful action while minimizing waste. The US National Oceanic and Atmospheric Administration (NOAA), for example, recently launched an interactive map providing county-level information on various locations' susceptibility to catastrophic climate disasters such as wildfires, floods, droughts, and heat waves. It is intended to help state and local agencies develop action plans.¹⁵



Data analytics tools can help agencies anticipate forces and events that could complicate or even alter their missions. Governments are collaborating with industry and academia to add artificial intelligence (AI) and machine learning to their

arsenal, using them to parse vast troves of weather data to identify patterns and plan mitigation strategies. The UK Meteorological Office is currently partnering with Google to see how AI might enhance its ability to predict the weather.¹⁶

SATELLITE-IMAGING BASED LIVESTOCK INSURANCE IN KENYA

The livestock industry is a major element of the Kenyan economy, accounting for more than 12% of GDP. But more than 70% of Kenya's land is arid or semi-arid and highly vulnerable to drought.¹⁷ The droughts, which are getting more frequent and severe due to climate change,¹⁸ can have devastating ecological and economic consequences. Animals die due to lack of food and water, culminating in disaster for many pastoralists, for whom livestock is their only source of income.¹⁹

To increase the resilience of its most vulnerable pastoralists, Kenya's government has partnered with the International Livestock Research Institute, the World Bank Group, and a consortium of insurance companies to launch the Kenya Livestock Insurance Program (KLIP). KLIP uses satellite imagery to assess grazing conditions. Should conditions deteriorate beyond a predefined level, herders receive a lump-sum payment that helps them provide their livestock with feed and water during dry months.²⁰

Satellite imaging made livestock insurance a possibility in Kenya. Traditional methods of assessing losses after a drought were financially and logistically impractical given the region's size and remoteness. They also would have led to delays in payouts, increasing the likelihood of dead livestock. KLIP diminishes waste and ensures timely payouts.²¹ In 2019 and 2020 alone, KLIP supported 18,000 households in Kenya.²²

Moving forward

As agencies draft ambitious climate resilience plans, a few steps can help them achieve long-term success:

- **Install climate leadership.** Leadership is key to any large-scale transformation. Agencies should create positions such as chief climate officer or chief sustainability officer to lead resilience efforts and coordinate intra- and intergovernmental action.
- **Create a climate-ready workforce.** Agencywide climate education can raise awareness among the workforce about the climate crisis and climate resilience strategies.
- **Build public-private climate innovation ecosystems.** Groundbreaking technological innovation is key to climate-change resilience. Governments should build and nurture

collaborative public-private ecosystems to take advantage of shared knowledge and resources while ensuring that the broader community supports their actions.²³

- **Link climate action to economic opportunities.** Climate action has the potential to be the next big economic opportunity. Agencies should encourage private-sector participation by using their authority to set favorable regulations, create new standards, and make seed investments. Linking climate action to economic opportunities can make the private sector a willing participant in the low-carbon future. According to one Deloitte estimate, for instance, climate action could add AU\$680 billion to the Australian economy and create more than 250,000 jobs across its regions and industries by 2070, while inaction could curtail GDP by AU\$3.4 trillion and result in 880,000 job losses in the same period.²⁴

MY TAKE



Bob Perciasepe, former deputy administrator of the US Environmental Protection Agency and Maryland secretary of the environment

Adaptation is just as important as mitigation to be climate resilient

2021 was one of the warmest years on record; in fact, the last nine years (2013–2021) all rank among the 10 warmest years on record.²⁵ We are feeling the increasing effects of this accelerated heating of the atmosphere. Resilience must rise to the top of government and business leaders' priorities, and the good news is that they are focusing on this issue. But there is still work to be done, and we cannot afford inaction or ineffective action. Adapting to the impacts of climate change must be pursued along with mitigating the causes of this crisis. The two efforts should be coordinated and aggressively pursued.

Forward-looking governments should incorporate five key elements to increase success. 1) Open sharing and transparency with information, best practices, and experiences; 2) Include all aspects of government in the effort, not emergency response alone; for example, housing, infrastructure, public safety, and health; 3) Coordinate with other levels of government from national to local to regional; 4) Build strong partnerships with the private sector, which is working on resilience as well and is essential for any economic recovery; and 5) Embed equity and climate justice into all aspects of the work. Impacts can be disproportionately distributed, and the same communities can often be left behind from the benefits of climate action, such as improved air quality and jobs.

Climate impacts are here now and will continue to grow as the world struggles to meet the challenge of climate mitigation. This reality is why now is the time to institutionalize climate resilience along with climate action among government and business missions to prepare for future climate disruptions.

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About the authors

Bruce Chew | brchew@deloitte.com

Bruce Chew is a managing director with Monitor Deloitte, Deloitte Consulting LLP's strategy service line. For more than 20 years, his work has focused on strategy development and implementation and the building of organizational capabilities. Chew is a former Harvard Business School professor and has twice served on the advisory board panel for the President's Federal Customer Service Awards. He has worked with the federal government, universities, and companies across a broad range of industries.

Irena Pichola | ipichola@deloittece.com

Irena Pichola is a partner at Deloitte, responsible for Sustainability & Economics Consulting Central Europe practice (17 countries across Central Europe), which she established and developed over the years. She has more than 20 years of professional experience in sustainability, climate change, economics, and the public sector.

Richard Longstaff | rlongstaff@deloitte.com

Richard Longstaff is a managing director in Deloitte's US Government & Public Services (GPS) practice. He brings 25 years of experience in domestic and international extractives, infrastructure, energy, and utility development in the public and private sectors. As managing director, Longstaff leads Deloitte's US Public Sector Climate Action practice, which leverages the private sector to address public sector climate goals. His work is focused on helping our federal, state, and local government clients develop comprehensive climate strategies, reduce emissions, increase resilience, and drive inclusive growth.

Tiffany Fishman | tfishman@deloitte.com

Tiffany Fishman is a senior manager with the Deloitte Center for Government Insights. Her research and client work focuses on how emerging issues in technology, business, and society will impact organizations. She has written extensively on a wide range of public policy and management issues, from health and human services reform to the future of transportation and the transformation of higher education. Her work has appeared in a number of publications, including *Public CIO*, *Governing*, and *Education Week*.

Hiroshi Hamasaki | hhamasaki@tohmatu.co.jp

Hiroshi Hamasaki is engaged in the development of simulation models from the perspectives of energy and economic systems. He specializes in policy evaluation, corporate management, and R&D strategy consulting using simulations from a digital-twin perspective, mainly in the energy and environment fields. He holds a master's from Imperial College, a master's from Cambridge University, and a PhD from Cardiff University.



Reshoring and “friendshoring” supply chains

Reshaping supply chains to improve economic resilience

Melanie Rojas, Adam Routh, Jesse Sherwood, John Buckley, and Akash Keyal

THE COVID-19 PANDEMIC disrupted global supply chains almost immediately, and everyone felt it.

Millions hoarded toilet tissue and hand sanitizer and placed countless online orders for necessities. Factories stood idle due to sickness and staffing shortages; postal services struggled with mountains of packages. Caution and frequent outbreaks forced retail and logistical workers to stay home, and even hospitals ran short of critical supplies. Governments couldn’t relieve the pressure by stockpiling critical items, since every nation was negotiating with the same suppliers for surgical masks, shipping containers, and everything else.¹

Shortages of everything from semiconductors to farming materials continue to plague producers, distributors, and consumers. Governments have attempted to shore up supply chains through a mix of policies, incentives, and orders.²

Many are encouraging the reshoring of critical supply chains to increase their economic resilience. Reshoring is inherently popular, but the process has limitations.³ Some supply chains can’t be fully reshored because critical resources may exist in only one or two locations on the planet. Economics can limit other supply chains, since the cost of replicating them domestically is likely to be larger than the entire global industry is worth.

So, policymakers are looking to pair reshoring with “friendshoring”—a network of trusted suppliers from friendly countries that offer multiple independent supply paths.⁴ “Friendshoring” offers a clear path to improving the resilience of many key industries while supporting important international relationships.

Trend drivers

Several factors have spurred the drive toward improved supply chain resilience:

- **Global supply chains have become more interdependent.**
- **Lean supply chains are increasingly subject to external shocks** due to the pandemic, tight labor markets, or even shortages of shipping containers.
- **Rising geopolitical tensions among trading partners heighten the risk** that a single partner could slow down—or cut off—the flow of needed supplies.

Trend in action

The first two of these factors have led companies and nations alike to make supply chain resilience an important goal. The third has led governments to pursue resilience in their international relations, especially as various protectionist and nationalist trade policies reappear.⁵ Policymakers no longer see commercial supply chains for electronics, food, or pharmaceuticals purely in economic terms; today, they’ve become important national security considerations.⁶

In the third year of COVID-19, supply chains are still fractured.⁷ That fragility didn’t begin with the pandemic, however; it grew during recent decades as businesses focused on cost savings and efficiency

gains.⁸ Global supply sources kept input costs low, and just-in-time inventories allowed businesses to further reduce costs while meeting aggressive timelines. But these highly efficient operations came with a high degree of risk; one broken link could bring the whole system to the brink of collapse. Making supply chains more resilient will require us to balance costs and efficiency against risk.⁹

RESHORING

When domestic supply chains are shattered by foreign supplier shortfalls, the impulse to encourage reshoring is understandable. The United States is hardly alone in passing executive orders aimed at boosting domestic production capacity in essential sectors.¹⁰ China, which remains a major global exporter, has adopted a new strategy—dual circulation—which aims in part to make domestic manufacturing more self-sufficient by reducing reliance on foreign technology in the face of heightened external uncertainty and volatility.¹¹

But few governments have the power to mandate where private companies will source or make products. Nor is it likely governments could convince commercial companies to disclose proprietary supply chain practices to aid supply chain reorganization. Even as companies themselves make moves to shore up their own resilience, some policymakers are turning to a mix of incentives to encourage them to bolster domestic supply chains, such as subsidies, tax breaks, and loan-guarantee programs. Government funding for innovation, research and development, and knowledge-sharing also can enhance domestic industries’ technical capacities for manufacturing.¹²

But self-sufficiency—involving far more than traditional commodities such as oil, steel, and lumber—is becoming more difficult. Consider the case of lithium-ion batteries, essential to electric vehicles and renewable energy storage. As

countries transition to low-carbon economies, these batteries will be critical to long-term economic growth and national security. But fragile supply chains can threaten access to these critical components in the event of natural disasters or heightened tensions. Even China, which has 77% of the global lithium cell manufacturing capacity, is highly reliant on imports of raw lithium.¹³ Many countries—most notably India and the European Union—have begun offering subsidies encouraging manufacturers to set up domestic manufacturing units.¹⁴ The White House intends to tap the Department of Energy’s (DoE) loan authority to support the domestic battery supply chain; DoE’s US\$17.7 billion Advanced Technology Vehicles Manufacturing Loan Program plans to offer loans to manufacturers that establish factories in the United States.¹⁵

WHEN RESHORING IS IMPRACTICAL OR IMPOSSIBLE

Obviously, not every nation can mine lithium, one of many natural resources integral to the modern economy. No amount of government subsidy can help build independent battery industries from scratch. Even industries not reliant on rare commodities are often too complex to replicate: Remaking Asia’s electronics industry in Europe or North America would require creating several layers of the supply chain, not just assembly plants.

This doesn’t mean that pursuing supply chain resilience via reshoring is misguided, only that policymakers should supplement it with “friendshoring”, working with other nations and trusted supply sources.¹⁶ As the pandemic has illustrated, any number of unforeseen events can affect supply chains or disrupt even a small, purely domestic industry. By strengthening domestic supply chains with trusted international sources, companies and nations alike can improve resilience.¹⁷ For instance, in 2020, the *Times* reported that the UK government was drawing up plans for a supply chain approach called “Project Defend,” aiming to ensure continued access to critical goods by expanding domestic production capacity and diversifying international trading relationships.¹⁸

Governments may not be able to conjure up entire domestic industries or supply chains. But they *can* bolster resilience by evaluating the strength of critical industries, improving supply chain awareness, and cultivating links with trusted foreign nations and suppliers. In 2021, India, Japan, and Australia partnered to enhance the resilience of Indo-Pacific supply chains. Under their Supply Chain Resilience Initiative, these nations agree to share best practices on resilience and hold investment promotion and buyer-seller matching events to encourage businesses to diversify their supply lines.¹⁹

PURSUIING RESILIENCE IN SEMICONDUCTOR MANUFACTURING

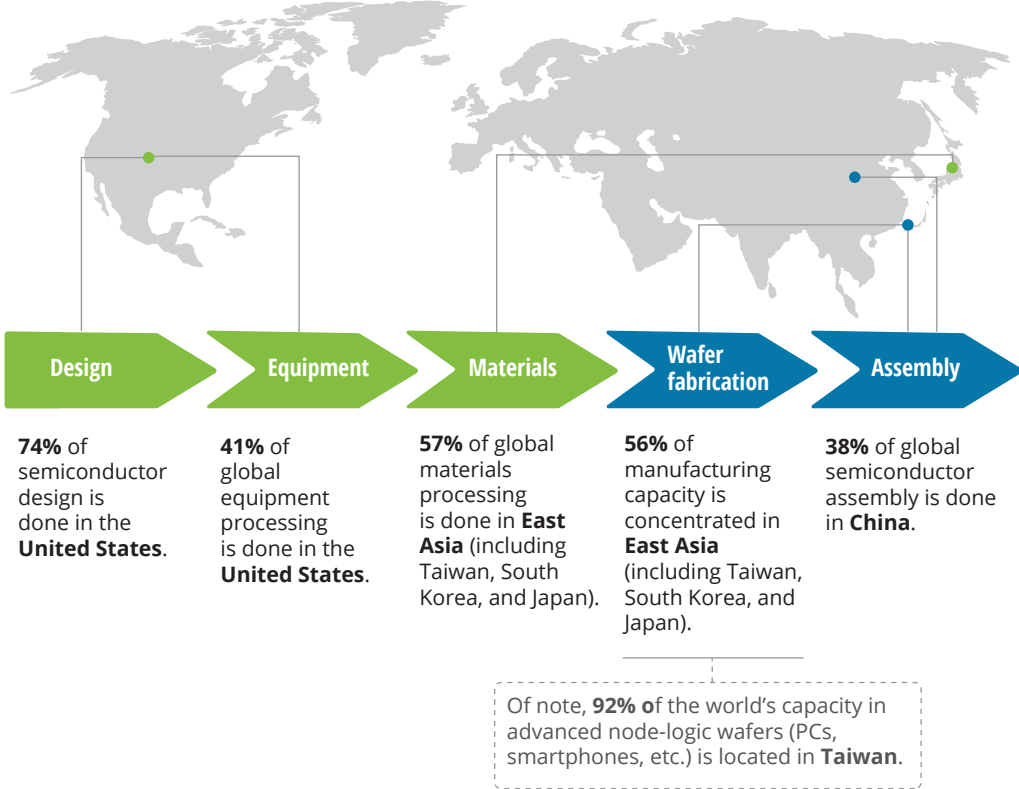
Semiconductors, which are integral to new cars and countless other products, are a great example of a critical product with numerous supply chain choke points. Their design and manufacture require specialized knowledge and manufacturing equipment that is difficult to acquire and expensive to produce, factors that have led to geographic consolidation of the supply chain. Three locations—the United States, China, and Taiwan—have roughly 70% of market share in semiconductor assembly, testing, and packaging (figure 1).²⁰ Taiwan and South Korea together manufacture all of the most advanced semiconductors.²¹

Such specialization inevitably creates choke points and supply chain vulnerabilities. COVID-19 disruptions have caused shortages that continue to delay the manufacture and shipment of vehicles and many other products dependent on semiconductors.²²

FIGURE 1

Semiconductor consolidation

■ Low risk concentration ■ High risk concentration



Source: Deloitte analysis.

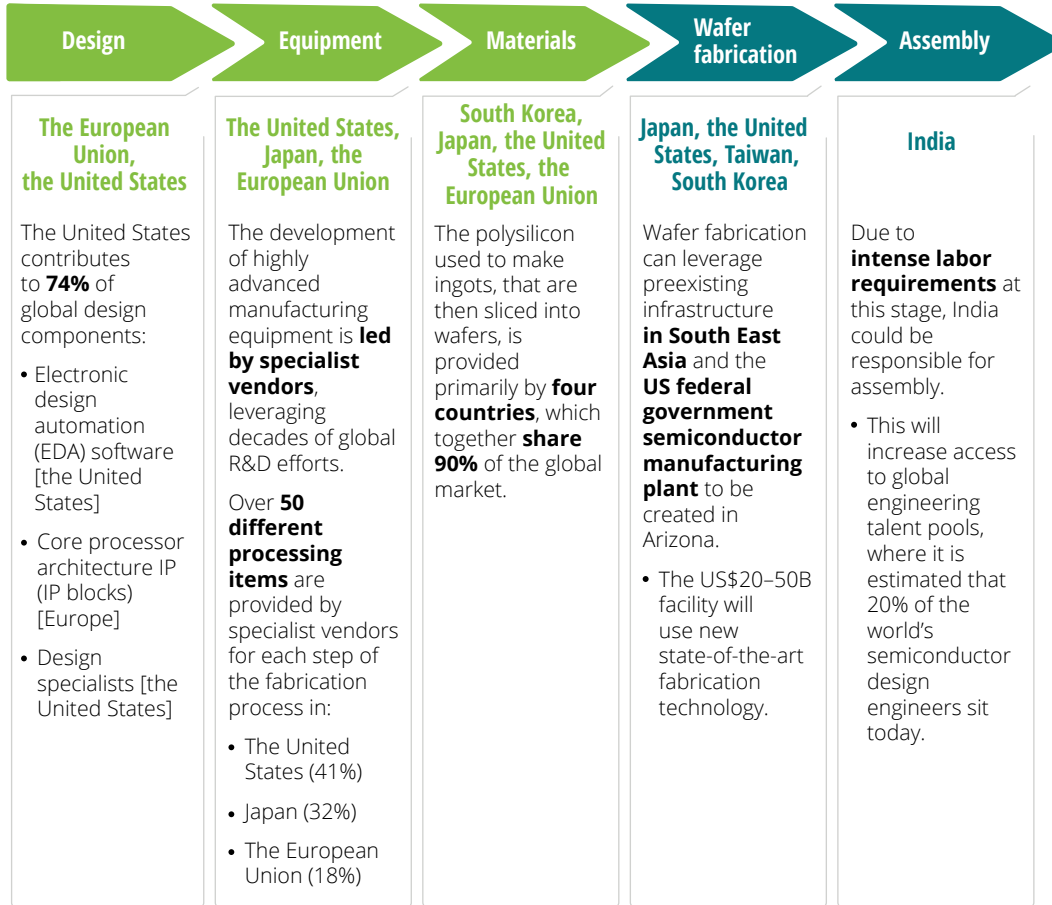
Is this situation fixable? Few nations possess the natural resources or knowledge base needed for independent semiconductor production, and even those that do would face enormous financial challenges. By one recent industry estimate, establishing fully domestic semiconductor manufacturing supply chains in the United States could cost up to US\$1 trillion—more than double the value of the entire global semiconductor market.²³

Therefore, resilience in semiconductor supply chains requires more than new factories or new mines. But agreements among nations with shared strategic and supply concerns can create an economically viable yet resilient supply chain. By diversifying away from nations where political tensions increase risk, countries can limit choke points and still ensure the efficiency of this critical supply chain (figure 2).

FIGURE 2

A balanced semiconductor supply chain: One scenario²⁴

■ Potential



Source: Deloitte analysis.

