Deloitte. Insights

A report by Deloitte Center for Government Insights

Government trends 2023

Table of contents

The nine trends reshaping government in 2023

Governments are tearing down walls to deliver solutions

William D. Eggers, Beth McGrath, and Jason Salzetti

The change is happening at all levels of government. In both thought and practice, visible both inside and outside public buildings: **Walls are coming down**. The silos inside governments and between government agencies and between government and the private sector—all of these boundaries are increasingly being dissolved in the service of results.

This year's *Government Trends* report highlights a vital shift with broad impact. In an age of discontinuity,[1] governments are moving from hierarchies to networks to enable intragovernment collaboration to achieve intended outcomes. Silos are being eliminated in areas such as data, funding, and workforce to pool resources and capabilities. In an age of vexing challenges, public officials, business leaders, and nonprofits are nurturing collaborative public-private ecosystems to take advantage of shared knowledge and unique strengths to drive solutions.

We see six ongoing paradigm shifts—discontinuities—that are driving this change:

1. **Accelerated technology.** Governments are using technologies such as cloud computing, data analytics, and AI to *build connections* between people, systems, and different government agencies.

2. **Convergence of physical and digital realms.** Technologies such as Internet of Things (IoT) and digital twins enable the *convergence* of physical and digital realities at a rapid pace, allowing government at all levels to make informed decisions, anticipate problems, and gain reliable insights into the future.

3. **Decline of "the theory of the firm" and rise of "the theory of the ecosystem."** Most individual organisations increasingly see themselves as part of the larger community. Why labour in isolation when you can achieve win-win *results through collaboration?* Datafication, digitisation, and connectivity are dissolving traditional boundaries.

4. **Blurring of the lines between public and private.** While still focused on profits, businesses are also embracing social and environmental responsibilities, with many adopting *purpose-driven business models* that can help deliver public solutions.

5. **Rise of networked power.** Hierarchical and centralised power structures are giving way to more *networked, decentralised, and shared models* of authority.

6. **From public to "network" trust.** Public trust in government is nearing historic lows.[2] Complex problems often involve numerous players, and citizens are increasingly looking to businesses and nonprofits to take action on cross-cutting societal challenges. This shift is reframing the paradigm away from "government should solve X" to public leaders guiding ecosystem-driven solutions that tap into *a broad network of solution providers*.

These six discontinuities are reframing how governments approach their role in delivering public value. The result: Walls are coming down, which will enable governments to be more effective and connected to those across and outside of government.

The silos inside governments and between government agencies and between government and the private sector—all of these boundaries are increasingly being dissolved in the service of results.

A convergence of public and private action

The traditional mechanisms of government—siloed and hierarchical—are ill-equipped to handle our current age of discontinuity. Increasingly, the real work of public policy happens within networks among levels of government, between sectors, and across global boundaries.

Consider COVID-19. It would be nearly impossible to diagram all the players involved in the global battle against the pandemic—not because the players are unknown, but because they are so numerous and woven together in webs of enormous complexity. An expansive array of national government agencies, state and local governments, private companies, and nonprofits contributed, working on key tasks such as vaccine development and distribution.[3] Making the response effective required—still requires—keeping all the players moving in the same direction.

The pandemic response won't be the last time the world needs government to convene such a whole-of-society response. From climate change to cybersecurity, challenges are becoming more complex, affecting the private and public sectors alike, not respecting the boundaries of institutions that have been created to address them.[4]

While many people might claim to put little faith in government, they implicitly look to government to tackle our biggest problems. This year's *Government Trends* report illustrates that the solutions are rarely the public sector's sole province: Getting the job done requires multiple actors collaborating across sectors. Achieving public policy goals increasingly depends on coordinated effort by government and the private sector—working in concert with academia, social enterprises, and nonprofits.

Businesses' rising sense of purpose and desire to contribute meaningfully to society offers governments an important new partner in tackling society's most pressing issues.[5] Purpose-driven enterprises, both for-profit and nonprofit, can amplify public sector resources. They also help government keep pace with technological innovation. Links with universities and nonprofits can provide both theoretical and frontline understanding of challenging problems. Collaboration with the private sector can even enhance public

trust in government, since global surveys suggest that business is now society's most trusted institution.[6]

Whole-of-government/whole-of-society approaches are key to tackling tough challenges

Government leaders increasingly recognise that navigating a world of discontinuity necessitates coming together. The massive scale and complexity of big challenges, such as climate change, cybercrime,[7] and, pandemics, are beyond any single agency's ability to address. One major trend this year is the emphasis on collaboration between different agencies of government—a whole-of-government approach—in dealing with vexing problems.

Governments around the world are experimenting with cross-agency approaches to deliver services. Singapore, for example, has used shared-funding mechanisms to encourage interagency collaboration, with the prime minister's office, coordinating whole-of-government projects supported by a team of senior officials from multiple agencies.[8]

While pooling capabilities can help agencies enhance service delivery, working at the cutting edge also requires proactive collaboration with commercial entities. To establish a reliable supply of semiconductors, both the European Union and the United States have passed legislation, most notably the €43 billion EU Chips Act and US$52 billion CHIPS Act.[9] Instead of creating a new agency to build chip-making facilities, these laws direct multiple agencies to achieve this goal by working with commercial chip manufacturers, encouraging business entities to increase semiconductor manufacturing capacity within certain regions.

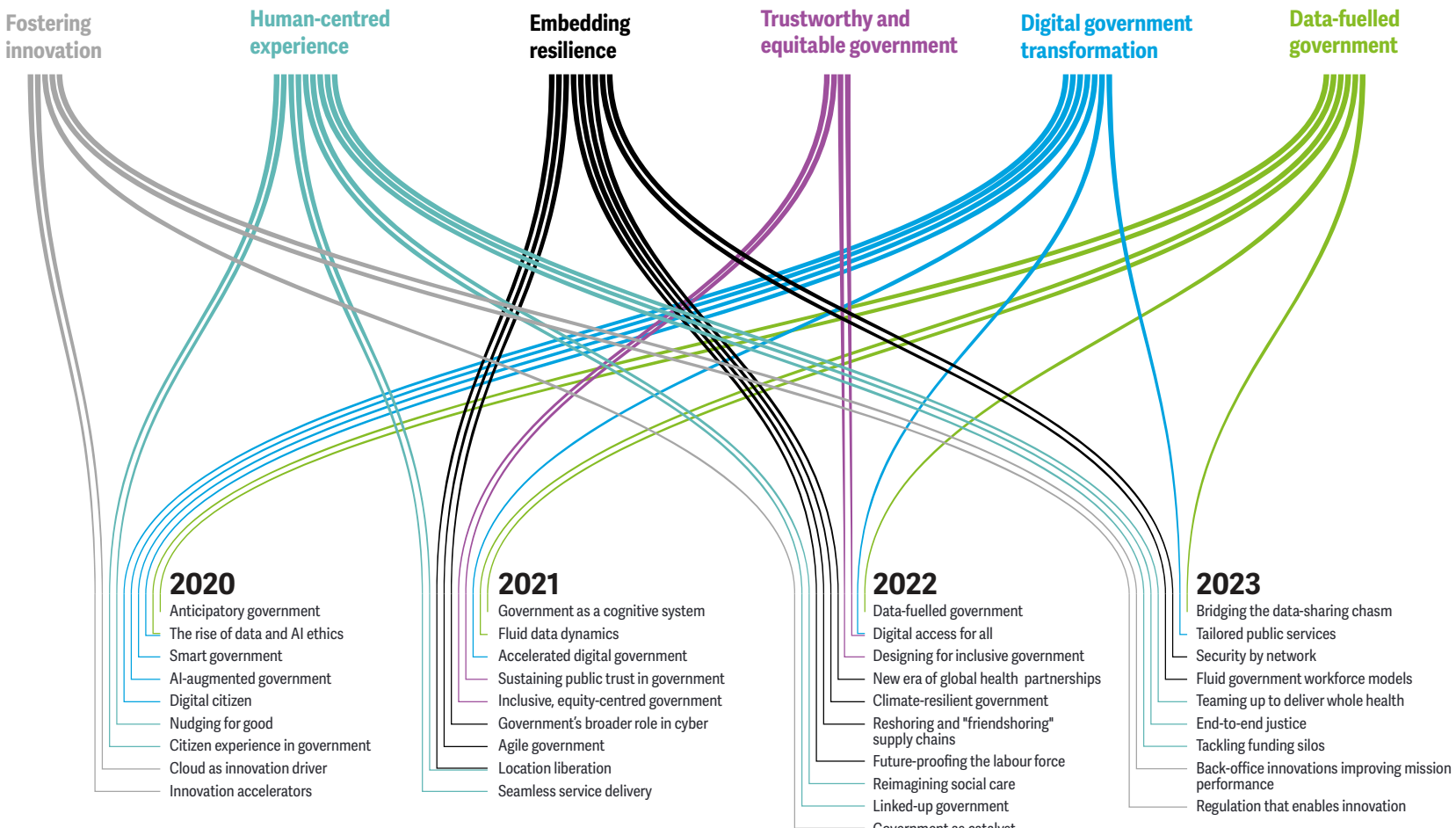
Government leaders increasingly recognise that navigating a world of discontinuity necessitates coming together.