Moving forward

Governments can take three steps to begin creating resilience in critical supply chains:

1. Know your supply chain. Companies know who their suppliers are, and the most diligent may even know who supplies their suppliers. But few collect supply chain data beyond that. Since choke points and single-source suppliers can occur in supply chains anywhere, from the sourcing of raw materials to finished products, balancing risk and resilience begins with knowing where the major risks lie.²⁵ Government agencies should evaluate their own supply chains. How far down the evaluation goes (e.g., five levels versus 12 levels) should be based on balancing cost with effort and the agency’s ability to execute mitigations. The agencies with a regulatory role over critical industries should pursue policies that encourage companies to do the same.

2. Decide which supply chains are critical.

Once the data is in hand and is organized to provide a clear picture, the next step is to understand what products, services, or resources are most critical to the nation. This assessment can and should shift with the strategic situation. For instance, few before 2020 would have categorized personal protective equipment as nationally critical material demanding special attention.²⁶

3. Assist with supply chain orchestration.

Governments exercise direct control over a very small percentage of critical supply chains.²⁷ They need to make it easy for commercial companies to make the right choices and find a diverse set of trusted suppliers to make their own supply chains resilient. These actions could range from new trade treaties to the creation of a “trusted supplier marketplace.”

MY TAKE



James A. Lewis, PhD senior vice president and director, Strategic Technologies Program, the Center for Strategic and International Studies

Collaboration and filling gaps in the market can mitigate supply chain risk

For years highly globalized supply chains optimized for business met the needs of consumers and governments alike. These global supply chains posed little risk despite single points of failure from overcentralization—the benefits and limited risk allowed us to become comfortable with the system.

Perhaps because we grew comfortable, we failed to pay attention to the growing risk in the system. Relying on a single source of supply for critical items and limited information now poses too much risk when considered against shifting, and in some cases, worsening, international relations. While the reflex triggered by changing interstate relations may be to bring critical supply chains home, a better solution involves relocating elements of supply chains to friendly trading partners.

The Strategic Technologies Program at the Center for Strategic and International Studies is working on solutions to these problems to inform government policy and industry best practices. In our research, we note that governments should understand their supply chain risk and the solutions that can offset it. The solution will require broad changes to the supply chain ecosystem.

The first change is to become more collaborative. For government, becoming more collaborative should include figuring out who manages the information, and if no agency does, creating one to do so. For industry, developing technology tools to make sense of large amounts of supply chain data can ease the collaboration burden.

Another change involves filling market gaps. Whether it's sharing of information between suppliers and manufacturers or helping decide where to locate pieces of the supply chain, the market drove a lot of supply chain decision-making. Today, governments need to understand what the market isn't providing or where market forces are creating risk—and then develop policies to offset that risk. For industry, this means using a well-developed understanding of supply chain risk to inform business decisions.

Finally, supply chains will continue to be global, but how they are organized is expected to change. Ensuring that changes are made collaboratively and with supply chain resilience in mind will require governments to think internationally, not just domestically.

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About the authors

Melanie Rojas | merojas@deloitte.com

Melanie Rojas is Deloitte Consulting’s government and public services (GPS) supply chain and network operations (SCNO) practice leader. With more than two decades as an accomplished strategy advisor, her work centers on building resilient, secure supply chains, and leading complex, supply management transformations. Her experience includes procurement operating model design, category management strategies, supplier management, and strategic sourcing of indirect and direct materials.

Adam Routh | adrouth@deloitte.com

Adam Routh is a manager with Deloitte’s Center for Government Insights and is a PhD student in the Defence Studies Department at King’s College, London. His research areas include space policy, the future of defense, and great power competition. Routh’s research has addressed US national space policy, space governance, the challenges and requirements of the future military force, and emerging technologies. His analysis has been featured on the nightly news and *the John Batchelor Show* and published in the *National Review*, *The Hill*, *The National Interest*, *SpaceNews*, *The Space Review*, *Real Clear Defense*, and *Defense News* among other outlets.

Jesse Sherwood | jsherwood@deloitte.com.au

Jesse Sherwood is a partner in our Asia Pacific Strategy, AI and Transformation practice and is the global leader of Deloitte Illuminate. He focuses on supporting our clients to better understand and then transform their supply chains by analyzing the multiple tiers of their supplier networks and then redesigning to improve resilience, lower cost, and deliver better business performance. He has experience delivering across government and large multinational organizations globally and across sectors. He is a robotic engineer by background and is known for driving innovation through the intersection of Industry 4.0-enabled technologies with supply chain principles.

John Buckley | jpbuckley@deloitte.co.uk

John Buckley is a director in our UK firm. He leads Deloitte's Public Sector Supply Chain Practice in the UK, and our Supply Chain Illumination capability across our North and South Europe regions.

Akash Keyal | akkeyal@deloitte.com

Akash Keyal is a senior research analyst with the Deloitte Center for Government Insights. He focuses on delivering key insights on topics related to defense, security, and justice.



Future-proofing the labor force

Enabling the adaptive worker of the future

John O'Leary, Nicole Overley, Alex Massey, and Sushumna Agarwal

BETWEEN THE PANDEMIC and new technologies, the labor force is experiencing massive disruption. Many workers are leaving their jobs to take better positions elsewhere.¹ But some workers are stuck in undesirable jobs, and companies struggle to fill open positions, hindering economic growth.

While the pandemic accelerated the disruption, technology was already displacing workers. Technological advances and related transformation of business models—think of the upheavals in everything from media to retail to taxicabs—are likely to drive big economic shifts in the foreseeable future.

Governments worldwide are trying to bring labor policies in line with this new economic reality. The goal is to future-proof the labor force—to foster a workforce as dynamic as the economy it fuels. These policies seek to improve the efficiency of

labor markets, including changes to education, skills training, credentialing, and employment frameworks.

Consider some of the workforce challenges today:

- There is a skills mismatch. Changing technology has made some skills obsolete while creating unfilled demand for others. According to the World Economic Forum, the half-life of a job skill is about five years.² In November 2021, the United States had 10.6 million job openings, an eye-popping 1.5 open jobs for every job seeker.³
- Labor force participation rates declined. According to the OECD, its 38 member countries have seen 14 million workers exit the labor market.⁴
- Job turnover has reached new heights. In November 2021, the US Department of Labor

reported 4.5 million workers quitting or changing their jobs—the highest number in history.⁵

- Remote work has radically altered where and how work is performed, creating competition for talent across geographies.
- In Europe, 24 million people—around 11% of the workforce—are estimated to have worked on digital platforms at least once.⁶ Independent workers who were hit by the economic downturn often lacked access to critical government support.

The disruption in labor markets preceded the pandemic, but the pandemic massively accelerated the turmoil.

What about unemployment? The pandemic triggered an initial surge in unemployment, but the overall unemployment rate has largely returned to normal (figure 1).⁷ The increase was driven in large part by countries such as the United States where

the unemployment rate increased from 3.5% in February 2020 to 14.8% in April 2020.⁸

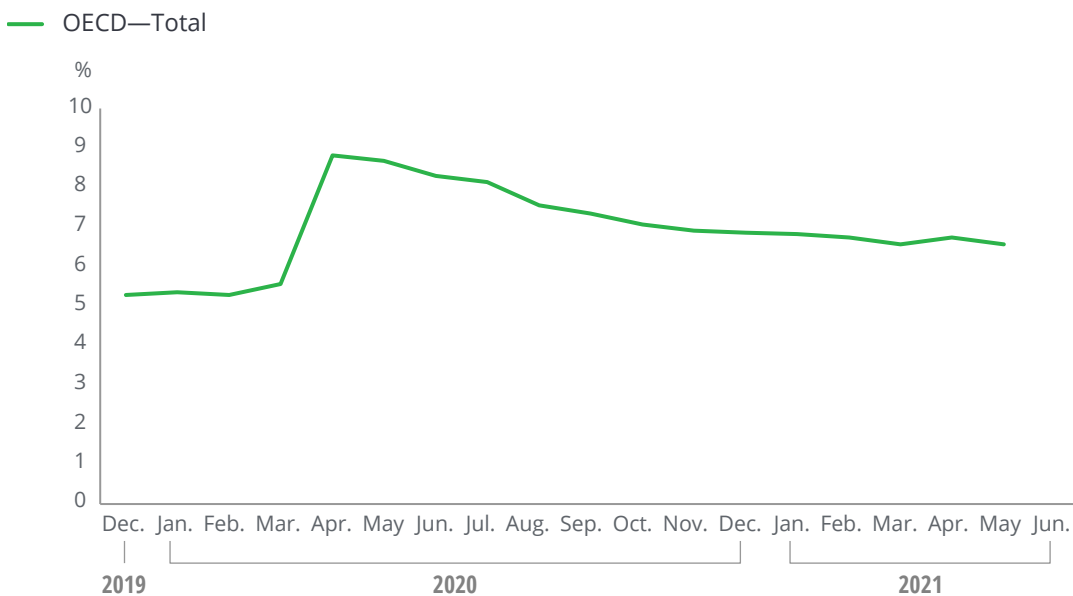
This relatively rosy unemployment picture is hiding a great deal of turmoil. The recovery this time doesn't seem to be following traditional patterns. The global decline in labor force participation rates is one troubling signal. Meanwhile, many workers are switching jobs, seeking higher pay or more flexibility.⁹ About 41% of employees globally are considering quitting in the next year, according to a 2021 survey of more than 30,000 employees.¹⁰ While many may be moving to greener pastures, employee stress and burnout may be contributing to what some have called the “great resignation.”

To function effectively in this fluid environment and endure future shocks, economies need adaptive workforces. Unfortunately, many government workforce policies have been based on an industrial-era model of employment. Work is changing at a dizzying pace and labor policies need to keep up.

FIGURE 1

Unemployment rates in many countries surged at the onset of the pandemic

Percentage of the labor force



Source: OECD, *OECD employment outlook 2021: Navigating the COVID-19 crisis and recovery*.

Trend drivers

Governments face multiple pressures to develop workforce resilience:

- **The pandemic and its enduring impact** on the labor market.
- **A rapidly changing technological landscape**, with automation, AI, and digital technologies disrupting workers and industry alike.
- **A growing need for an adaptable, resilient workforce** to enable the economy to quickly react to rapid shocks.

Trend in action

Many jobs lost during the pandemic are not expected to come back. Researchers at the University of Chicago project that 32–42% of COVID-19–induced layoffs will be permanent.¹¹ This means that despite a strong labor market, some workers will need to learn new skills for new careers.

Many governments are enacting policies that equip people to adapt not only to new jobs, but to entirely different fields. Six adaptive workforce shifts identified are:

- Shift #1: Government’s role in promoting alternative credentialing
- Shift #2: Job-centric upskilling
- Shift #3: Governments playing matchmaker
- Shift #4: Redefining employment for gig workers
- Shift #5: Infrastructure support to enable an adaptive workforce
- Shift #6: Adapting to the changing nature of higher education

SHIFT #1: GOVERNMENT’S ROLE IN PROMOTING ALTERNATIVE CREDENTIALING

Alternative credentialing can encourage reskilling amid rapidly evolving technology.¹²

The shrinking shelf-life of digital skills require continuous reskilling. Employers desire tracking and verification of those skills. As a result, the job market increasingly calls on training providers and academic institutions to offer “credentialized” records of learning and mastery.¹³

Rather than relying heavily on two- and four-year degrees, skill-specific micro-credentials, digital badges, or certificates specify the exact technologies an applicant has mastered. This simplifies career shifts and employee selection, making labor markets more efficient.

The New Zealand government’s policies acknowledge alternative credentials. The New Zealand Qualifications Authority (NZQA), a government agency, aims to deliver a unified vocational education system that will bring together industry, Māori groups, and educators. The process invites industry to work with higher education to develop micro-credentials,¹⁴ which are reviewed to ensure quality standards.¹⁵ As of January 2022, there were 203 NZQA-approved micro-credentials.¹⁶ For example, *forestry operations—environment* was a micro-credential developed for building practical skills in forestry; sixty-five learners were awarded the micro-credential within the first year of introduction in FY19–20.¹⁷

In March 2021, the Ontario government in Canada expanded the Ontario Student Assistance Program (OSAP) to include more than 600 micro-credential programs, making those programs feasible for students on financial support. The 2021 provincial budget includes an additional CAD 2 million to develop a virtual skills passport.¹⁸ The passport will track learners’ credentials and let them share credentials digitally with prospective employers.

Similar efforts are also being undertaken in Australia, Europe, and parts of the United States.¹⁹

SHIFT #2: JOB-CENTRIC UPSKILLING

Even before the pandemic, many sectors faced a skills gap. Traditional job training programs, however, often struggled to fill the gap.²⁰

Governments are embracing a job-centric upskilling model. Job-centric upskilling focuses on capabilities for specific, in-demand jobs. Industry contributes suggestions for training, and in many cases, offers on-the-job-support to workers. Results are measured not merely by job placement, but by success in the job. For example, through a public-private partnership called “Back to Work RI,” the state of Rhode Island provides targeted skills training and support services to displaced workers, ushering them into growing sectors such as health care and information technology.²¹

Job-centric upskilling can be especially important for workers with limited job skills or those going through life challenges that make professional success difficult. The Hospitality Workers Training Center (HWTC) in Toronto found that the personal needs of its participants varied widely, ranging from child care, to housing and food security, to substance abuse counseling, to transportation. To help participants overcome these hurdles, the HWTC performs an extensive assessment of participant needs upfront. After participants’ training, a job coach assesses their post training needs and works with employers to address performance issues that may impact job retention. This program, funded by the government of Canada, has improved its participants’ job prospects. About 80% of HWTC’s participants get employed in Toronto’s hospitality industry within eight weeks of training.²²

SHIFT #3: GOVERNMENTS PLAYING MATCHMAKER

Governments are creating online talent platforms to help businesses find the skills they need. Online

matchmaker platforms can introduce jobseekers to the educational requirements of their desired careers, identify training opportunities, and establish contacts with employers.

India’s National Career Service (NCS) is a job search and matching initiative launched by the Ministry of Labor and Employment that aims to provide end-to-end employment-related services to workers. Through the NCS digital centralized portal, a wide range of career-related services including job search, job matching, rich career content, career counselling, and information on job fairs are provided. This portal brings together job seekers, employers, skill providers, career counsellors, government departments, and other stakeholders under one roof.²³

Similarly, in Australia, the Tasmanian Government’s Rapid Response Skills Matching Service was developed to support Tasmanians whose positions were affected by the pandemic and to simplify access to reemployment funds. The Skills Matching Service is an easy way for employers to identify the right person for a vacancy. Between March and December 2020, it facilitated the introduction of nearly 600 Tasmanian job seekers to their next career opportunity.²⁴

Governments are also trying to expand the universe of people welcome in the labor market. For instance, in the United Kingdom, there are 7 million working-age people with a disability or long-term health condition, but only a little over half of them hold jobs. According to the 2021 UK Disability Survey, 56% of people with disabilities wanted more support in finding a job.²⁵ The Department for Work & Pensions (DWP) collaborates with the National Autistic Society to adapt DWP’s “Jobcentre Plus” sites to accommodate job seekers on the autism spectrum. Additionally, more than 26,000 work coaches at these sites undergo specialist accessibility training to better understand disabled clients.²⁶

SHIFT #4: REDEFINING EMPLOYMENT FOR GIG WORKERS

COVID-19 not only highlighted the value of gig workers but also the risks they face every day. Many governments are considering new policies to patch holes in the safety net, which gig workers once used to fall through. In the United States, a new federal program, Pandemic Unemployment Assistance, provided unemployment benefits to independent workers. Gig workers, including drivers, technology contractors, and house cleaners—who were traditionally ineligible for unemployment benefits—collected benefits during the worst of the pandemic.²⁷

The European Union launched a public consultation with trade unions and other employers on the need to improve long-term working conditions for gig workers. In the first stage of consultation, it identified seven areas where action is needed. Some of these include employment status, working conditions, access to social protection, and bargaining. In June 2021, it launched the second stage of consultation to identify actions to take in each area.²⁸ A similar effort began in New Zealand, which formed a tripartite working group between the government, business, and the Council of Trade Unions to improve work conditions for contractors. Options under consideration include steps to deter misclassification of employees as contractors and enhance the protection of contractors who are not classified as employees.²⁹

SHIFT #5: INFRASTRUCTURE SUPPORT TO ENABLE AN ADAPTIVE WORKFORCE

As the workforce continues to adapt to a digital world, governments are increasingly focused on providing workers and companies access to broadband, which helps working-age adults access education, work remotely, and find employment.

The United Kingdom's Project Gigabit, for example, is a £5 billion government infrastructure project that aims to deliver fast and reliable digital connectivity to the entire country.³⁰ In the United States, the infrastructure law enacted in November 2021 includes US\$65 billion to expand broadband access.³¹

SHIFT #6: ADAPTING TO THE CHANGING NATURE OF HIGHER EDUCATION

The explosion of digital technology, automation, and changes in the nature of work are prompting many universities to rethink their mission.

According to a 2020 World Economic Forum report, employers believe the following competencies will be most in demand by 2025: critical thinking; analytical skills; problem-solving; and skills related to self-management, such as active learning, resilience, stress tolerance, and flexibility.³² However, very few education programs explicitly include developing these competencies in their curricula.³³ The report also indicates that employers estimate they will need 40% of their employees to learn new skills in the next six months.³⁴

Some governments are playing a major role in transforming higher education to meet these demands. The National University of Singapore (NUS) launched the School of Continuing and Lifelong Education in 2015 to expand its offerings for working adults. This includes part-time degrees, modular certificate courses, executive development programs, and even free classes for NUS alumni wishing to keep their skills sharp.³⁵ Similar continuing education training centers have been launched across other institutes of higher learning in Singapore.³⁶

MARYLAND'S EARN PROGRAM

Employment Advancement Right Now (EARN) is Maryland's nationally recognized workforce initiative.³⁷ EARN helps employers with similar talent requirements collaborate on proposals to the state. These proposals describe the skills the companies are looking for and suggest programs to train people in these skills. A program could combine a variety of training methods, including classroom and online instruction, on-the-job training, or internships.³⁸

This model is in stark contrast to the traditional approach, where trainers provide generalized skills training and hope trainees find work. "A really important stakeholder was completely missing from the equation—the employers," says EARN's director, Mary Keller. "The result was that training wasn't nearly as relevant as it should be."³⁹

Maryland founded the EARN program in 2014. By February 2020, it supported 72 strategic industry partnerships and has added 33 more since.⁴⁰ Of the approximately 4,500 individuals who have completed EARN training for entry-level jobs, more than 84% have secured employment. Funding for EARN comes entirely from state sources, and each dollar invested generates US\$18.97 in economic activity (compared to the national average of only US\$3 for other workforce development programs).⁴¹

Because EARN designs training around the needs of companies and job seekers, it can satisfy a wide variety of labor needs. Job seekers end up in fields ranging from welding to information technology.⁴²

Moving forward

- **Invest in lifelong learning** to delay the onset of dependency among rapidly aging populations, resist inequality, and promote intergenerational learning, thereby creating more resilient families and communities.
- **Rethink the definition of the term "employment"** to include new forms of the workforce, including gig workers. Design and modernize employment policies for this expanded workforce.
- **Strengthen the workforce ecosystem:** Too often, the various players in the workforce ecosystem—universities and community colleges, workforce philanthropies, government, and, especially, the business community—are isolated from each other. Bringing all these groups to the table can foster win-win solutions and creative ways to pay for job-centric upskilling.
- **Set up mechanisms for alternative credentials** that provide a clear, concise way to understand and evaluate them and to ensure these mechanisms are transferrable or applicable outside of regional or industry limits.

MY TAKE

Rachel Wernick, senior assistant deputy minister, Employment and Social Development, Canada

Why “soft” skills are the new “hard” skills

Even before the pandemic, labor market changes required more workers to improve their skills to transition into new jobs or meet shifting job requirements. The pandemic has increased the scope, scale, and speed of change and amplified the call for skills policies and programs that future-proof the labor force.