Dissolving boundaries—the unifying theme of the 2023 *Government Trends* report

Our 2023 trends report identified nine distinct trends related to the overall trend of cross-boundary collaboration. The report distils extensive research on government and explores what's happening in the trenches. This year's report also includes several "My Take" sections from public officials who are helping to pioneer these innovative trends.

The first *Government Trends* report was published in 2019. Four years is a relatively short period, and the themes covered in the first four reports remain relevant today. Figure 1 looks at all of the trends covered in the first four reports, how they are related, and how they have evolved. Some issues, such as digital government, have been a constant theme over the years. Other issues, such as embedding resilience, have rapidly emerged as governments increasingly grapple with disruptive shocks.

Government trends evolution 2020–2023



Source: Deloitte analysis.

The top trends transforming government in 2023

What makes a trend a trend? To begin with, each trend must be evident in many different governments around the world—it doesn't count if it isn't happening in multiple places, having moved beyond small pilots of experimentation to be authentically *emerging*. Moreover, a trend must have relevance in governments and economies of various sizes. The trends in this report are divided into two major categories: cross-cutting trends, which are happening across government verticals, and domain-focused trends within government sectors such as justice, health and regulation.

Cross-cutting trends

Trend 1: Fluid government workforce models. When it comes to government talent, increased agility is the name of the game. To achieve a future-ready workforce, many agencies are embracing flexible models such as internal talent marketplaces, gig work, and on-demand talent. Leaders are replacing traditional public talent models, including detailed job descriptions and positional requirements, and are taking early steps toward a skills-based approach to workforce management. To further enhance flexibility, agencies are embracing talent management practices that were rapidly rolled out in 2020 to better support hybrid work in the wake of the pandemic.

State of play: Governments are redesigning the public-sector workforce to become more flexible, skills-based, and collaborative.

Trend 2: Bridging the data-sharing chasm. Smart technologies are commonplace, generating data as never before. The public sector has access to vast amounts of data which, if used to its potential, can provide agencies with greater insights to make more informed decisions. Through a focus on data governance and usage, leaders are breaking down barriers to data-sharing across government, and tapping into other data sources to drive innovation, deliver better services, and improve lives.

State of play: Government has long held vast amounts of data. Today, government is increasingly putting this data to use to solve problems and improve lives.

Trend 3: Tackling funding silos. Government leaders increasingly recognise that solving boundary-spanning issues, such as climate change and homelessness, require shared-funding approaches—indeed, isolated funding silos can stymie innovation. Historically, dismantling those silos has been a frustratingly slow process. Today, however, more and more governments are moving toward shared funding to incentivise collaboration between agencies.

State of play: Extensive interagency cooperation is a perennial challenge for governments. While there is still much work to be done, shared-funding mechanisms are showing promise in addressing boundary-spanning issues.

Trend 4: Tailored public services. Individuals are unique, as are their needs and requirements, and

traditional one-size-fits-all government services have systemically disadvantaged various sections of the population. Thanks to advances in digital technologies, insights from behavioural science, and new data management tools, governments are making strides in providing more tailored and personalised services by sharing data and collaborating between government agencies.