As policymakers, we need to approach predictions about which technical skills will be needed in the future and which occupations will disappear, appear, or dramatically change with humility. Our track record on this front is uneven and increasingly challenged by unprecedented disruption, as occupations appear, disappear, and change, seemingly overnight.

We know that foundational and transferable skills—such as writing, digital, collaboration, and problem-solving skills—will continue to be fundamental to all jobs. These skills are necessary for learning all other technical or job-specific skills. While employers refer to these as “soft” skills, improving them can be seen as hard, and many struggle with effectively assessing and integrating these skills into training.

We also know that these skills increase the adaptability of workers and boost labor market resilience. Workers with low levels of these skills will find it increasingly difficult to maintain a job or transition to new jobs. Importantly, low levels of these skills are concentrated in some populations, many of which were disproportionately impacted by the pandemic. Improving access to training that improves these skills is essential to reduce the risk of exacerbating existing gaps.

The Government of Canada invested CAD 298 million over three years in the [Skills for Success](#) program in our 2021 budget. This reflects a growing recognition that one of the best ways to future-proof the labor force is to ensure workers in all occupations are equipped with strong foundational and transferable skills to weather dramatic and rapid change.

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About the authors

John O'Leary | jpoleary@deloitte.com

John O'Leary is a senior manager with Deloitte Services LP, and is the state and local government research leader for the Deloitte Center for Government Insights. Prior to joining Deloitte, he served as the vice president of communications and executive reporting with State Street Bank. O'Leary previously served in multiple senior leadership roles for the Commonwealth of Massachusetts and was a distinguished research fellow at the Kennedy School of Government, Harvard University. He is the coauthor of the 2009 *Washington Post* bestseller, *If We Can Put a Man on the Moon*.

Nicole Overley | noverley@deloitte.com

Nicole Overley is a curious and adaptable change-maker who is passionate about helping her clients navigate an uncertain future with agility through exponential technologies, new workforce models, and versatile ways of working. Overley is a senior manager in Deloitte's Human Capital practice for Government & Public Services (GPS) and was recently named as one of Consulting magazine's "35 under 35" Rising Stars of the Profession.

Alex Massey | amassey@deloitte.co.uk

Alex Massey leads Deloitte's Public Sector Human Capital practice in the United Kingdom. He has worked with clients across central government for over 20 years.

Sushumna Agarwal | sushagarwal@deloitte.com

Sushumna Agarwal is an assistant manager with the Deloitte Center for Government Insights, Deloitte Services LP. She researches workforce issues at the federal, state, and local government level. Her primary focus is on applying quantitative techniques to enable data-driven research insights.



Linked up government

Building connections for greater impact

William Eggers, Andrew Medd, Rosemary Williams, Pankaj Kishnani, and Gustav Jeppesen

NO AGENCY CAN address on its own most of the daunting catalog of urgent challenges that society faces—from unemployment and public health to poverty and climate change. In 1997, Tony Blair, then prime minister of the United Kingdom, coined the phrase *joined-up government* for effective coordination across government entities, a concept that became popular across the globe. However, success proved elusive due to challenges such as siloed funding and lack of enabling technologies.¹

Government leaders are still trying. Data-sharing technologies are helping to break down silos and connect government agencies. And today, the linked-up government approach is improving service delivery and tackling *wicked* problems by building collaborative engagement.

The pandemic has aided the cause by highlighting the increased urgency for collaboration across silos.

As many agencies scrambled to respond to the crisis, they found themselves working across portfolio boundaries, formally and informally, and forging partnerships. Information-sharing across agencies and within a wider ecosystem allowed nations to identify and track infections and quickly develop vaccines and antiviral medications.

The COVID-19 collaborative response provides an important model for the future.

Trend drivers

- **Cloud technologies** have made it easier to share and exchange data within and between agencies and other sectors.
- **Rising public expectations** are pressuring agencies to provide effective, coordinated, and integrated services. During the initial days of the pandemic, social media played a key role in

communicating citizens' expectations of their governments.

- Agencies worked **across portfolio boundaries** on pandemic response and recovery—and the results demonstrated the power of linked-up government.

Trend in action

The trend, then, is toward *coordinating*, *collaborating*, and *linking up* government through joint efforts across multiple levels of government, missions, and programs. In the last few years, we've seen a plethora of such efforts around the world.

ORGANIZING FOR CROSS-AGENCY COORDINATION

Thirty US states have established “Children’s Cabinets,” interagency partnerships intended to support child and family development—interests that were often addressed by a wide range of agencies delivering services in piecemeal fashion, especially when it came to low-income brackets.²

Maryland’s Children’s Cabinet, a collaboration between the state’s departments of health, human services, juvenile services, education and management, and budget, has worked with the Governor’s Office for Children to increase child immunization rates and reduce infant mortality and child maltreatment.³ It also publishes periodic well-being scorecards to track its progress.⁴ Similarly, Virginia’s Children’s Cabinet assembled state and local agencies and community stakeholders to improve outcomes for attendance, suspension rates, nutrition, and school accreditation in priority communities.⁵

Similar efforts can be observed at the US federal level. In 2011, Congress directed the Office of Management and Budget to develop cross-agency initiatives to “improve performance and management across the federal government.”⁶ One cross-agency priority (CAP) goal required an

increase in federal facilities’ electricity consumption from renewable sources to 30% by 2025.⁷ By the end of fiscal 2015, direct greenhouse gas emissions by federal facilities had declined 17.6% from the fiscal 2008 baseline.⁸

Another CAP goal resulted in reducing security clearance backlogs from 725,000 cases in April 2018 to 200,000 in 2020.⁹ Another call for modernization of the permit process led to the creation of an online dashboard for agencies, project developers, and the public, which tracks environmental reviews and authorizations for large or complex infrastructure projects.¹⁰

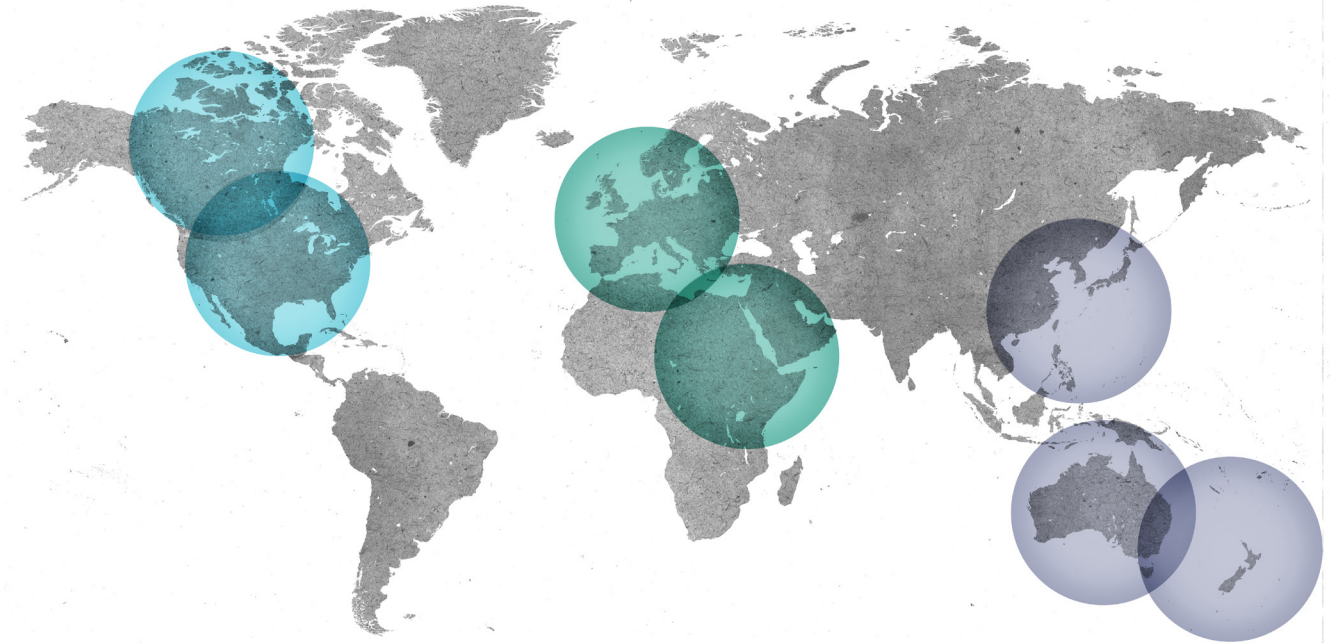
The United Kingdom established the Better Care Fund (BCF) in 2015, which is shared among the National Health Service, two other health and social care departments, and the Local Government Association to deliver integrated health and social care. Another interagency fund, the Shared Outcomes Fund, received £400 million in funding to address issues such as recidivism, violence, disinformation, drug enforcement, and refugee transitions.¹¹

Singapore formalized cross-agency coordination on security issues back in the 1970s; in 2004, it broadened this effort by organizing the Homefront Crisis Executive Group (HCEG) to spearhead a whole-of-government approach to crisis management.¹² During the pandemic, the country created the Multi-Ministry Task Force (MTF) supported by the HCEG to manage its response to the situation. The MTF activated immigration and border authorities almost immediately, supported by civil defense officers.¹³ Backed by leaders across government, it aimed to build public trust through daily media briefings and accurate reporting of COVID-19’s spread.

INTEGRATING SERVICES TO MEET CONSTITUENT NEEDS

Integrated service delivery allows constituents to access multiple, coordinated services based on

Inter-government and multi-sector initiatives



Americas

Canada

Canada is taking a **whole-of-society approach** to tackle the opioid crisis.

United States

More than 30 US states have set up **Children's Cabinets**.

EMEA

Estonia

Estonia mandates **interagency data-sharing** by prohibiting agencies from asking citizens for information more than once.

Germany

WHO Hub, set up by the WHO and Germany, offers a platform for participants to detect, respond to, and find solutions for public health emergencies.

Ireland

The **Health Ireland** framework takes a whole-of-society approach to address lifestyle issues that lead to adverse health outcomes.

Rwanda

To address stunting, Rwanda launched a **multisector program** that addresses health, nutrition, and social protection.

Saudi Arabia

Saudi Arabia has put **government agencies, the private sector, and citizens** on track to reduce per-capita water consumption to 150 liters by 2030.

United Kingdom

The UK government, to accelerate vaccine development, launched a **task force** to coordinate research efforts with industry

Asia-Pacific

Australia

Australia has adopted a **whole-of-government approach** to mental health, incorporating stakeholders outside of the health care sector.

Japan

Japan has focused on **public-private partnerships** to build resilient infrastructure that can withstand nuclear and other disasters.

New Zealand

The New Zealand government pools **funding for courts, police, and other justice sector agencies** to allow flexibility.

Singapore

Singapore established **an office to improve interagency cooperation** on municipal issues.

their needs. It breaks down silos, improves information-sharing, and reduces duplication to deliver better outcomes for recipients, families, and communities. For instance, an agency delivering unemployment insurance can work with workforce development boards to see if an individual needs work training. Similarly, an unemployment insurance agency can share information with other social care agencies to determine whether the individual qualifies for cash assistance, food programs, or public housing.

In 2017, to combat increasingly disparate health outcomes in different regions in the country and rising obesity nationwide, the UK National Health Service (NHS) created integrated care systems, a new form of partnership among administrative organizations, health care providers, government agencies, and other local partners, intended to integrate all aspects of client care.¹⁴ These systems assemble a broad range of stakeholders into a body that operates on three principles: *coproduction*, the idea that all members of the collaborative are equal partners and no one partner “owns” the program’s output; *personalized care* that involves individuals in their own health care choices; and *incentive contracts* for service providers focused on achieving improved health outcomes.¹⁵

Similar approaches are underway in the United States. Maryland’s Department of Human Services has led an effort to create a cloud-based hub designed to integrate health and human services.¹⁶ This Total Human-Services Integrated Network (MD THINK) helps agencies design more effective programs by offering both a comprehensive view of citizen needs and secure access to master data management. MD THINK also aims to reduce overall operating costs by eliminating redundancy.¹⁷

The Philippines, in turn, is integrating its mental health services.¹⁸ The nation’s Department of Health has joined with the Education Department to add emotional resilience into its life-skills curriculum for

school students, and with the Department of Labor and Employment to implement workplace-based mental health interventions.¹⁹

TACKLING “WICKED” PROBLEMS

The scope, complexity, and seeming intractability of many pressing societal issues require coordinated approaches. Intractable, open-ended, “wicked” problems—a term coined in 1973 by design theorists Horst Rittel and Melvin Webber—demand holistic thinking and cross-agency coordination.²⁰

The homeless population is particularly vulnerable to the COVID-19 pandemic. In response, UK local authorities, health agencies, and nonprofits launched a program called “Everyone In” to provide *every* UK resident with an opportunity to self-isolate during the pandemic. The program helped move 37,000 vulnerable people to hotels, B&Bs, and other temporary accommodations; leaders set up an interagency task force of local authorities and partners to help them stay off the streets.²¹

In 2015, Ethiopia set itself the bold goal of ending childhood malnutrition by 2030. This multisector initiative aims to increase investments in nutrition infrastructure and empower communities to find innovative solutions. Three pillars underpin the initiative:

- Community labs, a multisector group, assemble health care workers, school principals, religious leaders, and other stakeholders to create and test innovative solutions.²²
- Program delivery units at the federal and regional level then provide technical leadership, facilitate multisector coordination, and track performance management and resource mobilization.
- The Unified Nutrition Information System for Ethiopia tracks nutritional data, visualizes progress, tracks financial allocations, and maps stakeholder capacity.²³

Despite the nation’s ongoing political and social challenges, the program has contributed to a steady reduction in child malnutrition.²⁴

Linked-up government is back in the limelight two decades after the Blair government envisioned “joining up.” The challenge now is to sustain the momentum gained during the pandemic and avoid slipping back to a siloed mindset that can hinder innovation and agility.

Moving forward

The following factors will be critical to the success of linked-up government worldwide:

- **Finding the right budget balance** for agency and interagency spending by forging agreements on shared priorities and outcomes. Wherever possible, agencies should consider pooling budgets for shared agendas.
- **Establishing interagency councils** empowered to define project scope and success metrics.
- **Building outcome-oriented service delivery units** to implement interagency plans.
- **Creating platforms for civic engagement** to allow citizens and nongovernmental sectors to discuss, debate, and contribute to solutions for complex issues.
- **Investing in technology infrastructure** such as cloud computing to share data and design integrated services.

FAMILY JUSTICE CENTERS IN NEW YORK CITY

In 2001, New York City launched a dedicated office to combat domestic violence: the Mayor’s Office to End Domestic and Gender-Based Violence. In 2005, with funding from the US Department of Justice and private donors, this office established its first Family Justice Center in Brooklyn, to centralize and coordinate services for victims of domestic violence. In the following years, the city opened centers in its other four boroughs, each offering counseling, meetings with prosecutors and support groups, and aid with finances, housing, and public benefits.

The justice centers unite the work and support of more than 50 organizations, including nine city agencies and departments, various agencies at the borough and state level, and dozens of nonprofits.²⁵ In 2019, the city’s five centers helped more than 63,000 clients.²⁶ During the pandemic, the centers pivoted to a fully remote service model. In 2020, the number of survivors accessing services for the first time rose by 32.5%. The centers also saw increased usage of their mental health counseling and legal consultations and facilitated virtual visitation programs for noncustodial parents. In all, 94% of surveyed beneficiaries who received virtual services said they would recommend the centers to others.²⁷

MY TAKE



Pia Andrews, system transformation expert, former government executive in Australia, New Zealand, and Canada

Breaking government silos through holistic service integration

Vertical accountabilities naturally lead to siloed efforts, siloed policy, and siloed systems in government. Vertical structures and budgets lead public sector executives to continually narrow the scope of their efforts, with teams asked to prioritize staying within budget and minimizing risk. As a result, we end up with gaps emerging between functions and portfolios. You can expand the example to any complex or wicked problem, and you quickly find that the gaps between functionally divided teams and vertical lines of responsibility have created systemic barriers to holistic program and policy delivery.

Meanwhile, the constant pressure to deliver a “good news story” rather than to be a responsible steward for long-term public good has created a culture of prioritizing many efforts as fast wins. Service improvement efforts are often limited to iterative improvements within the scope of an agency, which doesn’t address or improve the end-to-end experience of those who interact with government. In many governments, no one is responsible for an integrated experience. The result: a fragmented tapestry of inconsistent services, where public trust and confidence is only as strong as the weakest service provided.

The people and communities we serve shouldn’t have to understand the complexities of government just to find the right services. Creating connected government is our responsibility, and we need to establish horizontal levers, structures, and operating models to provide an integrated experience for the public.

We should do a few key things to enable holistic services:

- **Single ownership of the citizen experience:** You can only prioritize, deliver, manage, and ensure a connected experience if someone has a mandate for a connected experience. Consolidated channels can be managed by a single entity with this accountability, with portfolio departments managing programs and back-end business systems. Beyond the mandate, this requires channel delivery and management capabilities and portfolio agencies consolidating their front-end channels.
- **Design connected services:** Beyond a consolidated channel, another powerful strategy is to design services around key life events, such as having a child, moving, starting a business, or dealing with the death of a loved one. These “life journey services” provide a contextual framework that supports an individual to traverse multiple organizations, jurisdictions, and sectors, with more efficient, effective, and proactive public service delivery.

- **Participatory governance:** We need to incorporate the public into the everyday work of the public sector, such as design and delivery of policies and services. If the people and communities we serve are involved in the process, this will help ensure that government is user-centered and truly able to be tapped into and responsive to changing needs and values.
- **Measure the impact more holistically:** Create an all-of-government approach to measuring the impact and user journeys of government services. Agencies will be more naturally motivated to act holistically if they are measured holistically, especially if the measures extend beyond user and performance measures and into policy and quality-of-life measures.
- **Measure risk and impact holistically:** The irony of public sector risk management is that by minimizing the personal risk for executives and for departments, we have created a culture of creating risk for society and the system as a whole. We must start to measure risk holistically and over the long term, in terms of actual impact on people and communities.

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About the authors

William Eggers | weggers@deloitte.com

William Eggers is the Executive Director of Deloitte's Center for Government Insights where he is responsible for the firm's public sector thought leadership. He is the author of numerous books including *Delivering on Digital: The Innovators and Technologies that are Transforming Government*, *The Solution Revolution*, *The Washington Post* best seller *If We Can Put a Man on the Moon and Governing by Network*. He coined the term Government 2.0 in a book by the same name. His commentary has appeared in dozens of major media outlets including the *New York Times*, *Wall Street Journal*, and *The Washington Post*.

Andrew Medd | amedd@deloitte.ca

Andrew Medd is the leader of Deloitte Canada's National Public Sector Transformation practice. He focuses on helping governments address their most complex challenges, which frequently involve the intersection of changes to business models, digital technology, and regulatory frameworks. This includes strategy and business case development, operating model design, and business transformation through program management.

Rosemary Williams | roswilliams@deloitte.com

Rosemary Williams is a specialist executive in Deloitte Consulting LLP's Government & Public Services (GPS) practice, where she focuses on the military and veteran community and communication strategies. Prior to joining Deloitte, she served as deputy assistant secretary of defense for Military Community & Family Policy, where she received the Secretary of Defense Exceptional Civilian Service medal, and as assistant secretary of Veterans Affairs for Public & Intergovernmental Affairs.

Pankaj Kishnani | pkamleshkumarkish@deloitte.com

Pankaj Kishnani, Deloitte Services LP, is a researcher with the Deloitte Center for Government Insights. He specializes in emerging trends in technology and their impact on the public sector.