State of play: Governments are increasingly tailoring services as a way to improve the user experience and promote equity.

Trend 5: Back-office innovations improving mission performance. Agencies increasingly recognise that back-office operations (e.g., finance, human resources, etc.) are critical to mission delivery. Through tech innovation and process reconfiguration, back offices are making better use of information to enhance service delivery and achieve mission objectives.

State of play: Enhanced back-office systems with new tools and technology are proving to be launch-pads for improving mission performance.

Domain-focused trends

Trend 6: Regulation that enables innovation. As sweeping technological changes alter the regulatory environment, many regulators aren't just reacting—they are proactively anticipating and facilitating wider societal innovation. At a time of disruptive change and rapidly evolving business models, industry is increasingly looking to regulators to help catalyse the innovation landscape.
State of play: Regulators are playing an instrumental role in shaping innovation ecosystems, including regulatory sandboxes, digital twinning, and a host of other approaches.

Trend 7: Teaming up to deliver whole health. Health care historically has focused on treating illness in silos using medical specialists and targeted health centres. But to tackle rising health care costs, government providers are shifting toward "whole health" models that integrate various types of care. To provide integrated health and social care services, public health agencies are forging alliances with other agencies and the private and nonprofit sectors.

State of play: Governments are actively working toward restructuring complex, multilayered health care systems to deliver integrated patient-centred whole health.

Trend 8: End-to-end justice. A fair, functioning justice system needs broad involvement. Achieving desired justice results—whether a reduction in crime or swifter court operations—requires collaboration to positively influence communities. Justice organisations worldwide are prioritising collaboration by establishing structures for intragovernment cooperation and fostering a public-private ecosystem of problem-solvers that includes tech firms, nonprofits, and universities.

State of play: Efforts to reform justice operations by collaborating more closely across other areas of government, such as social services and mental health, have increasingly taken root around the globe.

Trend 9: Security by network. Globalisation and cross-border collaboration continue to boost the influence of companies, nonprofits, and individuals, independent from sovereign government action. These nongovernmental entities are making decisions that have implications for everything from national security and diplomacy to technology innovation and climate change. As the balance of influence shifts, governments are finding ways to build greater cooperation with these entities, actively developing mechanisms to align incentives with national interests.

State of play: Government leaders are driving greater collaboration and coordination on global matters with commercial entities to achieve shared goals.

Endnotes

1. Eamonn Kelly and Jason Girzadas, *Leading through an age of discontinuity*, Deloitte, 2022.
2. Pew Research Center, "Public trust in government: 1958–2022," June 6, 2022; Edelman, *2023 Edelman Trust Barometer Global Report*, January 2023.
3. Claire Klobucista, "A guide to global COVID-19 vaccine efforts," Council for Foreign Relations, December 05, 2022.
4. The RAND Blog, "Who calls the shots during a pandemic, the US government or states? Q&A with RAND experts," April 16, 2020.
5. Shira Beery, John Mennel, and Kwasi Mitchell, *How purpose delivers value in every function and for the enterprise*, Deloitte, 2022.
6. Edelman, *2023 Edelman Trust Barometer Global Report*.
7. Steven C. Morgan, *Boardroom Cybersecurity 2022* Report, Cybersecurity Ventures, 2022.
8. GovTech Singapore, "Whole of government (WOG) platforms and tools," accessed January 02, 2023.
9. European Commission, "European Chips Act—questions and answers," press release, February 08, 2022.

About the authors

William D. Eggers

weggers@deloitte.com

William D. Eggers is the executive director of Deloitte's Center for Government Insights, where he is responsible for the firm's public sector thought leadership. His most recent book is *Delivering on Digital: The Innovators and Technologies that Are Transforming Government* (Deloitte University Press, 2016). His other books include *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*, the *Wall Street Journal*, and the *Washington Post*.

Beth McGrath

bmcgrath@deloitte.com

Beth McGrath is Deloitte's global leader for Government and Public Services. In her role, she is committed to strengthening synergies across global Industries and government and public Services with a focus on client mission needs and solutions. McGrath has broad, multidisciplinary, strategic, and operational management experience acquired from 25+ years of successful performance in the United States government sector. As a member of Deloitte's Strategy practice, she advises government and commercial organisations on strategies that help further innovation and improve business operations.