Gustav Jeppesen | gjeppesen@deloitte.dk

Gustav Jeppesen is chair of Deloitte Denmark and member of the Deloitte Global and North South Europe (NSE) Boards. Jeppesen is the lead client service partner for the Danish Tax Administration. He has headed major transformation projects in the public sector with key competences within optimization, including cost reduction, and cost assessment.



Data-fueled government

Breaking down silos with turbo-charged data

Adita Karkera, Jaimie Boyd, Jean Barroca, and Adam Routh

GOVERNMENTS USE INFORMATION technology to improve policy, decision-making, and service delivery by gleaning useful insights from data. But disparate leadership, priorities, and budgets have created a patchwork approach to technology adoption, with no guarantee that systems can easily communicate. Policies governing data-sharing that overlook the power of shared data have routinely hindered collaboration.

However, this situation began changing rapidly as the COVID-19 pandemic began. As policymakers and health experts desperately sought up-to-date information, governments were forced to break down data silos, coordinate with companies and universities, and expand their roster of data talent.¹ This trend toward greater collaboration and transparency appears poised to continue, as

agencies increasingly use shared data to improve outcomes and integrate services.

Trend drivers

Several drivers are propelling greater data-sharing to improve insights and deliver existing and new services.

- **Accelerated adoption of artificial intelligence (AI) and cloud technologies** as well as policies that make data-sharing easier.
- **The pandemic has created urgent incentives** to use and share more data, requiring new policies and a greater focus on data ethics.
- **Many organizations are creating or expanding the role of the chief data officer (CDO).**

Trend in action

The pandemic forced governments to forge more connections to share data. Many quickly moved to a virtual-first environment that initially strained their IT capabilities, but ultimately aided collaboration both within government and among government, industry, and academia.² Shared data became critical to delivering services effectively and solving pandemic-related challenges. Agencies and departments that had fallen behind on adopting cloud and other data-centric tools rushed to catch up, quickly crafting data policies and hiring—or rethinking the role of—the chief data officer.³ Now, it’s becoming increasingly common for governments to: 1) Focus on data to improve services and anticipate the need for new ones; 2) break down silos to improve coordination among agencies and; 3) collaborate with industry and academia.

These trends are allowing governments to do more for their constituents, and to do it more efficiently.

ADOPTION OF DATA-CENTRIC TECHNOLOGIES

Governments’ increasing reliance on digital technologies for day-to-day business generates

huge amounts of data. From emails to spreadsheets to teleconference presentations, organizations create countless megabytes of data that must be filtered and saved. As the volume of data grows, so too does government’s need for technologies and policies that can generate valuable insights from it.

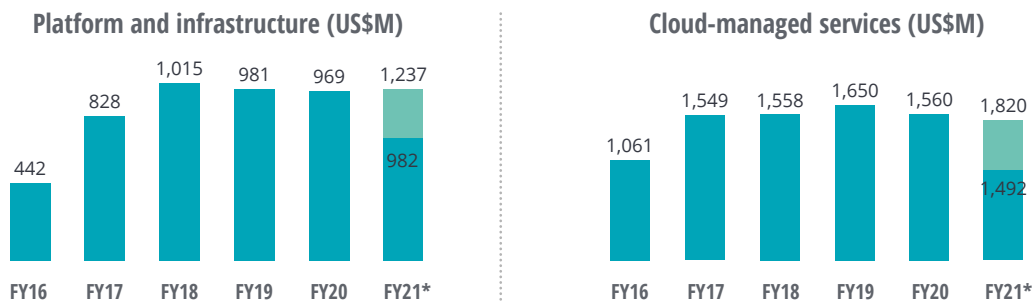
Governments have been adopting data-centric technologies and tools such as AI and cloud, but their adoption is often agency-specific and weighed against other priorities and budgetary considerations, making it difficult for agencies to share and act on data effectively.⁴

The pandemic sharply increased the value of data technologies and tools.⁵ For example, the increase in demand for services such as unemployment insurance and the need to administer and deliver them in a virtual-first environment made cloud adoption a major priority.⁶ In the US state of Rhode Island, for instance, the adoption of cloud services increased the state’s capacity to handle simultaneous unemployment insurance calls from 75 to 2,000.⁷ US federal spending on cloud platforms and services has risen accordingly, although less dramatically than one might expect (figure 1).

FIGURE 1

The pandemic boosted US federal spending on cloud infrastructure and managed services

■ Actual ■ Estimate



Note: *Data is available until August 30, 2021. Defense and intel data is delayed by three to six months.
Source: Deloitte analysis of Federal government contract data from Bloomberg.

With the proper tools, governments can integrate datasets, applications, and devices to facilitate internal and external interactions. The US National Institutes of Health, for example, launched the National COVID Cohort Collaborative (just one of many similar measures) to study COVID-19 and identify possible treatments. This cloud-based data-sharing and analytics platform has helped government experts, researchers, and commercial organizations exchange data and observations, revolutionizing the sharing of clinical research.⁸ Organizations have also used AI-powered solutions to improve their services. For example, a machine learning model and open data were used to identify participants for the Johnson & Johnson vaccine trials.⁹

While commercial companies and universities remain ahead of government in their use of data tools, government's response to COVID-19 has helped level the playing field. To further this trend, however, government agencies need to tackle challenges such as organizational silos and inadequate data standards.

BALANCING DATA-FIRST WITH ETHICS-FIRST

Large, shared datasets can offer valuable information, but their use entails significant risks.¹⁰ COVID-19 contact-tracing applications, quickly developed and implemented around the world, represent one of the most ambitious uses of such datasets to date. This data contains detailed personal information that, if leaked or used inappropriately, could lead to serious invasions of personal privacy—and erosion of public trust.¹¹

Beyond privacy issues, however, due diligence is important to avoid drawing incomplete or erroneous conclusions from the data. Large datasets can contain inherent biases or represent only a sliver of a larger and more complex situation. Users drawing insights from them, therefore, need to consider how

data is collected and analyzed, including any inherent bias it may contain, and how the story it tells fits into the larger picture. Maintaining such safeguards requires robust policies.

As COVID-19 spread, governments quickly focused on protecting privacy during data collection. Italy's data protection authority, Garante, adopted a measure outlining how the nation's authorities would balance the European Union's General Data Protection Regulation with the need for tracing data. The Italian government also fostered a discussion with industry and trade representatives to define a protocol for handling sensitive information used in response to COVID-19.¹² Ireland and France adopted similar approaches.¹³

Data-sharing among national jurisdictions became an immediate priority as well; in Australia, for instance, the federal, state, and territorial governments quickly agreed on secure protocols.¹⁴ In the United States, eight states are collaborating with the National Governors Association to enhance their ability to safely link intrastate health data systems.¹⁵

The pandemic solidified the need for agency leaders to think about data-sharing and protection policies, building on frameworks such as the European Union's General Data Protection Regulation (GDPR) and Canada's Personal Information Protection and Electronic Documents Act. The United Kingdom's secretary of state for digital, Oliver Dowden, has indicated that his government wants the pandemic's high degree of data-sharing to become standard.¹⁶ In Australia, the New South Wales government published a new data-sharing strategy focused on lessons learned from the 2020 bushfires and the pandemic. The strategy aims to ensure that government employees understand the importance of using data to inform decisions affecting constituents and that they have the skills needed to use the data effectively and safely.¹⁷

EVOLVING ROLE OF THE CHIEF DATA OFFICER

Increasing reliance on data insights has focused attention on the chief data officer, who is responsible for integrating data and developing best practices.¹⁸ The scope of the CDO role has varied widely among government entities, with differing expectations, responsibilities, and authorities.¹⁹ The pandemic, however, changed the role almost overnight, permitting CDOs to drive closer integration of data within and among governments, academia, and private organizations.²⁰

In the United States, many state CDOs created COVID-19 dashboards to keep the public informed on the pandemic's spread. They also leveraged state health information exchanges to provide better insights, published data on the use of stimulus funding, and in some cases, directly led their health department's data efforts. In Arkansas, the CDO joined the state's COVID-19 Technical Advisory Board to review and evaluate new technologies for testing and contact tracing.²¹ As governments move toward a postpandemic normal, CDOs are measuring economic impacts and using data to measure progress and assess milestones for reopening.²²

A key feature of the maturing CDO role is the development of talent to enable data-sharing across government. Estonia's CDO, Ott Velsberg, has appointed experienced data stewards throughout the government, who can ensure the availability of high-quality data and oversee data-sharing.²³ The effort involves close collaboration among the nation's CDO, chief privacy officer, and chief information security officer to ensure that information is used securely and ethically.

The involvement of CDOs in the pandemic response has helped clarify their roles and solidify their importance. In a 2021 Data Foundation survey, about 75% of US federal CDOs said their role was clear, versus just 21% in the previous year. During the same period, the share of CDOs with more than 25 staff members rose from 25% to 40%,

while the number of CDOs reporting directly to the chief executive rather than the chief information officer more than doubled.²⁴

The CDO's maturing role leaves governments better positioned to tap into the value of shared data to provide services, gauge performance, and respond to crises. "The data nice-to-haves are now mission-critical," says Arizona CDO Jeff Walkover, "and we should leverage this opportunity to build what we need for the future."²⁵

Moving forward

Governments should focus on three basic areas to ensure that they can use shared data to improve services and be crisis-ready:

- **Maintain the emphasis on data technology and relationships established in response to COVID-19.** The value generated by these technologies and relationships is too great to let them falter. A data-centric approach provides greater value to constituents while improving performance. And when the next crisis comes, data could play a valuable role.
- **Continue to develop proactive policies on data privacy and security.** Rather than waiting until the next crisis or privacy issue, governments should continue to develop policies that enable data-sharing within government and with industry and academic partners while addressing ever-changing privacy concerns. As with economic policy, data policy should constantly evolve, based on the changing ways in which information is used. This will require *continuous* collaboration among CDOs, information security officers, and privacy officers.
- **Increase the CDO's value.** Government leaders should continue to support and develop the role to maintain its ability to drive the power of shared data.

MY TAKE

Barry Lowry, chief
information officer,
Government of Ireland

The “once-only” principle is one of the flagship elements of the Digital Decade Agenda

Optimizing the use of data remains a significant opportunity as well as a challenge for governments, as cultural obstacles remain. We have a history of government bodies being separate legal entities with their own specific data holdings collated for specific purposes, usually set out in legislation. Moreover, they also tend to have cultivated their own methods for how they do things and even the technologies they use.

The concept of digital government, of course, is in direct contrast to this, involving a single access portal, intuitive ways of presenting information or services, and most importantly, the “once-only” principle (OOP), in which data is collected from individuals just once and then used many times.

OOP is one of the flagship elements of the European Union’s Digital Decade Agenda. The EU membership understands that its implementation will improve services, reduce costs, improve data protection, and allow public administrations in one member state to use information provided in another.

But this won’t be easy. In addition to cultural challenges, we have legacy systems, legislative barriers, and a small but highly vociferous group who oppose increased data-sharing of any kind. So how do we move forward? The solution is to continue the big conceptual discussion, but simultaneously push to resolve people’s frustrations with “the system” by understanding their journeys and the pain they’ve experienced—and committing to improvements.

The challenge may be great, but the rewards are compelling, and we must seize the opportunity.

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About the authors

Adita Karkera | adkarkera@deloitte.com

Adita Karkera serves as the chief data officer for Deloitte's Government & Public Services, where she leads the data strategy to foster value creation from the firm's data while ensuring trust. Karkera also serves as a fellow in the Deloitte AI Institute for Government, where she assists government clients on maximizing business value in the areas of data management, strategy, advanced analytics, and AI.

Jaimie Boyd | jaiboyd@deloitte.ca

Jaimie Boyd is a partner at Deloitte Canada and serves as the firm's National Digital Government leader. She works to accelerate digital change in the public sector, helping governments to better serve citizens using modern technologies. She previously held diverse positions in government, most recently as the chief digital officer for the Government of British Columbia in Canada.

Jean Barroca | jbarroca@deloitte.pt

Jean Barroca is the Global Public Sector Digital Modernization leader, working closely with Deloitte public sector leaders across the world to help develop and deploy solutions and assets to support the public sector in its digital modernization. Barroca is also the associate partner responsible for Synergy, working with clients globally supporting smart city and future of mobility initiatives.

Adam Routh | adrouth@deloitte.com

Adam Routh is a manager with Deloitte's Center for Government Insights and is a PhD student in the Defence Studies Department at King's College, London. His research areas include space policy, the future of defense, and great power competition. Routh's research has addressed US national space policy, space governance, the challenges and requirements of the future military force, and emerging technologies. His analysis has been featured on the *Nightly News* and the *John Batchelor Show* and published in the *National Review*, *Hill*, *National Interest*, *SpaceNews*, *Space Review*, *Real Clear Defense*, and *Defense News*, among other outlets.



Government as catalyst

Driving innovation ecosystems

William Eggers, Kishore Rao, Max Meyers, Ursula Brennan, and Neha Malik

THE COVID-19 CRISIS has underlined the importance of constant innovation—and the need to respond with speed, agility, and scale.

In the pandemic's early stages, governments boosted the production of masks, facilitated data-sharing among pharmaceutical companies, relaxed regulatory requirements for certain tests and drugs, and accelerated vaccine production. These were the essential first steps in what proved to be a highly successful partnership with the private sector, nonprofits, and research institutions.

Throughout the pandemic, governments have served as catalysts, assembling and enabling multisector efforts to cope with the flood of cases and create vaccines. Even before the pandemic, government's role as a solution catalyzer was growing in breadth and complexity, with an emphasis on how to harness innovation across sectors for public good.

As commercial and cross-sector innovation gained pace, governments have gone beyond fixing market failures. In addition to helping strengthen strategic sectors such as defense and space, governments are fostering cross-sector solutions for a myriad of societal challenges, including public health, climate change, and cybersecurity.

Trend drivers

Several drivers are compelling governments to spur increased cross-sector innovation:

- **Governments are learning to better address market failures** in important but high-risk/low-return sectors, such as public health, while helping attract private investment.
- **Spinning in innovation.** Historically, government has fostered technological leaps, from space flight to GPS to vaccines; the

tech-transfer process then helped commercialize these new capabilities. Leading capabilities are now often already available commercially.

- **Focus on innovation and competitiveness.** Nations are strengthening their innovation ecosystems to develop long-term competitiveness and sustainability. In the United States, for instance, the CHIPS for America Act before Congress at the time of writing this would provide US\$52 billion to catalyze private-sector investment in semiconductor manufacturing.¹

Trend in action

The government as catalyst trend is emerging in three main forms:

- Focusing innovation on key societal issues and reducing friction—often involving ecosystem building.
- Leveraging external innovation to drive mission delivery—often involving novel partnerships.
- Seeding critical areas of innovation—a traditional role, but now using more agile approaches.

FOCUSING INNOVATION ON KEY SOCIETAL ISSUES AND REDUCING FRICTION

The pandemic highlighted the need for urgency in addressing major societal challenges. For example, US researchers had been working on mRNA vaccines for years before the pandemic made the technology critical.²

The lesson for other challenges, from cybersecurity to climate change, is obvious: Governments can and should take steps to speed up the development of innovative solutions for the benefit of society—focusing on *reducing friction* by strengthening innovation ecosystems and providing funding, coordination, and strategy for critical issues.

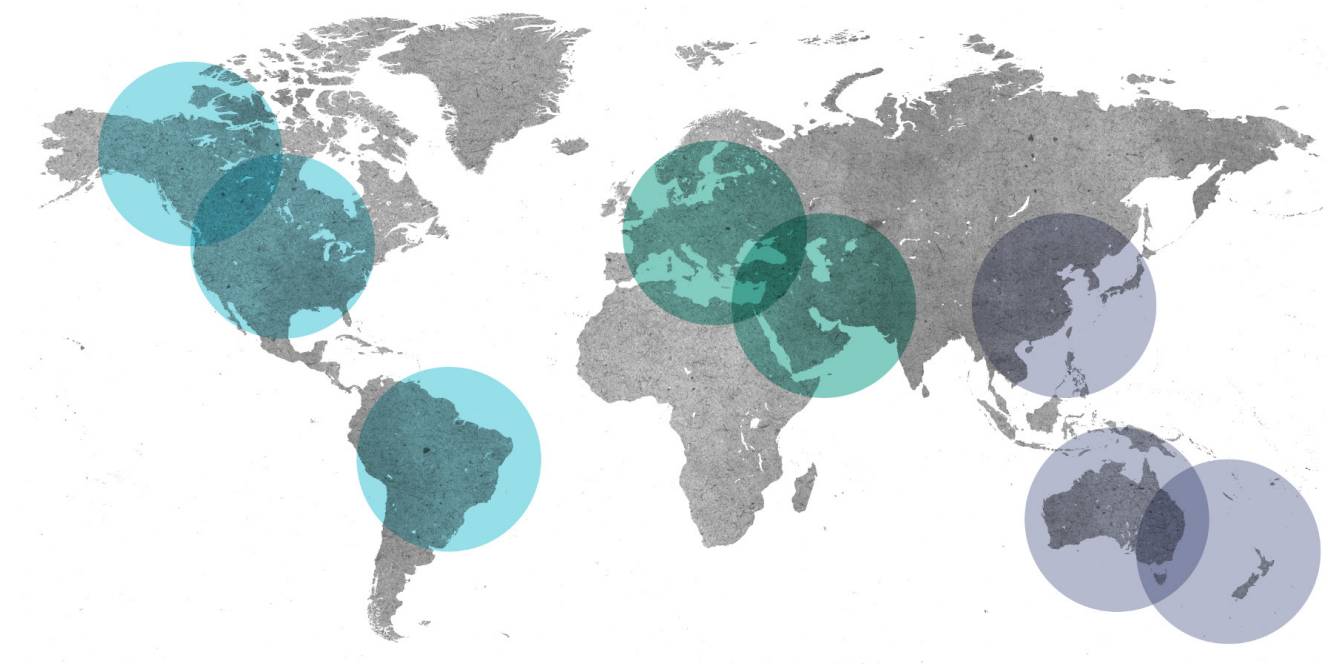
Cybersecurity. Cybercrime incidents cost the global economy more than US\$1 trillion.³ Beyond dollars, cybercrime also represents a threat to infrastructure and intellectual property. To address this threat, collaborators in multiple sectors are furthering advances in cybersecurity.

New York City's new Cyber NYC initiative has three objectives—developing the city's cyber workforce, catalyzing cyber innovation, and establishing New York as the global cybersecurity capital. With US\$100 million in public and private funding, Cyber NYC collaborates with the city's unique cybersecurity ecosystem, including universities, venture capitalists, and tech firms, and aims to create 10,000 cybersecurity jobs in the New York area. Its multipronged approach includes a City University masters' program with reduced tuition, a startup accelerator to connect venture capital with cybersecurity startups, and a US\$1 million prize for solutions that protect the city's small and mid-sized companies from cyberattacks.⁴

Or consider the US Cybersecurity and Infrastructure Security Agency (CISA), which set up the Joint Cyber Defense Collaborative (JCDC), a dedicated public-private collaborative to ramp up cyber defense operations in August 2021. The collaborative seeks to integrate cyber capabilities sitting across industry and government agencies (federal, state, and local). Through JCDC, CISA is drawing up a comprehensive whole-of-nation cyber defense plan. Prominent industry partners in this initiative include Amazon Web Services, Google Cloud, Microsoft, and Verizon.⁵

Health care. The Accelerated Access Collaborative (AAC) of the United Kingdom's National Health Service (NHS) brings together patients, industry representatives, regulators, and various NHS entities to develop and accelerate innovative health solutions.⁶ AAC provides an online "single front door" that offers information and support to innovators, informs the market of NHS research needs, creates a conducive

Specialized government-backed funds and units that boost innovation



Americas

Canada

Canada's CA\$100 million **Venture Ontario Fund** supports high-growth sectors that promote competitive advantage.

Brazil

Brazil's **development bank** set up a R\$100 million coinvestment angel fund to support innovation in biotechnology, smart cities, and other strategic areas.

United States

The United States' **Advanced Research Projects Agency-Energy** supports the development of breakthrough energy technologies.

EMEA

European Union

VentureEU, a pan-European venture capital fund-of-funds program, stimulates investment in innovative startups and scale-up companies.

Germany

Germany's **Federal Agency for Disruptive Innovation** supports innovative solutions for social, ecological, and economic challenges.

Italy

Inspired by the United States' DARPA, Italy established **ENEA Tech and Biomedical**, with an initial focus on health care and biomedical innovation.

United Arab Emirates

Abu Dhabi's state investor, **Mubadala**, launched US\$250 million tech funds in 2019, with US\$100 million earmarked for early-stage firms.

Asia-Pacific

Australia

Australia's **Biomedical Translation Fund** is a coinvestment venture capital program that supports biomedical discoveries and their commercialization.

Hong Kong

Hong Kong's HK\$2 billion **Innovation and Technology Venture Fund** coinvests in local innovation and technology startups.

Japan

Japan's **Moonshot R&D Program** aims to use innovative research methods to address national and international societal problems.

New Zealand

Elevate NZ Venture Fund boosts homegrown early-stage firms, emphasizing innovation and productivity.

Singapore

Singapore's **SEEDS Capital** coinvests in early-stage technology startups from strategic industries with future potential.

regulatory environment, and fast-tracks clinical development. These efforts have speeded up the adoption of successful innovations such as software that identifies coronary artery disease without invasive surgery and a test for preeclampsia, a pregnancy complication.⁷ With added priorities arising from the pandemic, by early 2021, the AAC had supported more than 2,700 innovations.⁸

Climate action. Governments are investing in jumpstarting cleaner technologies, with global warming being recognized as an existential challenge for the planet.⁹ The European Clean Hydrogen Alliance, launched in March 2020, is uniting industries with various public entities to develop and scale the use of low-carbon hydrogen energy in Europe. Member states are committing to directly invest €430 billion by 2030 to achieve specific project goals.¹⁰

Another multinational effort, Mission Innovation, is driving investment in clean energy technologies. The project's 23 member governments, including the United States, India, Saudi Arabia, Canada, Australia, Austria, the Netherlands, and the European Commission, expect to invest more than US\$250 billion in clean energy research to reduce global emissions. The project's goals include developing 50 large-scale urban experiments in green living, funding research in carbon dioxide removal, and investing in low-emission equipment



for heavy industries. Different countries spearhead each mission—India and the Netherlands, for instance, are leading the Integrated Biorefineries Mission, which aims to develop alternative fuels for the transportation and chemical sectors. Investments to date have supported nearly 1,500 innovations that could avoid emissions of more than 21 gigatons of carbon dioxide annually by 2030.¹¹

DRIVING INCLUSION IN INNOVATION

Growing inequalities pose another societal challenge and threaten progress. Low-carbon energy sources won't slow emissions if the world's poor still need to cook dinner over coal. For this reason, many governments attempting to catalyze innovation now incorporate inclusion strategies into their programs.

The US Department of Energy (DOE) launched its first-ever inclusive energy innovation prize in September 2021. The new prize offers up to US\$2.5 million in cash awards to “support entrepreneurship and innovation in communities historically underserved in climate and energy technology funding.” It also aims to lower barriers for entry and simplify application procedures for first-time applicants.¹²

Leveraging external innovation to drive mission delivery

The commercial sector has developed many technologies that can be useful in addressing complex societal problems. Governments are exploring ways to harness these capabilities to improve mission delivery in ways that go beyond contracting, to build a wider set of partners and solutions.

Adapting such technologies in the public sector isn't always easy. Unlike commercial entities that have access to legal and financial structures, such as joint ventures and mergers and acquisitions, governments must find more creative ways to capitalize on external innovation, based on mutual interest and advantage across sectors.¹³

Spinning in commercial capabilities.

Since 2015, the US Department of Defense's Defense Innovation Unit has accelerated the adoption of commercial technologies for the military.¹⁴ Other agencies are implementing similar initiatives—both to take advantage of existing/mature solutions more effectively (lowering barriers to entry), and by seeding/shaping the development of nascent solutions.

In fact, public procurement can play an important role in private-sector innovation by driving demand, especially in the precommercialization stage.¹⁵ One analysis suggests that 81% of Organization for Economic Co-operation and Development (OECD) nations have launched initiatives to bolster innovation through public procurement.¹⁶ The US National Aeronautics and Space Administration (NASA), for instance, uses its procurements to help scale and sustain companies that can help the agency's missions. By offering grants through the federal Small Business Innovation Research (SBIR) program to companies that may be rich in new

ideas but short on resources, NASA has helped catalyze the commercial space economy, which is expected to grow to more than US\$1 trillion in value during the next two decades.¹⁷

In 2021, the Indian national government established its City Innovation Exchange, a digital marketplace that facilitates the public procurement of innovative technological solutions to address municipal challenges. By simplifying the procurement process and enabling innovators to design, test, and validate solutions through sandboxes—controlled environments allowing innovators to test products, services, or new business models without having to follow all the standard regulations—the platform is designed to accelerate lab-to-market transfers and provide a boost to Indian startup companies.¹⁸

Governments are exploring ways to harness these capabilities to improve mission delivery in ways that go beyond contracting, to build a wider set of partners and solutions.

In addition to these specialized partnerships, governments should stay abreast of the latest developments in the external landscape. To do so, some governments have established sensing and scouting units.¹⁹ From the US Homeland Security's Technology Scouting program to the Australian Department of Defense's Emerging Futures initiative, more and more government agencies have dedicated teams scanning for emerging technologies that could affect their missions.²⁰

SEEDING CRITICAL AREAS OF INNOVATION

Governments have historically played a major role in commercial innovation by reducing the market risks of emerging technologies through R&D grants, tax credits, and other tools. Today, governments are increasingly setting up specialized investment structures to promote experimentation in areas where private investment may be scarce.

This approach was pioneered by the US Defense Advanced Research Projects Agency (DARPA) in the late 1950s. Its fail-fast, fail-forward approach intentionally gives innovators room to experiment.²¹ While not new, investment in derisking and accelerating next-generation technologies is growing. DARPA-like approaches are mushrooming across the globe to catalyze solutions to megachallenges. And with technologies advancing rapidly, traditional R&D methods relying

on long gestation periods are making way for more agile approaches.

Inspired by DARPA, Italy established ENEA Tech and Biomedical with an endowment of €500 million. This entity is designed to advance innovative technologies of national interest, with an initial focus on health care and biomedical innovation and technology transfer.²² ENEA Tech provides support along the entire innovation value chain, including long-term finance, production scaling, and market uptake of technologies.²³

In 2021, the UK government announced the creation of an Advanced Research and Invention Agency (ARIA), with a four-year budget of £800 million. Like DARPA, ARIA will remove multiple layers of approvals across the R&D lifecycle. While DARPA's objectives are tied to defense, ARIA will serve multiple government departments to address cross-cutting societal challenges.²⁴

VACCINE DEVELOPMENT AND DISTRIBUTION IN THE UNITED STATES

The COVID-19 pandemic created unprecedented urgency for both therapies and vaccines. Decision-makers in the US government, public health, and the medical and pharmaceutical community convened to rethink the development process as quickly as possible. The result, a public-private partnership called Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV), dramatically accelerated both novel and repurposed therapeutic and vaccine development.

Since its launch, ACTIV has been committed to streamlining COVID-19 vaccine development and testing processes through the following:²⁵

- i. Standardizing and facilitating data and information exchange among the participating entities in the preclinical stage.
- ii. Accelerating clinical trials by leveraging existing trial and research sites.
- iii. Expediting vaccine evaluation for faster approvals.
- iv. Coordinating regulatory tasks and procedures and leveraging assets among all partners.

Moving forward

- **Evaluate in-house capabilities** to determine if they're adequate for the project or mission. If not, assess existing capabilities in the market and consider whether they can be used to meet mission needs.
- **Create dedicated sensing and scouting units** to identify emerging technologies and capabilities in the market. Without this ability, government agencies risk finding themselves perpetually trying to catch up with changing citizen expectations, new business models, and innovative technologies. Sensing and horizon-scanning capabilities can help leaders stay ahead of the game, allowing them to better anticipate future risks and developments and think about new policies that may be needed.²⁶
- **Establish an optimal partnership structure** for public-private collaboration. Identify the best owner for each phase of the partnership; for instance, decide which entity will fund the project and which one will be responsible for execution. The optimal structure of any partnership will vary according to the goal or mission. A project with a large degree of uncertainty may call for greater public involvement.
- **Follow an agile governance model for innovation.** Establish government-industry sandboxes to prototype and test new approaches and encourage a culture of experimentation.

MY TAKE



Jenn Gustetic, director of Early Stage Innovations and Partnerships, NASA

How NASA supports innovation

NASA's Space Technology Mission Directorate (STMD) supports a range of companies, including small businesses that aspire to supply innovative solutions to NASA. In 2021, for instance, NASA partnered with five US small businesses that will receive nearly US\$20 million in NASA funding to create innovative lunar capabilities. In the same year, we selected six university-led lunar research projects to pursue advances in in situ resource utilization and sustainable power solutions.

At NASA, innovation can come from anywhere. STMD has a range of programs—Small Business Innovation Research (SBIR), Small Business Technology Transfer (STTR), Technology Transfer, Prizes, Challenges, and Crowdsourcing (PCC), Space Technology Research Grants, Center Innovation Funds and Early Career Initiative, and NASA Innovative Advanced Concepts—to support early-stage, emerging capabilities in space that can benefit the entire agency and the emerging commercial space ecosystem.

Our SBIR/STTR program, for instance, provides initial funding for promising ideas from small businesses and entrepreneurs. Since its inception, SBIR/STTR has made awards to small businesses in all 50 states. These companies have been pivotal to many of the agency's programs and missions, including the International Space Station and the Mars Curiosity Rover.

NASA's moon return mission will require breakthrough technologies and capabilities from commercial companies across the nation. Already, more than 3,000 US companies, many of them small businesses, are working to support this mission.

To form successful partnerships, it's important to closely track the trajectory of emerging technologies that could affect space exploration. At STMD, we have dozens of principal technologists and system capability leaders who are responsible for such market sensing. Their knowledge drives our technology solicitation planning and strategic development activities.

Exciting times lie ahead for the space industry, and NASA will continue to support innovative ideas from small and early-stage companies, while extending its partnerships with the bigger companies to advance the commercialization of space.

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About the authors

William Eggers | weggers@deloitte.com

William Eggers is the Executive Director of Deloitte's Center for Government Insights where he is responsible for the firm's public sector thought leadership. He is the author of numerous books including *Delivering on Digital: The Innovators and Technologies that are Transforming Government*, *The Solution Revolution*, *The Washington Post* best seller *If We Can Put a Man on the Moon and Governing by Network*. He coined the term Government 2.0 in a book by the same name. His commentary has appeared in dozens of major media outlets including the *New York Times*, *Wall Street Journal*, and *The Washington Post*.

Kishore Rao | kisrao@deloitte.com

Kishore Rao is a consulting partner helping clients design and execute transformational programs to meet Climate and Sustainability initiatives and realize the potential of global markets. He is Deloitte Consulting's Global coleader for ESG, working with our leaders and professionals across the globe to help governments and public services agencies develop and translate policy into practical action on such issues as climate action, sustainability, social inclusion, and good governance. He is also the global leader for Deloitte's business relationships with international affairs and international development organizations.

Max Meyers | maxmeyers@deloitte.com

Max Meyers is a senior manager in Deloitte Consulting LLP's Government and Public Services (GPS) practice, where he focuses on strategy and innovation. He has over a decade of experience working with executives to identify how emerging technologies impact today's operating environment—and how their organization can respond. He received a master's in business administration from the Kellogg School of Management, Northwestern University, and a bachelor of the arts degree from Vanderbilt University.

Ursula Brennan | ubrennan@deloitte.com.au

Ursula Brennan is the leader for Deloitte's public sector and public policy practice in Australia, coordinating services from across our business to support state, federal, and local government clients in delivering better outcomes to citizens. She also leads Deloitte's Business Case Centre of Excellence, advising public sector clients in Australia on securing funding for major infrastructure, ICT, and reform programs.

Neha Malik | nemalik@deloitte.com

Neha Malik is an assistant manager with the Deloitte Center for Government Insights. She researches on issues related to public-private partnerships and innovation at the federal, state, and local government levels.



New era of global public health partnerships

Collaborating for better health preparedness

Dr. Stephanie Allen, Dr. Randolph Gordon, Alison Muckle Egizi, John McInerney, and Dr. Elizabeth Baca

THE COVID-19 PANDEMIC has proven that infectious diseases cannot be stopped by geopolitical borders. An increasingly interconnected world heightens the risk of lightning-fast spread of pathogens regardless of oceans or national travel bans.¹ The silver lining, though, is that those interconnections can *also* link people, nations, and governments in ways that boost collective power to tackle global crises.

While international campaigns to advance health are hardly new—the Spanish government launched a smallpox vaccination effort in its American and Asian territories in the early 19th century—COVID-19 has sparked an unprecedented joint commitment among nations to build common resilience against future pandemics.²

Trend drivers

- **Stretched government funding has driven new strategic partnerships** between the private sector and government for things such as global vaccine supply chains and health equity initiatives, as well as greater collaboration between health and other government agencies (such as education and transportation).
- **Greater international collaboration** is leading to collective action to address cross-border health risks.³
- **Rapid advances in emerging technologies** and data-sharing capabilities are helping governments share critical information and promising practices.

- **Climate change entails significant repercussions for public health**, and mitigating the risks will require collaborative efforts, especially in less-developed countries.

Trend in action

Robust international partnerships to build pandemic preparedness are coalescing and becoming stronger; more governments are working with the United Nations, the World Bank, the World Health Organization (WHO), and other organizations on the issue.⁴

Collaborative efforts are underway to:

- Create early warning systems to identify and assess the risk of disease outbreaks
- Accelerate innovative research for disease prevention, treatment, and management
- Ensure equitable health outcomes across the globe

EARLY WARNING SYSTEMS FOR EMERGING INFECTIOUS DISEASES

Every emerging disease differs in terms of its communicability, severity, and genetic makeup. Public health officials need rapid, credible information to understand these characteristics before they can tailor an effective response.

The rapid spread of COVID-19 illustrates the importance of a *global* early warning system with broad international participation to rapidly identify potential outbreaks, forecast risk levels, and guide prevention and containment strategies. The current system, to the extent it exists at all, has a distressing number of weaknesses. Some nations are investing in sophisticated surveillance mechanisms for emerging diseases, but many others are far behind.⁵

Collaboration among nations and international organizations can close some of these gaps, particularly in data-sharing.⁶ WHO's Epidemic Intelligence from Open Sources (EIOS) initiative,

formalized in 2017, is building a global community of public health stakeholders from nations and international organizations to share ideas, expertise, and promising practices for facilitating early threat detection.⁷ Building on the EIOS initiative, in September 2021 the WHO launched its Hub for Pandemic and Epidemic Intelligence, which will facilitate international collaboration and knowledge-sharing through networks augmented by artificial intelligence-based solutions.⁸

Such systems are giving public health leaders a faster and deeper understanding of new viruses. Recently founded collaborative genome sequencing networks—one operated by Brazil, Russia, India, and China and another by the US Centers for Disease Control and Prevention and the United Kingdom's Health Security Agency—will help researchers detect dangerous variants and foresee outbreaks.⁹

Another international priority for governments is the containment of zoonotic diseases—diseases that can be transmitted from animals to humans. Zoonotic diseases account for more than half of all emerging infectious diseases.¹⁰ Also, the growing interdependencies between planetary health and human health pose a concern. How humans treat the planet for their own benefit holds long-term implications for human health and well-being.

Governments and international organizations are shifting toward a “one health” approach that highlights the interconnectedness between human, animal, and environmental health. As a result, global leaders are actively discussing the establishment of comprehensive surveillance and monitoring systems to screen for disease-causing viruses in animals. In early 2021, multiple international organizations including the WHO and the Food and Agriculture Organization (FAO) came together to launch a One Health High-Level Expert Panel for providing guidance to partners and supporting evidence-based decision-making on matters related to One Health.¹¹

One Health programs and plans across the globe



Americas

United States

The US CDC's **One Health Office** promotes the One Health concept domestically and around the globe.

EMEA

Africa

Africa **Centres for Disease Control and Prevention** follows a One Health approach to address public health issues in the region.

Denmark

Denmark's **Statens Serum Institut** uses a One Health mindset to ensure preparedness against infectious diseases and biological threats.

Europe

The **One Health European Joint Programme** is a collaboration between 44 partners across 22 member states.

Ireland

In 2021, the Irish government revised its **One Health Action Plan**, newly focused on fighting antimicrobial resistance.

Tanzania

The Tanzania government's **One Health Coordination Desk** aims to minimize health risks arising from animal-human-environment interfacing.

United Kingdom

The **UK Animal and Plant Health Agency** works on multiple themes relevant to One Health, including antimicrobial resistance, zoonoses, and emerging threats.

Asia-Pacific

Australia

In 2021, the Australian government released the **One Health Master Action Plan** to combat antimicrobial resistance.

India

The government of India launched a multi-organization **One Health consortium** in 2021 to enhance surveillance of emerging diseases.

Vietnam

The Vietnamese government launched the second phase of the **One Health Partnership** framework in March 2021, to minimize the risk of zoonotic diseases spreading.

ACCELERATING SCIENTIFIC RESEARCH AND DEVELOPMENT

The arrival of COVID-19 spurred unprecedented innovation worldwide to develop novel technologies, treatments, and vaccines. Nations rushed to share genome sequencing data and information to rapidly put in place countermeasures, including diagnostic tests and vaccines. Governments took steps to speed up the mass production of vaccines, making significant research and development (R&D) investments and absorbing some risks associated with the process.¹²

The crisis and the response to it have illustrated the importance of moving from the traditional step-by-step model for R&D to an agile approach that can both shorten time to market and expand the scale of production. Global initiatives are building upon the remarkable speed of innovation in response to COVID-19 by accelerating rapid response solutions for future health threats.