Jason Salzetti

jsalzetti@deloitte.com

Jason Salzetti leads the US Government and Public Services (GPS) industry—a 26,000-person team that works with hundreds of federal, state, local, higher education, and nonprofit clients. Salzetti has nearly 30 years of experience as a trusted advisor to clients and an innovative technology leader, specialising in large-scale digital transformation projects that have modernised public sector organisations and enhanced citizen services. He also serves on Deloitte's US Board of Directors.

TREND 1

Fluid government workforce models

To tackle changing citizen preferences, employee needs, and talent shortages, governments are exploring new workforce models and prioritising flexibility

PJ Rivera, Jacqueline Winters, Stephen Harrington, Amrita Datar, and Sushumna Agarwal

Introduction

Nothing in organisations today is static—not org charts, not challenges, not employees. Many private sector companies have been experimenting with flexible workforce strategies for decades, but public sector agencies have largely stuck with traditional approaches. Even if they are no longer strictly command-and-control, most public sector org charts, hierarchies, and workforces have stayed comparatively static from year to year.

But that is beginning to change. Government agencies face constantly shifting needs from employees, citizens, and oversight bodies, along with rolling talent shortages. Many leaders are responding by driving a shift toward workforce fluidity, making flexibility the routine rather than the exception.

Increasingly, government agencies are embracing:

- Flexible talent models to mobilise skills in the face of talent shortages, especially in areas such as cybersecurity, artificial intelligence (AI), data science, and adaptation to climate change
- Taking early steps toward a skills-based workforce approach that places skills at the centre rather than traditional jobs (with specific descriptions and requirements)
- Adapting talent management practices to better support hybrid work and the overwhelming demand for workforce flexibility
- Focusing on collaboration as a core workforce competency and mission priority

The result is the outline of a public sector workforce for the future; one that is mobile, flexible, skills-based, and collaborative.

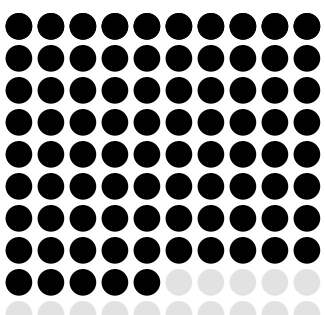
Walls coming down

- **Within the government workforce:** With walls coming down within public sector agencies and interdepartmental work becoming increasingly common, many agencies are granting workers mobility across various functions, agencies, departments, and even between public and private sectors—a trend that can be mutually beneficial for experience-hungry workers and skill-seeking public employers.

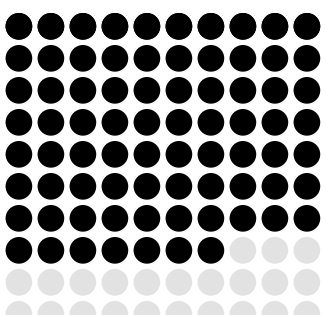
- **Between traditional and new ways of working:** Government workplaces are seeing deeper changes as the adoption of new and more flexible ways of working accelerate. Agencies are continuing pandemic-era practices such as remote or hybrid work, virtual service delivery, and asynchronous work, with workers adopting flexible work hours. Managers are increasingly tapping into fluid talent models such as freelancing and gig work.[1]

By the numbers: Fluid government workforce models

More organisations are moving to a skills-focused approach



85%
of HR executives across sectors are considering redesigning the way work is organised so that skills can be flexibly ported across work.



77%
of business and HR executives say flexibly moving skills is critical to navigating future disruptions.

87% **of employers are providing enhanced location and time flexibility to empower their workforce.**

75% **of government workers in Denmark, Norway, and the Netherlands can opt to telework.**

Sources: Sue Cantrell et al., *Building tomorrow's skills-based organization: Jobs aren't working anymore*, Deloitte, accessed February 8, 2023; Deloitte, "Fall 2022 Fortune/Deloitte CEO Survey," accessed February 8, 2023; William D. Eggers, Pankaj Kamleshkumar Kishnani, and Shruthi Krishnamoorthy, *Transforming government post–COVID-19: How flipping orthodoxies can reinvent government operating models*, Deloitte Insights, June 15, 2020.