In March 2021, for instance, the global Coalition for Epidemic Preparedness Innovations (CEPI) laid out a five-year, US\$3.5 billion plan for the entire life cycle of pandemic preparedness, including the “moonshot” objective of developing and authorizing vaccines in 100 days.¹³

A United Kingdom–led pandemic preparedness partnership, affirmed by the G7 Carbis Bay Declaration in June 2021, also has called for vaccine development within 100 days, as well as accelerated development and deployment of diagnostics and therapeutics.¹⁴

Clinical trials represent another area in which international partnerships can expedite critical and life-saving treatments. WHO’s Solidarity Clinical Trial is an international collaboration among 600 hospitals in more than 50 countries to rapidly identify treatments for COVID-19; its goal is to simplify and accelerate trial procedures and minimize paperwork for patient enrollment, while also encouraging local researchers to contribute

their expertise.¹⁵ In a similar vein, regional collaboratives for clinical trials, such as the European Research and Preparedness Network for Pandemics and Emerging Infectious Diseases, are building adaptive platforms that allow researchers to study multiple therapies simultaneously—and quickly eliminate unsafe or unpromising interventions.¹⁶

ENSURING EQUITABLE OUTCOMES

While the pandemic has facilitated novel and innovative international partnerships, it has also exposed inequities.¹⁷ The distribution of COVID-19 vaccines and therapeutics was starkly unequal. High-income and developed countries managed to procure a significant chunk of supplies early on, while low-income nations and regions continue to struggle with insufficient support from scientific and manufacturing companies. This highlights the need to close widening disparities in global health resources.¹⁸

With increasing recognition that “no country is safe unless all countries are safe,” governments and multinational organizations are starting to mobilize their resources to build pandemic response capacity in low-resource settings.¹⁹ For example, apart from the UN-backed Access to COVID-19 Tools Accelerator (see the sidebar, “The ACT Accelerator: A coalition for global vaccine equity”), the Quad Vaccine Partnership between the United States, Japan, Australia, and India aims to expand COVID-19 vaccine manufacturing capabilities in the Indo-Pacific region, drive community engagement, and counter vaccine misinformation.²⁰

African nations’ relative lack of scientific and manufacturing infrastructure has hindered their efforts to supply and distribute COVID-19 vaccines. However, some countries have looked to ramp up capacity. One large, multipartner initiative aims to reduce Senegal’s dependence on vaccine imports by boosting local manufacturing capabilities. The European Commission and

public entities from Germany, France, and the United States are working with Senegal’s biomedical research center, Institut Pasteur de Dakar, to create a new production facility.²¹ Also, WHO has joined a South African consortium and other partners to establish a technology transfer hub for mRNA vaccines in South Africa. Such initiatives could help countries become self-reliant, but much will depend on the willingness of mRNA manufacturers to share their technology and expertise.²²

In addition to strengthening infrastructure, global collaboratives are also working to bolster clinical trial capacity in lower and middle income countries. The nonprofit, International AIDS Vaccine Initiative, drawing on funding from a wide range of European and African countries and CEPI, is moving toward the next stage of clinical trials for a vaccine for Lassa fever, which is endemic in West Africa.²³

THE ACT ACCELERATOR: A COALITION FOR GLOBAL VACCINE EQUITY

Launched in April 2020, the ACT Accelerator is a unique global coalition among governments, scientists, businesses, philanthropists, and global health organizations with the goal of furthering the development, production, and equitable distribution of COVID-19 tests, treatments, and vaccines.

By following a decentralized, agile, and target-driven approach (see figure 1), the coalition has delivered tangible results for low- and middle-income countries, buying millions of therapeutic doses, strengthening supply chains, procuring more than 140 million COVID-19 tests, and training more than 42,000 health care workers to administer them.²⁴

figure 1
The four pillars of the ACT Accelerator

Pillar	Purpose	Co-conveners
Diagnostics	Identify, develop, and deliver new and high-quality diagnostics and carry out testing in low- and middle-income nations	Foundation for Innovative New Diagnostics; WHO; Global Fund to Fight AIDS, Tuberculosis, and Malaria
Therapeutics	Drive research, development, and distribution of treatment and prevention tools	The Wellcome Trust; Unitaid; WHO
Vaccines	Scale delivery of vaccines to high-risk populations while supporting R&D to address new and emerging COVID-19 variants	Coalition for Epidemic Preparedness Innovations; Gavi; WHO
Health systems	Strengthen health systems by identifying and resolving bottlenecks across countries to ensure scaling of COVID-19 tools for communities in need	Global Fund; World Bank; WHO

Sources: World Health Organization, “What is the Access to COVID-19 Tools (ACT) Accelerator, how is structured and how does it work?”, April 2021; United Nations.

Many challenges remain, however. As of January 2022, approximately only 9.5% of people in low-income countries had received at least one vaccine dose.²⁵ As a result, the ACT Accelerator is seeking further funding to accomplish its goals—and is doubling down on its efforts to reduce widening inequalities by working with national health systems throughout the “lab-to-jab” cycle.

Moving forward

Building on the unprecedented collaborative momentum in response to the COVID-19 pandemic, agencies can leverage the following five tactics to foster durable global partnerships.

1. **Clearly describe what a global coalition can achieve that a single organization cannot.** Prepare a strategy describing how an international collaboration could add value, whether by sharing information, exchanging promising practices, or building capacity in low-resource settings. Create a road map for potential problems concerning infrastructure, culture, political ideologies, or technological difficulties, which can impede rapid progress.
2. **Identify partners and define the partnership structure.** Pick partners who can help create useful synergies. Determine an organizational structure, whether it involves a physical center, a network, or a consortium of institutions. Create an appropriate governance structure for the partnership. If it is a nonprofit, it can be autonomous; if it crosses national borders, it may call for collective oversight.
3. **Develop a robust communications strategy.** Coordinate and collaborate with local governments to ensure consistency in global messaging to help counter misinformation. Develop a special communications unit to tailor health campaigns for audiences in different nations.
4. **Prioritize health inclusion.** Create a special unit to ensure the equitable distribution of treatments, tests, and vaccines in less-developed countries. The unit should also focus on steering the partnership toward opportunities to enhance health infrastructure and local manufacturing capabilities in low-resource nations.
5. **Monitor and assess the impact.** Identify the key metrics needed to assess the performance of the collaboration. Take timely measures to address any roadblocks, especially during a global emergency.

MY TAKE

Keith Cloete, head, Western Cape Department of Health

Data-driven surveillance capabilities in the Western Cape Public Health System

Over the last two decades, the Western Cape Department of Health has taken significant measures to reform the Public Health System. One of them includes establishing the Provincial Health Data Center (PHDC), a partnership with the University of Cape Town, with additional funding from the Bill and Melinda Gates Foundation. The PHDC integrates person-level clinical data from health institutions across the province, and from multiple sources of individual patient data. It tracks all the data for an individual through a unique identifier and enables a single view for each patient.

During COVID-19, the PHDC enhanced our surveillance strategies. It allowed us to gather real-time data and information on the number of laboratory tests and those who tested positive. We could use the system to check whether an infected individual had a history of comorbidities, including diabetes, tuberculosis, or HIV. Within weeks, we were able to set up a public dashboard that provided daily information on the number of infected individuals, hospitalizations, and deaths.

Moreover, the person-level data allowed us to build population-level views of active cases, hospitalizations, and deaths. For instance, local health care teams used the platform to track real-time, consolidated views of the active cases, hospitalizations, and deaths in their respective geographic areas. They conducted contact tracing and developed appropriate data-led containment strategies to flatten the COVID-19 curve, through a Whole of Society Approach, in each geographic area. The teams also developed appropriate containment strategies for people with higher risks for severe disease, through data-led targeted interventions (e.g., through telemedicine strategies aimed at diabetics). Later, the system was used to track the impact of COVID-19 immunizations on the prevalence of new infections, hospitalizations, and deaths.

Surveillance has been a central piece of our COVID-19 strategy. It's now being used to address other health problems, including tuberculosis, violence, and mental health.

MY TAKE



Kelly McCain, head, Health and Healthcare Initiatives, World Economic Forum

Collaborating for evidence-based public health decisions

The COVID-19 pandemic has energized partnerships across the globe: More and more, stakeholders embrace the notion that public health is everybody's business. The private sector, governments, and philanthropic organizations are working together in new ways—and planning their work over a longer time horizon. What's more, new collaborations extend outside the health sector to include ministries of transportation, education, and others. The World Economic Forum, with our global community of stakeholders, works across sectors to facilitate, accelerate, and scale partnerships in support of public health.

Recently, global collaboratives have aided nations as they decide on how to adapt COVID-19 mitigation tactics for different contexts. For instance, a complete lockdown may be impractical if many workers make their earnings outside the home. Similarly, washing one's hands can be difficult in places with poor sanitation. In fact, many low- and middle-income nations suffered secondary adverse consequences of the virus, including income loss, malnutrition, and broader disruption in access to routine healthcare.

Aiming to prevent such impacts in Africa early during the pandemic, the forum facilitated a coalition of the Africa CDC, the WHO, Resolve to Save Lives, a non-profit organization, and Ipsos, and a market research company, along with others with deep expertise in the public health response space, known as the Partnership for Evidence-Based Response to COVID-19. The coalition worked to synthesize and interpret social, economic, epidemiological, population movement, and security data to better determine the acceptability, impact, and effectiveness of COVID mitigation tactics.

Using this data, the collaboration translated findings into actionable guidance on what was (and was not) working on the ground for African Union (AU) member states for operational strategy, planning, and public health response.

Each partner in the collaborative offered a unique advantage to the group, creating a sense of shared value. The forum convened partners with complementary skills and expertise and brought the effort to scale. In December 2021, the collaboration released its fourth and final report summarizing key trends across surveyed AU Member States, and highlighted paths forward.

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About the authors

Dr. Stephanie Allen | steallen@deloitte.com.au

Dr. Stephanie Allen is the Deloitte Global health care leader, and also leads the Health & Human Services practice for Australia. As a consulting partner, she has more than 25 years of extensive experience in health care in both the United Kingdom and Australia. She has worked closely with eminent health and research institutions on complex planning, clinical, financial, and operational transformation programs, and on large-scale technology implementations.

Dr. Randolph Gordon | ragordon@deloitte.com

Dr. Randolph Gordon's career has focused on improving health outcomes and a population's health, having served as a practicing primary care physician, the health commissioner for the Commonwealth of Virginia, associate director of PHPPO at CDC, and county health officer and chief medical officer of Bon Secours in Richmond. Currently, he serves as a senior physician consultant at Deloitte, where he advises the firm, health care providers, and public health agencies on the impact of COVID-19.

Alison Muckle Egzi | amuckle@deloitte.com

Alison Muckle Egzi is the Government Health Policy Research lead for the Deloitte Center for Government Insights. Egzi conducts research and thought leadership to address key health policy issues facing federal and state agencies. She brings 15 years of research experience working with government, academia, and nonprofits, and she has supported federal health agencies with program evaluation, technology innovation, and demonstration projects, and helped advance a vision for health system transformation.

John McInerney | jomcinerney@deloitte.com

John McInerney is the manager of health research at the Deloitte Center for Government Insights and a specialist master in the Government & Public Services (GPS) practice. McInerney has almost 20 years of Medicaid, CHIP, managed care, and health financing experience at both the state and federal levels. He has worked on most major health reform initiatives over the past few decades, including the Affordable Care Act (ACA), Medicare Modernization Act, and the Children's Health Insurance Program Reauthorization Act. McInerney assists Deloitte's state clients as a policy adviser on issues around Medicaid reform and the ACA.

Dr. Elizabeth Baca | ebaca@deloitte.com

Dr. Elizabeth Baca serves in several national and global advisory roles, providing systems thinking that supports care delivery innovation and fosters total health and well-being, while recognizing health equity and sustainability are central to this work. Previously, she served on the General Pediatric Faculty at Stanford Medical School and directed the Community Pediatric and Child Advocacy Rotation, and has served in both administrations of California Governors Brown and Newsom. Baca studied health policy at Universidad Simon Bolivar in Venezuela and completed her MPA at Harvard Kennedy School of Government and her Doctorate of Medicine at Harvard Medical School.



Digital access for all

Equity in digital service delivery

Michele Causey, Mahesh Kelkar, Arindam Guha, and Mohamed Malouche

THE COVID-19 PANDEMIC accelerated the shift to digital government as doctors' appointments, school lessons, and employment services, all hurriedly moved online. The move eased access for many—but made things much more difficult for others and, in fact, highlighted how deep-rooted the digital divide was and how unprepared we were to bridge it.

Schools moved online, but often, students without home internet access or their own tablets or computers were unable to access classes. Hospitals and clinics set up telehealth services, but those who lacked reliable internet connections or were unfamiliar with various website interfaces struggled to make appointments. Ensuring universal digital connectivity is just one part of the digital equity challenge.

Rickety infrastructure is another contributor. As public agencies moved to digital service delivery, constituents faced outages and difficulties tracking

their applications and uploading documents and rejections due to incomplete forms. While some services and processes were already set up as digital-first, many were constructed in an analog era, with online options added as an afterthought. Unprepared online environments were suddenly forced to handle a torrent of users. The traffic on some government websites, such as unemployment benefits portals, increased exponentially in early 2020; many systems—and the staff who operated them—were unable to keep up.¹

Many government agencies are now aggressively trying to catch up.

But after nearly two years of trying to patch together online systems and communicate more effectively with constituents, government leaders are all too aware that even the best-in-class digital platforms cannot ensure equitable and inclusive access to services. Complicated processes and policies, antiquated systems, and inconsistent

requirements—which legal scholar and government-systems specialist, Cass Sunstein, calls *sludge*—continue to pose hurdles. These challenges include lengthy wait times, multiple application requirements, and confusing rules, which often impart hardships on the most disadvantaged populations.²

The strain of the pandemic revealed that many so-called digital government services were merely inferior online replicas of physical services. For instance, the US Temporary Assistance for Needy Families program has long allowed online applications, but even now, many states don't allow applicants to update information or track their application status online.³

Governments need to relook at digitization through an equity lens to build the “digital access for all” landscape that they are aspiring to in the postpandemic world. It includes improving broader access to digital connectivity, applying human-centered design approaches to both digital and in-person environments, and developing robust digital and data infrastructure to ensure smoother operations.

Trend drivers

- **Digital acceleration:** The pandemic prompted a quantum leap into online and digital environments, which is likely to become the new normal.
- **The broader equity debate:** The long-simmering debate over diversity, equity, and inclusion is refocusing government energy on building equitable and accessible services for constituents.
- **An evolving design mindset:** The shift to “digital-first” requires extensive improvements in service design.

Trend in action

The Netflix series *Maid*, based on Stephanie Land's memoir, opened many viewers' eyes to the problem of administrative challenges.⁴ It's the story of 29-year-old Alex and her two-year-old daughter; she's trying to flee an abusive relationship while navigating a labyrinth of government social care systems and processes.

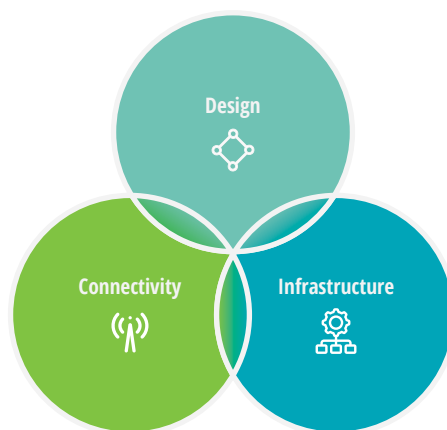
Governments need to relook at digitization through an equity lens to build the “digital access for all” landscape that they are aspiring to in the postpandemic world.

Many of those accustomed to frustrating interactions with government systems found the series uncomfortably familiar.⁵ Alex needs to show proof of income to be approved for day care vouchers but has nowhere to temporarily place her daughter if she wants to take a job. A housing voucher requires a landlord to approve and accept it.⁶ Government systems, however well-meaning, often saddle users with cumbersome burdens—and many pandemic-era constituents can communicate with systems and representatives only by smartphone.

Universal digital access is impossible without universal digital connectivity, improved design of digital services, and a robust and flexible digital infrastructure (figure 1).

FIGURE 1

Improving digital access



Source: Deloitte analysis.

EQUITABLE DIGITAL CONNECTIVITY

Around the globe, governments are making big strides toward plugging the accessibility gap, primarily by ramping up investments in connectivity infrastructure. They are making large investments in fiber networks, creating free public Wi-Fi zones, rethinking spectrum policy and pricing, and funding digital literacy programs⁷ (read more in “[Closing the digital divide](#)”⁸).

The US Congress recently passed the US\$1 trillion Infrastructure Investment and Jobs Act to boost public infrastructure spending (see figure 2), including a US\$65-billion broadband expansion focusing on digital equity, rural broadband, middle-mile infrastructure, and affordability.⁹

Seattle has led significant efforts toward technology access and adoption. In 2017, the city began providing grants to nonprofits for digital literacy skills training programs, affordable devices, and low-cost internet options.¹⁰ In 2021, it funded 15 projects with a total of US\$480,000, including a

technology loan program for older adults and laptop donations to underserved communities.¹¹

Rural areas represent a particularly difficult challenge for reliable high-speed internet. In 2012,¹² India launched a National Optical Fiber Network project to connect 250,000 villages, ensuring a minimum speed of 100 megabits per second (Mbps), at an estimated expense of US\$8.24 billion. More than 180,000 villages have been covered so far.¹³

Since it often makes little economic sense for private internet service providers to build infrastructure in rural markets, agencies and nonprofits are working to establish decentralized, community-driven networks. In Uganda, for example, the nonprofit Battery-Operated System for Community Outreach (BOSCO) converts bandwidth from fiber optics to wireless and transmits it through a small network of 13 towers to rural communities up to 90 kilometers away, powering its equipment with solar energy. BOSCO operates 55 community centers, serving nearly 60,000 residents.¹⁴

FIGURE 2

New US Federal funding for broadband

Dramatic increase in federal spending on broadband with the passage of the Infrastructure Investment and Jobs Act



Source: John Cassidy et al., *Closing the digital divide: How states can expand broadband access*, Deloitte, December 1, 2021.

Such innovations, as well as wireless technologies such as satellite-based internet, can improve access in hard-to-reach geographical areas. In 2020, the nonprofit Internet Society reported more than two dozen new and existing community networks around the world in regions including Argentina, the Galapagos Islands, Ethiopia, Georgia, Ghana, Nigeria, Uganda, and Zimbabwe.¹⁵ Governments realize rural connectivity is a priority, but there is still more to do in this area.

DESIGNING SERVICES FOR EQUITABLE ACCESS

Many government processes seem to be designed for their operators' ease of use rather than for constituents'. This is not surprising, as staffers interact with the systems daily, while users pop in

only occasionally—to file for unemployment insurance or apply for a passport, for instance.¹⁶ But, as the UK National Health Service website lead designer, Dean Vipond, says, "Working at speed is no excuse for cutting corners with usability and accessibility of a project."¹⁷ Making these services truly *user-friendly*—particularly for those who lack digital literacy or high-speed access—requires a dramatic shift in service design.¹⁸

Consider the United States' Earned Income Tax Credit (EITC) program. For nearly 50 years, it has been a particularly effective antipoverty program, lifting nearly 5.6 million people out of poverty in 2018 alone. But more than a fifth of eligible taxpayers failed to file EITC claims in 2018; most of them belonged to low-income, less-educated, and non-English-speaking households.¹⁹

The IRS has altered the program many times over the years to make it easier for taxpayers to use, but millions who could claim the credit still haven't. To identify hindrances to usage, New America's New Practice Lab partnered with the New York Department of Taxation and Finance. Using human-centered design principles, they identified barriers such as limited knowledge of the credit, a high dependency on tax prep software or professionals, and the perception that inquiries from the IRS could constitute an audit. The New Practice Lab suggested simple tweaks: add clear language in communications with recipients, improve the formatting and fonts used in forms, customize letters for various taxpayer groups, and offer forms in more locally spoken languages.²⁰

Australia's Queensland government has created a plethora of human-centered design toolkits and resources for agencies, including guides for in-depth interviews, concept cards, and customer journey map templates.²¹ This journey-mapping tool helped the Department of Housing and Public Works visually map services—such as computers, meeting rooms, and children's play areas—that a public housing office should provide.²² In addition, the Customer and Digital Group within Queensland's Department of Communities, Housing and Digital Economy offers Queensland employees a free, two-day workshop on human-centered design.²³

DIGITAL INFRASTRUCTURE THAT SUPPORTS BROAD ACCESS

Governments are also looking to improve access by transforming back-end operations and associated digital infrastructure. A unique digital ID system (see the sidebar, "India's Aadhaar digital ecosystem"), for instance, can integrate client information across dozens of government systems. This, along with data-sharing, can reduce administrative challenges and enable the "once only" principle of human-centered design, where citizens and businesses need to provide

information just *once* to access multiple government services.