Trend in action

Flexible talent models, talent marketplaces, and project-based deployment

Workers retiring today have held an average of a dozen jobs during their careers,[2] and younger workers could look forward to even more, likely spanning a range of roles, industries, geographies, and employers. Mobility has become such a core value of the modern workplace that many public sector leaders are adopting talent models that enable workers and their skill sets to move within and even—temporarily—outside the public sector.[3]

This may be driven partly by challenge (the shortage of specialised skills that many agencies face) and partly by opportunity (boosting worker retention, engagement, and learning through internal mobility options). If done right, flexible talent models can be a win-win for managers and workers. Government agencies are exploring various types of arrangements, including:

- **Mobility within an agency.** Internal mobility platforms can match talent to opportunities within an agency, directing people to where their skills are needed or where they might be able to learn new skills. For example, NASA's internal talent marketplace offers workers a platform to identify and take part in rotations, detail assignments, and special projects. Since the early days of the pandemic, use has expanded, with virtual- and flexible-work arrangements enabling employees to access opportunities previously limited by geography.[4]

  In a similar vein, the US Nuclear Regulatory Commission is offering rotational assignments to early- and mid-career employees—a type of program familiar to many private sector employees.[5] Through these temporary assignments, workers can gain experience working with different teams on different projects and broaden their skills.[6]

- **Mobility between agencies.** Some government agencies are using exchanges to facilitate employee movement within the public sector, keeping workers engaged and current while ensuring their talents stay close to home. A Belgian program networks 21 public and semipublic organisations, allowing members with specific skill needs to place temporary requests for talent from other organisations.[7] Similarly, a program called Canada's Free Agents offers qualified public employees the flexibility to take on work that matches their interests with agency projects demanding specific skill sets.[8]

  Indeed, some agencies are working to embed worker mobility into their culture. In 2021, the Australian Public Service offered rotation opportunities to university graduates, aimed at instilling a culture of mobility among young employees from the beginning. Results materialised quickly: Mobility among Australian

public servants reached a 20-year high in 2021, with 5.7% of employees moving to another agency, compared to the earlier range of 1.5%–3.9%.[9]

- **Mobility between the public and private sectors.** Through fellowships and "tours of duty" such as those offered by the White House and agencies such as the General Services Administration's 18F that helps other government agencies build, buy, and share technology products, US federal agencies are bringing in skilled talent from outside government.[10] The Central Intelligence Agency recently set up a technology fellowship program that enables private sector employees to work at the agency for periods of one to two years.[11]

The government of Singapore, facing rising attrition levels among civil service employees, is looking to shore up retention by expanding job rotations in the public sector, along with offering wellness counselling and making many pandemic-era flexible work arrangements permanent.[12]

"We're never going to be able to match in the US government the kind of salaries or economic benefits that you can find in lots of parts of the tech sector as well. What we can offer, though, are fascinating problems to solve."

—CIA director Bill Burns, on the agency's Technology Fellows program[13]

Toward skills-based agencies

Skills are increasingly becoming the organising language of workplaces. In the private sector, some companies are moving toward organising talent practices around skills or problems to be solved rather than traditional jobs.[14] In a recent Deloitte survey, nearly two-thirds of executives who responded said work in their organisations is currently performed in teams or projects outside of employee's core job descriptions. And over the next three years, 85% of HR executives expect to at least consider redesigning the way work is organised so that skills can be flexibly ported across the workplace.[15]

Agencies are beginning to shift toward a skills-based direction, particularly in hiring. For example, the US Office of Personnel Management recently released guidance on the federal government's adoption of skills-based hiring practices—a notable step for federal hiring, historically reliant on a candidate's educational credentials and self-assessments to gauge ability to perform in a job.[16] Agency director Kiran Ahuja notes, "By focusing on what an applicant can do—and not where they learned to do it—skills-based hiring will expand talent pools by making it easier for applicants

without a bachelor's degree to demonstrate their skills and will help remove barriers to employment for historically underrepresented groups."[17]