Germany's Refugee Digitization System, launched in 2016 to handle the arrival of more than a million refugees, collects relevant data (along with fingerprints as a legal identifier) at the first contact with a state agency and stores it in a central system. This system enables access to multiple services across government agencies, including housing, food assistance, and health care.²⁴

Moving forward

- **Begin with equity impact assessments (EIAs)**, which examine how policies and processes disenfranchise and discriminate against particular groups or communities. They can also be used to assess implicit and explicit biases in government programs.
- **Develop a design mindset.** Service design and empathetic, human-centered design should be an important part of creating new services or reimagining existing ones. Agencies should develop these skills within their teams to understand user challenges and remove roadblocks to access.
- **Promote community engagement.** Obtain the input of stakeholders representing marginalized and underserved communities. Develop strategies to promote inclusive community engagement and pilot their use among select departments: service, infrastructure, and planning.³⁰
- **Use an omnichannel approach to ensure digital equity.** Government leaders can improve digital access by focusing on availability, affordability, and adoption, but digital-first doesn't mean digital-*only*—leaders should also consider how services can be delivered offline or in-person.

INDIA'S AADHAAR DIGITAL ECOSYSTEM

The Unique Identity Authority of India (UIDAI) illustrates how national governments can boost equity and inclusion. India launched the program—commonly known as *Aadhaar*, meaning *support*—in 2008, to provide each Indian citizen with “a digital identity that is unique, universal, portable, and easily authenticable,” according to UIDAI’s CEO, Saurabh Garg.²⁵ The logic was simple: If citizens can prove their identities easily and safely, they face fewer complications in accessing government services.

The program is also intended to curb the growth of waste and fraud. In 2008, for example, more than a third of all grain earmarked for poor households was sold elsewhere; identification and delivery errors—both inadvertent and deliberate—waylaid 58% of grain shipments.²⁶ Fake identities plagued nearly every government welfare program.

At the time, India had overlapping identity systems for passports, voting, and tax, but none covered more than half of the population. Aadhaar, by contrast, provides every citizen with a unique, 12-digit identification number and authenticates their identities with fingerprints or iris scans. The program, now linked to hundreds of federal and state government programs, has enrolled 99.5% of all Indian adults. Those lacking digital access or literacy can use their Aadhaar IDs via a QR code, a downloaded XML file, mobile app, a physical card, or a printout.

Aadhaar has also transformed financial inclusion by linking to hundreds of millions of “Jan Dhan” bank accounts intended for low-income users. “Inclusion is a very basic fundamental principle for the Aadhaar program,” Garg says. “The digital identity should be universal, free of discrimination, and remove barriers to access and use.”²⁷ During the pandemic, the Central Government used Jan Dhan accounts to securely transfer cash to constituents.²⁸

To further improve access to these funds, the National Payments Corporation of India, an organization led by India’s central bank, the Reserve Bank of India, joined with the Indian Banks’ Association to create an Aadhaar-enabled payment platform. This has allowed banks to install 5 million micro-ATMs in rural areas without brick-and-mortar bank branches. These devices allow account holders to withdraw cash from their Jan Dhan accounts using fingerprints for authentication.

What’s next? The government plans to provide Jan Dhan account holders access to microlending, investment, and insurance products. “Credit is really the basis of economic growth,” Garg says. “The Aadhaar ecosystem provides the basic digital infrastructure, and now the banks and other financial institutions have to leverage it.”²⁹

MY TAKE

Rachel Hope, deputy director
at the UK Department for
Education

Closing the digital divide needs sustainable, long-term investment and a clear mission

The pandemic had an unprecedented effect on children's education, with nationwide school closures from March 2020 and again in January 2021 as well as periods of self-isolation resulting in many children learning from home for months. This disruption was felt disproportionately by pupils from disadvantaged families with less access to devices (laptops, tablets, or a computer), the internet, or a suitable home-learning environment.

In the Department for Education, we delivered more than 1.7 million laptops and tablets to disadvantaged children. We provided 4G routers and partnered with mobile network operators to provide free data allowances and set up nearly 6,000 schools on Google or Microsoft education platforms for remote and blended learning. We funded a network of "demonstrator" schools and colleges to support others in using technology effectively and to provide advice on remote teaching.

The Get Help with Technology program was a welcome rapid injection of support alongside many great local initiatives.

But what comes next?

Technology can have benefits inside and outside the classroom. In education, it's about how school and college leaders use technology to save time, access the best curriculum content available, target learning interventions at vulnerable or disadvantaged pupils, support inclusion, communicate and engage with parents, and, ultimately, realize the potential of every child and learner. When applied with skill, technology offers huge opportunities for the educational sector, but it hasn't been universally embraced.

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About the authors

Michele Causey | michelecausey@deloitte.com

Michele Causey is the leader of Digital Government Transformation for Deloitte's US-based Government Public Services sector, driving service delivery across government that elevates the human experience with intuitive and equitable solutions. As a former member of the US Federal Senior Executive Service, she has a deep awareness of the challenges and opportunities facing decision-makers across government. She brings strategy, customer experience, technology, and innovation skill sets built over her 20+ year career leading digital transformation initiatives in the public and private sectors.

Mahesh Kelkar | mkelkar@deloitte.com

Mahesh Kelkar is the smart cities research leader for the Deloitte Center for Government Insights. His research focuses on understanding the impact of technology, innovation, and policy on the future of cities. He closely tracks the federal and state government sectors and focuses on conducting in-depth research on the intersection of technology with government operations, policy, and decision-making.

Arindam Guha | aguha@deloitte.com

Arindam Guha leads the Government & Public Services practice for Deloitte in India. He has over 27 years of experience and focuses on economic growth, government policy and service delivery reforms, and infrastructure advisory including innovative public-private partnership arrangements. In addition to supporting various Ministries in the Government of India and multiple State Governments, Guha has also advised several bilateral and multilateral development agencies. He has worked across sectors/areas including cities and urbanization, agribusiness, health, education and skills, and MSME development. In addition to India, he has worked on engagements in China, Singapore, Russia, Malaysia, Singapore, Bangladesh, Nepal, Bhutan, Maldives, etc.

Mohamed Malouche | MoMalouche@deloitte.tn

Mohamed Malouche is a partner in Deloitte Afrique, the business leader of the public service/donor practice, and responsible for activities related to the modernization of the public sector in Francophone Africa. He has more than 20 years of experience (including 13 at Deloitte Consulting US) in the implementation of public transformation programs, particularly in governance, country competitiveness, digital transformation, institutional capacity-building, support for economic development actors, and entrepreneurial ecosystem-strengthening.



Designing for inclusive engagement

Digital communications for richer community connection

Adithi Pandit, Joe Mariani, Courtney Keene, Shuichi Kuroishi, and Mahesh Kelkar

WHILE IT MAY be hard for many of us to imagine a time without the internet, the history of digital government is surprisingly brief. In the United States, for example, interested staff at many federal agencies created the federal government's first websites in the 1990s, resulting in a haphazard patchwork of sites and domains. No one even knew how many of these web pages existed until the first federal government-wide search application, USA.gov, launched in September 2000.¹

In just a few more years, the advent of social media further revolutionized our consumption of digital information. Advances in artificial intelligence and natural language processing soon followed. The past two decades have seen a revolution in the ways in which governments can communicate with and gather feedback from the communities they serve.

Despite some trailblazers, however, government agencies' adoption of new communication techniques has been uneven. Deloitte's own research suggests that only 26% of global government leaders have deployed natural language processing tools such as chatbots.² Uncertain benefits, development and deployment costs, and cultural inertia have limited agencies' ability to employ the full spectrum of engagement tools now available.

During the pandemic, communication and engagement with communities has become an all-important task. Some communities, especially disadvantaged and at-risk ones, were disproportionately impacted by the economic distress of the pandemic. Increased online misinformation, information warfare, and lack of trusted information sources made the government's

ability to cut through the noise and deliver accurate, important messages to the people crucial to success.

As we enter the pandemic's third year, most governments acknowledge the need to do more to engage with communities and become a trusted source of information. Governments are embracing new digital tools and platforms to develop more targeted and inclusive engagement with communities. At the same time, they are trying to plug the digital divide and improve digital access to ensure that the shift toward digital engagement methods doesn't leave out certain communities (read more on this in the trends report, *Digital access for all*).

The challenge government leaders now face is choosing the right set of new tools and practices that can improve engagement with communities without leaving behind disadvantaged groups already struggling to keep up with an increasingly digital world. To solve that challenge, government organizations are exploring not only tools, but new ideas and even new approaches to building trust with communities.

Trend drivers

- **New platforms for communication and engagement**, such as social media, have been adopted rapidly around the world. In 2021, nearly 60% of the world's population were social media users—4.5 billion out of 7.8 billion people.³
- New technologies have created **entirely new forms of engagement**. Tools such as chatbots and virtual personal assistants have become widespread. Approaches such as “microtargeting” have become more affordable and feasible. However, this has also led to overwhelming volumes of mis/disinformation.
- The pandemic has exposed the critical need to **communicate with, gather input from, and build trust with communities**.

Trend in action

Technologies such as chatbots or social media are not new, but the pandemic exposed a glaring need for effective engagement. Leaders had to make quick and meaningful connections with a diverse array of communities, especially, disadvantaged communities experiencing the biggest impact of the pandemic. In such an environment, it was no longer enough to simply post press releases; government agencies had to *understand* their communities' information needs and the channels they prefer.

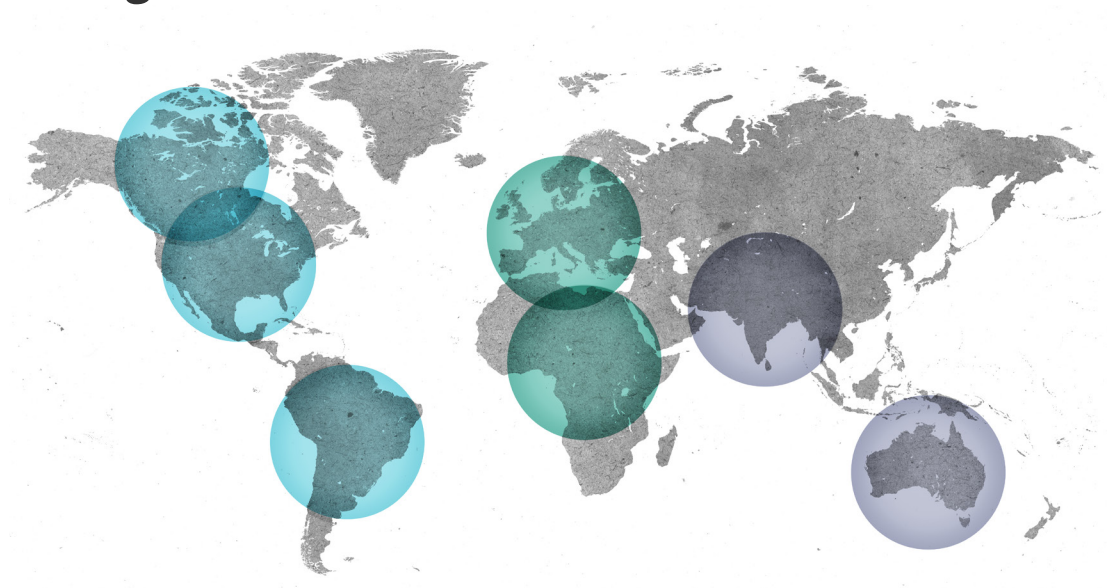
The intersection of available tools and sudden need due to the pandemic led government organizations to test a wide variety of new methods. These strategies can be categorized by how governments used them: to *inform, gather input from, or build trust* with communities.

CONNECTING WITH COMMUNITIES

The most basic type of government communication is to *inform*: give the public useful information on topics of concern, whether it is school performance or COVID-19 testing sites. Such data can help residents understand their problems and think about possible solutions. But this information can also be difficult to understand, effectively excluding those without the background needed to interpret it. To tackle this issue, some cities have experimented with *community data dialogues*, one-day events to share information with residents in easy, digestible formats. Data Days Cleveland, launched in Ohio in 2017, is one such example; the one-day event encourages citizen participation in open data forums.⁴

But engagement also includes *requesting input—or help—from community members*. During the pandemic, many governments used volunteer programs to support their efforts. At the start of COVID-19, for instance, the United Kingdom's National Health Service made a national call for volunteers to deliver food and medicine, drive

Innovative citizen engagement techniques during COVID-19



Americas

Brazil

Citizens use Brazil's [e-Cidadania online portal](#) to present ideas to the senate for fighting COVID-19.

British Columbia, Canada

British Columbia's [digital assistant \(chatbot\)](#) addresses COVID-19 queries from citizens and health workers.

Kansas City, United States

Kansas City's [virtual lunch-and-learns](#) have helped boost civic engagement.

EMEA

Rwanda, Africa

Rwanda's [Mbaza chatbot](#) provides citizens with critical COVID-19 information.

Barcelona, Spain

Barcelona's [Hackovid hackathon](#) collected ideas from programmers and developers responding to pandemic-related social needs.

Chile

Chile's [ChileAtiende portal](#) offers migrants information on COVID-19 and helps them file service requests.

Croatia

Croatia's [Andrija digital assistant](#) guides citizens through online health self-assessments.

Finland

Finland's series of "[Lockdown Dialogues](#)" has helped clarify COVID-19's impact on citizens' lives.

Ireland

Ireland's [COVIDMedBot](#) has provided free personalized risk assessments and guidelines during the pandemic.

Israel

Israel launched [CoronApp](#) to offer public information on COVID-19 and its spread.

Asia-Pacific

Adelaide, Australia

Adelaide's online idea-sharing [Recover + Reimagine portal](#) has helped capture community ideas on postpandemic economic and social revival.

India

India's [MyGov Corona Helpdesk chatbot](#) provides official answers to citizens' COVID-19 queries.

people home from appointments, and make phone calls to ease patients' sense of isolation; within hours, more than 500,000 volunteers had signed up.⁵

Since the 1990s, the German Senior Citizens Office initiative has matched various opportunities with volunteers' skills.⁶ Today, Germany has 450 such offices and more than 30,000 volunteers who help encourage political participation, build intergenerational connections, and represent the interests of the elderly. For instance, volunteer groups helped older people fight loneliness during the pandemic by developing activities such as court concerts and balcony talks.⁷

Digital technologies allow government communicators to reach wider audiences, but *building trust* requires a deep understanding of human needs, so that communications can be tailored to each person's specific needs. When the nonprofit organization Public Good Projects (PGP) attempted to reduce unintended pregnancies among Black and Hispanic teenagers in Syracuse, New York, it didn't begin by creating a website or social media presence. Instead, it recruited local young women to discuss the challenges they encounter in finding information about reproductive health. After conducting focus-group discussions with more than 30 of them, PGP learned that participants preferred to consult a confidential, trusted "friend" for their questions. In collaboration with these participants, PGP codeveloped a chatbot from scratch, with participants weighing in on the chatbot's gender, appearance, and features as well as its name: Layla.⁸

LEARNING FROM COMMUNITIES

Government organizations need data to understand community issues and preferences. The wide reach of digital technologies can help here as well. During the pandemic, *digital participation platforms* were used to gather inputs usually obtained from face-to-face encounters such as town halls.

In 2018, Rueil-Malmaison, a community in the western suburbs of Paris, launched a participatory platform to give residents a greater voice in decision-making.⁹ During the pandemic, the city government used this platform to provide information and coordinate volunteer efforts, while local businesses offered information on online delivery options and citizens shared ideas on child activities and organized online events.¹⁰

Digital platforms also allow government to tap into the talents and expertise of citizens by *crowdsourcing ideas*, which has helped agencies in numerous ways—from identifying vulnerabilities in military computer networks to helping the Library of Congress decide which of its resources should be digitized.¹¹ At a broader level, the US federal government has launched CitizenScience.gov, a portal intended to improve public participation in the acceleration of innovation across varied areas.¹²

Although such platforms provide greater levels of engagement, they also come with their own set of challenges. One, this is not as simple as providing top-down information. Such platforms target eliciting a "dialogue" and that requires an equal commitment and engagement from the government workforce. There is also the challenge of protecting such platforms from malicious entities spamming or derailing consensus-building efforts.¹³

Moreover, direct engagement is especially important for members of marginalized and at-risk communities. In Spain, the city of Bilbao worked jointly with the community to protect vulnerable residents, especially the elderly. Municipal social services could be contacted if the citizens identified residents facing loneliness, difficulties in meeting basic needs, or lack of family or social support. Additionally, spaces like municipal sport halls were equipped with beds to care for the homeless, migrants, or lone minors, if required. The City Council also dialed more than 27,000 residents over 65 years to check their state

of health, mood, and enquire if they need any service from the local government.¹⁴

BUILDING TRUST WITH COMMUNITIES

Trust is the most basic factor in government-community relationships. If people don't trust an agency, they won't be receptive to its messages or share their views with it honestly. While individual people make decisions about trusting/mistrusting, those decisions can be strongly influenced by factors in their communities. For example, a growing *general* distrust of government institutions makes it hard to reach the right audiences, and in a highly partisan environment, the medium or messenger often becomes more important than the message.

Governments have been working through “[networks of trust](#)” to deliver and amplify government communication and engagement efforts.

To begin with, trust is impossible without trustworthy information. In the early days of the pandemic, when there was little reliable information, Taiwan faced a massive wave of online rumors and disinformation that could have derailed its efforts to respond to the virus.¹⁵ To try and get trustworthy information out quickly and make it as sticky as misinformation, it formed special creative teams in government ministries to make memes to challenge disinformation in a “humor over rumor” campaign.¹⁶

Combating untrustworthy information is a start, but agencies must also take steps to build trust. And few things yield better results than working with real people in the community. India's National Rural Health Mission, for example, created an all-female volunteer network, the Accredited Social Health Activist (ASHA), to respond to a variety of women's health issues ranging from prenatal care to immunizations. This 900,000 member-strong network acts as a bridge between public health institutions and various disadvantaged communities; during the pandemic, it provided rural populations with critical education about COVID-19's spread and the need for vaccination.¹⁷

For Alma McCormick of Messengers for Health, an outreach program on the Crow reservation in Montana, the key to building trust is meeting people where they are, not only geographically but also digitally, via social media and videos, and *emotionally*—by listening and offering words of comfort. The organization's trained “messengers” work in their own communities, where they're known and trusted. Whether it's producing social media posts about COVID-19 prevention in the Crow language or paying for a community member's travel to cancer treatment, it all begins with a basic human connection. “If your heart is in it, you can approach people in a manner where they can let their guard down ... then [you'll] see the behavior change you are looking for,” says McCormick.¹⁸ A similar community model has been used in New Zealand by working with Maori and Pacific community leaders to engage the Maori community on vaccination and COVID-19 safety.¹⁹

Moving forward

- Digital platforms are essential, but you need to **understand the nuances of both online and offline engagement**. Both should complement each other effectively.
- **Understand your audience's demographic and behavioral attributes**. This can help you segment population groups and customize communication and engagement methods.
- **Find ways to allow constituents to communicate with government and one another**. Government communications should not be a one-way street. Interactions between real people in government and within the community can help build dialogue and improve public participation in decision-making.
- **Use locally trusted individuals** to provide information concerning critical government programs.
- **Make sure you hear from as many constituents as possible**. Factors such as

difficulties with connectivity or trust can mean that important voices on an issue may not be the loudest or most frequent. Taking care to

include these voices can help make more well-rounded decisions.