In the past year, LinkedIn reported a 21% increase in US job postings that advertise skills and responsibilities instead of qualifications and requirements.[18]

At the state level, in 2019, the Indiana Office of Technology was the first state agency to implement skills-based hiring with a connected apprenticeship program;[19] Indiana has since become a leader in employing a skills-first approach for technical roles.[20] Maryland has followed suit, dropping a four-year college degree as a prerequisite for thousands of state jobs and aiming to ensure that "qualified, non-degree candidates are regularly being considered for these career-changing opportunities."[21]

Organising talent by skill set can also make workers with specific skill sets more discoverable, creating more opportunities for candidates. Agencies such as the US Department of Defense (DoD) are increasingly realising that their current job classification may not reflect a worker's true skill set—and that they may have overlooked available pools of in-demand skills. Through the Defense Innovation Unit's AI-enabled GigEagle platform, the DoD aims to match skills needed for short-term projects with the skill sets and experience of interested DoD reservists and National Guard members.[22]

Greater visibility into employees' skills, combined with offering them the opportunity to augment their skills through training and education, can give agencies strength and flexibility when shifting focus or launching new initiatives. For example, as governments look to aid broad decarbonisation efforts, Deloitte Economics Institute's mapping of existing workforce skills shows that 80% of the skills necessary in the short-to-medium term to achieve net-zero emissions by 2050 already exist.[23]

Talent management systems to support a flexible and fluid workforce

Without the right kinds of support, promising workforce flexibility models can fall flat; in any organisation, walls and silos that have come down can quickly rise again if enough challenges arise or benefits can't be sustained. Agencies looking to bolster the skills-based shift and lock in greater workforce mobility and flexibility are taking steps to revamp their talent management systems.

- **Skill tracking and credentialing.** Talent management functions have spent decades instilling a taxonomy of jobs, roles, and résumés. If skills are to be the primary basis for hiring and structuring talent going forward, organisations should have a common language or taxonomy to standardise skills—and a credentialing system to share skills data.

To make skills more interoperable, visible, and transferable, the US Navy recently launched a platform called MilGears. It enables service members and veterans to put in one place all the skills acquired through training, education, and on-the-job experience over their entire military career. Records are connected to the federal O*NET platform, which links to jobs across the US economy; service members can see how their skills might apply to civilian or nonmilitary occupations, and can identify skill gaps that further experience can fill.[24]

According to a recent Deloitte survey, 79% of surveyed workers are open to having their employer capture skills data about them to make decisions, such as matching them to work.[25]

- **Performance management.** Agencies are acknowledging that today's workforce needs demand new performance management processes. Since the shift began to remote- and hybrid-work models, agencies in countries such as the United States, Canada, Australia, Denmark, and the United Arab Emirates have released guidance, toolkits, and training resources for managing remote or hybrid teams.[26] Agencies can also look toward innovative private sector models; for instance, to better support distributed teams, Adobe uses "check-in" dashboards for employees and supervisors to manage performance, goals, and development.[27] Performance evaluation should also consider how individuals build skills and apply them to create value. Again, the private sector offers potential models: Google's performance management process aims to balance skills and outcomes, encouraging employees to work with their managers to determine and document their "priorities" for their own development and identify specific learning opportunities based on these priorities to act on over future quarters.[28]

- **Career paths and progression.** With fluidity changing traditional systems and org charts, government agencies—like any employer—could give workers a way to understand how to move to various roles in the organisation and beyond. What might career progression look like for them in a new workforce plan? How can people grow into specific roles and fields?

The US Cybersecurity and Infrastructure Security Agency developed an interactive tool aimed at helping employees explore work roles, illustrating 52 work roles and five distinct skill communities. By reviewing roles' common and distinct aspects, users can quickly identify which knowledge, skills, and abilities they would need to acquire to qualify—and they can get a clear sense of how positions interact, and how to move between them.[29]

The Government Lab of Argentina's Design Academy is likewise focused on directly connecting skills development and career progression. Looking to develop a flexible, data-fluent public sector, the agency educated more than 15,000 public servants in its first three years. Employees are given the opportunity to attend classes, events, or lectures and study subjects from prototyping to agile methods to data visualisation,[30] with an economy of credits incentivising participation. Each worker earns anywhere from two points for attending a lecture to 100 for an in-depth class—and must earn 60 points annually to qualify for promotion.[31] By offering and tracking education in soft and hard skills, Argentina's program is designed as a skills-based approach that can adapt to challenges.