MY TAKE



Dawn Yip, coordinating director, Singapore Partnerships Office, Ministry of Culture, Community, and Youth, Singapore



Nicholas Thomas, assistant director, Singapore Partnerships Office, Ministry of Culture, Community, and Youth, Singapore

Bringing citizens together to discuss their concerns and course of action

COVID-19 increased the need for innovative citizen engagement techniques. During the peak of the pandemic in June 2020, Singapore's government launched Emerging Stronger Conversations (ESC) for citizens to reflect on their pandemic experience, share their aspirations and ideas for Singapore emerging from the pandemic, and translate their concerns into action.

The ESC provided a safe and inclusive space for citizens to come together virtually in small groups, via an interactive digital platform to participate in facilitated conversations. Anyone could register and join these conversations virtually.

Between June and December 2020, 4,400 participants joined 88 ESC sessions and another 12,500 citizens participated in online surveys. We worked hard to draw in diverse participants in terms of gender, ethnicity, age, profession, and language preference. A special effort was made to reach out to people with disabilities.

Trained facilitators led the discussions, which were configured in both large and small groups. This ensured that citizens had the space and time to share their views and aspirations. The key component in these sessions was *listening*. Participants were asked three broad, open-ended questions:

a) Share your experience of the pandemic including the issues and challenges you faced, b) your aspiration(s) for Singapore emerging stronger from COVID-19, c) one action you can take to realize this aspiration.

The input gathered through these sessions and surveys was organized into 15 themes, including social support, jobs and the economy, technology, governance, health, and civic engagement. In February 2021, Singapore's government created a website to take stock of the conversations.

The ESCs are only the first step toward creating strong and sustained partnerships that can translate citizen engagement into action. To date, we've formed 30 Singapore Together Alliances for Action (AfAs), cross-sector collaborations assembling an ecosystem of citizens and representatives of the public and private sectors to address specific challenges. The AfAs are making steady progress on the key themes that emerged from the ESCs, such as a mentoring alliance that provides mentoring opportunities to help our youths navigate educational, career, and life transitions.

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About the authors

Adithi Pandit | apandit@deloitte.co.nz

Adithi Pandit is the social sector and social impact practice leader in New Zealand, and sits on the Deloitte New Zealand Board; she is also an Asia Pacific Consulting executive. She has advised and delivered large-scale transformation work in the public sector, across child care and protection, social housing, welfare, and local government. Her passion is bringing together individuals and organizations to address “wicked problems” at multiple levels: changing systems to transform outcomes, redesigning services to be simpler and community-led, and shifting mindsets to focus on sustainable innovation and impact.

Joe Mariani | jmariani@deloitte.com

Joe Mariani is the Emerging Technologies research leader at Deloitte’s Center for Government Insights. His research focuses on innovation and technology adoption for both national security organizations and commercial businesses. His previous work includes experience as a consultant to the defense and intelligence industries, high school science teacher, and Marine Corps intelligence officer.

Courtney Keene | ckeene@deloitte.com

Courtney Keene, a manager with Deloitte Consulting LLP, has 14 years of domestic and international experience in strategic transformation, organizational capacity strengthening, and project management, with a focus on promoting inclusive economic growth. She has worked with global organizations including USAID, the US Department of State, and the World Bank supporting strategic change initiatives and program implementation. Courtney has worked in Jordan, Senegal, Ghana, Kenya, Tanzania, and Tunisia to promote sustainable local investment in youth entrepreneurship, agribusiness, water and sanitation, energy, and health systems.

Shuichi Kuroishi | skuroishi@tohatsu.co.jp

Shuichi Kuroishi is chief of staff for the Deloitte Japan's Government & Public Services Industry. Kuroishi works across the GPS practice to address large-scale societal challenges (e.g., smart cities, future of mobility, sustainable urban and rural development, urban innovation, and social inclusion) that require cross-sector collaboration, multistakeholder engagement, and innovative funding/financing strategies. Kuroishi was also a fellow at the World Economic Forum Centre for the Fourth Industrial Revolution, where he led the smart cities project at the G20 Global Smart Cities Alliance on Technology Governance.

Mahesh Kelkar | mkelkar@deloitte.com

Mahesh Kelkar is the smart cities research leader for the Deloitte Center for Government Insights. His research focuses on understanding the impact of technology, innovation, and policy on the future of cities. He closely tracks the federal and state government sectors and focuses on conducting in-depth research on the intersection of technology with government operations, policy, and decision-making.



Reimagining social care

Recasting the social safety net

Deborah Sills, Tiffany Fishman, Josh Hjartarson, and Rebecca Kapes Osmon

GOVERNMENTS RELY ON income assistance and social care services to protect their most vulnerable citizens. But around the globe, many social safety nets are fraying. The COVID-19 pandemic exacerbated homelessness and other economic disparities in many countries.

In the face of rising costs and client expectations, agencies are reexamining how they and their partners can provide equitable, seamless, and effective social services. They're shifting their focus to prevention—attacking problems at their root, intervening early to keep small issues from growing, and creating pathways to greater self-sufficiency and resilience. The goal is less to patch up the safety net than to reweave it entirely.¹

Trend drivers

- **The COVID-19–induced economic disruption** has left many segments of the global population newly vulnerable, particularly millions of low-wage workers as well as younger employees and women in general.²
- **Demand for social care is growing** due to aging populations, rising homelessness, and food insecurity as well as increased prevalence of mental health issues and drug abuse.
- **Declining job quality** over the last few decades has left more workers in low-wage jobs that provide few or no benefits, leaving them to turn to social care agencies for help with basic needs.³
- **Many governments can't afford to strengthen their social safety nets** without sacrificing other important priorities.

Trend in action

Many policymakers and service providers are shifting their emphasis from treatment to prevention. They're creating more "wraparound" social services that integrate access to income assistance, child care, health services, housing aid, and other supports to help clients in crisis achieve stability more quickly.⁴ They're investing in programs intended to boost the resilience of individuals and communities.⁵ And they're looking at ways to plug the gaps in the safety net to accommodate new ways of working.⁶

USING DATA TO DESIGN MORE EFFECTIVE INTERVENTIONS

Social care agencies often see their clientele through a program-centric lens, an inevitable byproduct of the way in which various programs have been established and run separately rather than as integrated parts of the safety net. Yet this approach fails to acknowledge the complexity of actual human beings, who may have multiple needs that cut across artificial program boundaries.

Fortunately, this blinkered view is broadening, thanks to innovative efforts to integrate data across multiple sources with an eye toward early intervention.

In the United States, the state of Oregon uses data integration to more fully understand the impact of its programs and services on children's lives. The Oregon Child Integrated Dataset securely combines and analyzes data from five state agencies—the Department of Education, Early Learning Division, Department of Human Services, Oregon Health Authority, and Oregon Youth Authority—to identify opportunities to produce more positive outcomes for children.⁷

Similarly, in the United Kingdom, the Hillingdon London Borough Council's AXIS project aims to safeguard children at risk of exploitation. From October 2017 to January 2021, using advanced technology to gather and synthesize local information, AXIS identified 314 children exposed to exploitation. The data gathered also informs meaningful interventions delivered by skilled practitioners.⁸

Human-centered design (HCD) places *people*—their beliefs, values, feelings, and ambitions—at the center of the design and delivery of public programs. HCD flips traditional social-service approaches: Instead of defining operational goals and *then* fitting them to client needs, HCD begins with an effort to understand key stakeholders and identify the root causes of their problems. Once providers understand these unmet needs, they can use the resulting insights to improve service design and delivery.

Social care agencies are beginning to use HCD in many programs. The US Medicaid program uses it to consider the factors that keep its clients from renewing their benefits and retaining their health coverage.⁹ Labor departments use HCD to understand the experiences of persons applying for unemployment benefits, reducing opportunities for error, and the consequent burden on caseworkers.¹⁰ Child support agencies use it to better understand why some parents struggle to meet their support obligations and to find ways to help them.¹¹

The Government of Abu Dhabi's Social Support Program for low-income families has deployed ethnographic research and digital design principles to enable self-service for financial and nonfinancial support. Its design guaranteed uninterrupted support throughout the COVID-19 pandemic while ensuring service equity for rural and remote communities.¹²

Recasting the social safety net



Americas

California, US

California's Lava Mae hosts **monthly pop up care villages**, wherein multiple homeless service stations are co located in a public space.

Ontario, Canada

Ontario provided **reloadable Visa payment cards** to low-income recipients without bank accounts.

EMEA

Denmark

The Danish Ministry of Employment, **offers tailored experiences** by co-locating services and assigning a coordinating caseworker to each citizen.

South Africa

The South African Social Security Agency (SASSA) **debit card** enables electronic receipt of benefits.

The United Arab Emirates

The UAE's **Masarra card services** provide online benefits and discounts for senior citizens.

The United Kingdom

The **Troubled Families Programme and Changing Futures Programme** cater to families and adults (respectively) in crisis with a "whole person" approach to address clients' unique needs.

Asia-Pacific

Australia

Services Australia uses digital mapping of user life events via **MyGov and Centerlink portal** to improve navigation of government services and supports.

India

India's biometric universal ID **Aadhaar-enabled payment system (AePS)** helped transfer US\$72 billion to 800 million citizens directly into their bank accounts in FY20-21.

New Zealand

The **Strengthening Families and Whānau Ora** initiative is a Māori-focused program to help families navigate interagency casework.

Singapore

Singapore established one-stop-shop **Social Service Offices** near low-income populations.

THE IMPACT GENOME PROJECT: CODING PROGRAM “GENES”

Mission Measurement, a US-based firm that advises companies, nonprofits, and governments on social outcome measurement, created the Impact Genome Project (IGP) in an effort to standardize impact data and make it actionable. By standardizing data, the database technology platform offers benchmarking, prediction, and evidence synthesis.²⁴

The IGP's work is based on the idea that most social programs share identifiable program design features or “genes” that can be standardized, coded, quantified, and analyzed. Agency administrators have long struggled to benchmark and evaluate programs that serve unique client populations; without reliable standards, such comparisons are always suspect.

By generating standardized and comparable data, the IGP aims to help answer questions such as, “Why do some programs work better than others?” Comparison and benchmarking can help identify better solutions and thus guide both public policy and philanthropy more effectively.

EMBRACING INTEGRATED SUPPORTS

Most social care programs are intended to provide individuals and families with temporary assistance and benefits to get them through rough patches.

But it's usually beyond their scope to attack the source of clients' problems or address the connections among multiple challenges. To get around these limitations, some governments are establishing holistic, all-in-one supports to address physical, mental, economic, and social needs.

The United Kingdom's Ministry of Housing, Communities and Local Government, for instance, has adopted a multiagency approach to match clients with services appropriate to their unique needs. Its Troubled Families Programme provides each participating family with a caseworker who coordinates with various support agencies as needed, while its Changing Futures program relies on cross-sector partnerships to deliver coordinated and integrated services for individuals.¹³

New Zealand's government is improving service coordination through its Strengthening Families program as well as its Māori-focused Whānau Ora initiative. Both assign caseworkers to families that use more than one social service to help them navigate available programs and ensure appropriate access to wraparound support services.

Results suggest that clients using these services have enjoyed better employment outcomes, greater stability, and more independence.¹⁴

Denmark's Ministry of Employment service delivery model factors in each person's ability to work. Those deemed job-ready and fit to work in their assessments receive traditional caseworkers. Those whose return-to-work timelines are more extended or whose situations are more complex are assigned coordinating caseworkers who work with other government agencies to ensure access to the most appropriate suite of services. *Coordinating caseworkers* aim to give each applicant a unique combination of employment assistance, social services, and benefits.¹⁵

Technology is helping government create integrated care journeys, while also supporting self-navigation for those with multiple needs. Online portals called “community resource engines,” for example, can suggest suites of complementary resources for residents seeking help with housing, food, employment, or other issues. These portals use artificial intelligence to prescreen applicants, direct them to the appropriate benefits, and trace the results from end to end.¹⁶ They can track users' social determinants of health, give community partners tools to manage

referrals for their services, help caseworkers coordinate care, and allow residents to provide feedback on their circumstances.

INCREASING COMMUNITY RESILIENCE

Policymakers and providers increasingly agree that resilience is an all-important goal for social care.¹⁷

That requires investment in communities and natural support networks, whether extended families, faith communities, local nonprofits, or neighborhood groups.¹⁸

Family and Natural Supports (FNS) programs focus on strengthening relationships between young people and adults who care about them—a parent, grandparent, aunt, uncle, sibling, neighbor, teacher, or coach—through counseling, mediation, or skill-building. Relationships with the right individuals can help keep young people connected to schools and communities and create networks they can draw upon throughout their lives.¹⁹

Canada's 2016 Without a Home study found that more than three-quarters of 1,103 homeless youths surveyed cited poor relationships with their parents as a key reason for leaving home. More than 70% of them still contacted a family member at least once a month, however, and wanted to improve their relationships with their families.²⁰ Covenant House in Toronto operates an FNS program that offers intensive clinical support and case management to help young people reconnect with family members safely.²¹

Governments looking to bolster community resilience also seek data about what's going *well* for communities. Too often, the focus is on problem areas: lost jobs, criminal convictions, homelessness, and hunger. Less attention is paid to how many elderly people are driven to medical appointments by volunteer drivers or how many previously unemployed persons find stable jobs.

Strengths-based data collection considers community assets and the positive aspects of people's lives. Shifting the focus to what's right can identify untapped or underused community resources and assets. In Whitesburg, Kentucky, for example, a community partnership called the Letcher County Culture Hub builds on local assets to improve community capacity and wealth.²² The organization has helped start new local businesses and expand others; helped local artists, farmers, teachers, and others use their skills to generate revenue; and revived two local, money-making cultural institutions: a square dance and a bluegrass festival.²³

By giving communities and families resources they can use to care for themselves, social care agencies can nurture resilience rather than dependency—and help communities better withstand future shocks.

Moving forward

The pandemic has presented a once-in-a-generation opportunity to create a social care system designed for today's needs. Here are a few steps that can help leaders achieve long-term success:

- **Free caseworkers from repetitive tasks.** Social care agencies should invest in intelligent technology that can handle many of the tasks that take up a large portion of the typical agency worker's day, such as data entry and report writing, and introduce self-service models that clients can navigate and use on their own behalf. These steps allow caseworkers to spend more time working directly with individuals and families on their specific needs.
- **Embrace a human-centered mindset.** Social care agencies should regularly bring clients into the room with providers, caseworkers, and other stakeholders to engage in rapid prototyping, testing, and iteration of

solutions. This deep collaboration can accelerate the development of useful solutions and eliminate unworkable ideas before costly investments are made. To scale its adoption, agency leaders should adapt their procurement approaches to facilitate widespread use of HCD.

- **Adopt an ecosystem approach.** Social care programs should serve as stewards for the entire care ecosystem, fortifying natural support networks and strengthening the resilience of the communities they serve. Community resource engines can provide valuable insight into the broad range of local supports available and highlight gaps.
- **Make data and evidence actionable.** Data and evidence should guide government organizations to the most effective solutions for social care. Evidence about performance should inform agency decisions, while real-time data on client outcomes and system performance would allow agencies to “fail and learn quickly” as they innovate.
- **Invest in outcomes and remunerate based on results.** To truly improve the well-being of families and communities, social care agencies should put outcomes at the center of program design, procurement, delivery, and evaluation.

MY TAKE



Célia Parnes, Secretaria de Desenvolvimento Social do Estado de São Paulo

Stitching together data to deliver benefits to over a million vulnerable citizens

COVID-19 put the focus on meaningful data integration at human services agencies to deliver benefits for those badly in need. The efforts of the Department of Social Development in São Paulo were critical to delivering timely benefits to vulnerable individuals and families.

Even before the pandemic, we had over 150 secretaires in the state of São Paulo, Brazil, come together each week to discuss how they could better work together. So, when the pandemic struck, we quickly accelerated our previous efforts at data integration, and were able to turn volumes of data into a seamless and higher-quality experience for citizens. By stitching together data from 2000+ branches of information across agencies, the Department of Social Development in São Paulo was able to deliver benefits to over one million vulnerable citizens. The **Bolsa do Povo** is the largest social assistance program in the history of the state, unifying state income transfer actions, simplifying the sharing of information and the transfer of amounts corresponding to each beneficiary. Our team used technology, smart product design, and automated processes to redesign the “front door,” making it a customized entrance that combines existing citizen information with behind-the-scenes automation. We made it easy for people to know what social programs they’re entitled to with just a few clicks.

Our department also leveraged technology to make badly needed benefits available to those who did not hold a valid identity. With the help of third parties, we were able to create a system that helped to intelligently manage the free distribution of three meals a day via the 59 restaurants of the Bom Prato chain to homeless individuals and families. The app also made it possible for us to register homeless people and their identification details through a card with a QR code—a kind of barcode that can be scanned by the cell phone camera. We then printed this unique QR code on a PVC card and delivered it to beneficiaries, who could then use these cards to obtain meals.

Our vision going forward is to leverage and integrate systems and data using powerful tech tools to continuously improve frontline practice. For us, this means collaboration between more agencies, development of tailored programs, and bringing more eligible beneficiaries into these programs.

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About the authors

Deborah Sills | dsills@deloitte.com

Deborah Sills serves as Deloitte's Global Consulting leader for the Government & Public Services Industry and is a nonexecutive director of the Deloitte US Board. During her time with Deloitte, Sills has held a number of leadership roles, including national managing principal for Deloitte's US Public Sector Industry practice, managing principal for Deloitte's Federal Strategy & Operations practice, and has served as Deloitte Consulting's chief risk officer, and as a member of the consulting board and management committee.

Tiffany Fishman | tfishman@deloitte.com

Tiffany Fishman is a senior manager with the Deloitte Center for Government Insights. Her research and client work focuses on how emerging issues in technology, business, and society will impact organizations. She has written extensively on a wide range of public policy and management issues, from health and human services reform to the future of transportation and the transformation of higher education. Her work has appeared in a number of publications, including Public CIO, Governing, and Education Week.

Josh Hjartarson | [jhjartarson@deloitte.ca](mailto:jhartarson@deloitte.ca)

Josh Hjartarson is the national Human & Social Services leader at Deloitte Canada. His professional and academic interests converge on the transformation of income assistance, social care, and employment services, so that they are more integrated, outcome-focused, and client- and family-centric. Hjartarson has a PhD in political science from the University of Toronto, and his career includes five years as a public servant, 10 years as an academic, and three years as a senior advocate and champion of the Ontario business community.

Rebecca Kapes Osmon | rkaposmon@deloitte.com

As the Global Government & Public Services operations lead, Rebecca Kapes Osmon provides strategic, analytical, and operational support to the Global GPS Industry and oversees the execution of industry program activities supporting government to become connected, resilient, and sustainable to create thriving communities that meet the demands of citizens today and tomorrow. She is also the Global Human Services leader, reflecting the growing opportunity to help clients address vulnerabilities in social care systems across the globe.

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Practice leadership

Adita Karkera

Chief data officer | Government and Public Services | Deloitte Consulting LLP
+1 901 322 6740 | adkarkera@deloitte.com

With more than 21 years of industry experience, Adita Karkera serves as the chief data officer for Deloitte's Government and Public Services, where she leads the data strategy to foster value creation from the firm's data while ensuring trust.

The Deloitte Center for Government Insights

William Eggers

Executive director | Deloitte Center for Government Insights | Deloitte Services LP
+1 571 882 6585 | weggers@deloitte.com

William Eggers is the executive director of Deloitte Services LP's Center for Government Insights where he is responsible for the firm's public sector thought leadership. His latest book is *Delivering on Digital: The Innovators and Technologies that are Transforming Government* (Deloitte Insights, 2016).

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Creative: Jaime Austin, Sylvia Yoon Chang, Hazel Raj, Rishwa Amarnath, Sanaa Saifi, Rahul Bodiga, Alexis Werbeck, and Natalie Pfaff

Audience development: Maria Martin Cirujano

Cover artwork: Jaime Austin and Sofia Sergi

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