Building a collaboration mindset

Government is increasingly faced with the task of addressing cross-sector challenges such as climate change, public health, cybersecurity, and homelessness. Collaborating and coordinating efforts across and beyond government can be a critical part of this.

Government workforces should be adept at building cross-sector collaborations, making connections with different levels of government, and increasing public value by catalysing action across organisations. To develop this competency in their workforce, governments are focusing on skills development, creating incentives to collaborate, and building structures, platforms, and systems for formal and informal collaboration.

- **Honing the collaboration skill set.** Research from the Organisation for Economic Co-operation and Development (OECD) has explored the key skills needed for collaborating through networks. They found that public officials should have a cadre of strong horizontal leaders with a mix of skills, including trust-building, systems thinking, interpersonal, consensus-building, creative problem-solving, and effective communication.[32] In a similar vein, in a Deloitte survey of senior US federal executives, respondents said that strategic thinking, developing trustworthy relationships, and creating a culture of collaboration are the top three skills needed to achieve effective cross-sector collaborations.[33]

- **Developing platforms and exchanges for building connections.** It is critical for public officials to connect, discuss, and collaborate with each other and external stakeholders on cross-sector challenges. A wide range of digital platforms can help government agencies reach a wider swath of expertise within and outside government. The Canadian federal government employs a series of digital platforms, called GCTools, to allow public officials to collaborate, network, and access relevant content.[34] The platforms include GCcollab for collaboration and coordination between and within agencies and GCpedia for knowledge-sharing between federal government employees.[35]

- **Rewarding collaborative behaviour.** Rewarding and recognising collaborative behaviour can help encourage it within the public sector workforce. For example, the UK Civil Service Awards acknowledge excellence in public service under multiple categories. The *One Civil Service Award* recognises collaboration across jurisdictional boundaries and levels of government, while the *Productive Partnerships Award* recognises teams that build and maintain strong partnerships with other public sector entities, the private sector, and nonprofits.[36]

Moving forward

Organisations and the environments they operate in are constantly changing. Government agencies should continue their ongoing shift toward fluidity, working to tap employee capabilities through skills-based workforce structures. As more agencies move in this direction, agency HR leaders should consider the following actions:

Go deeper with your skills-based approach to talent. While skills-based hiring is a good start, agencies can benefit from embedding the skills focus in other areas, such as:

- Reorganising work as a dynamic portfolio of tasks to be done or problems to be solved

- Understanding and using the existing talent policies and authorisations available, which could help further a skill-based approach

- Thinking of public sector workers as individuals, each with unique abilities to make

contributions and a portfolio of skills and capabilities that match the work

- Using skills, rather than jobs, to make decisions about work and the workforce—from who performs what work to hiring to performance management to rewards
- Building a "skills hub"—an engine of skills data, technology, and governance to power these decisions
- Using "skills analytics" to understand future skill gaps and identify strategies to close them

Create specialised roles and tracks in government around collaboration. Incentives such as funding, data, and recognition can help drive collaboration, but agencies should also make it a part of career-growth discussions. Building specialised roles that focus on collaboration or making collaboration skills a core element of the professional development of public sector workers can be a powerful tool for affecting mindset change.

Embed diversity, equity, and inclusion into all talent processes. Whether it's a hybrid-work policy or changes to a performance management process, make sure that the change supports—rather than inadvertently impedes—greater workforce diversity and inclusion. For example, skills-based hiring and the use of apprenticeships can help attract more diverse candidates to occupations: More than one-fifth of the 420 firefighters that the US Forest Service recruited through its apprenticeship program were women, while underrepresented racial and ethnic groups comprised nearly half.[37] Another data set to consider is measures of a worker's potential, e.g., factors like drive, empathy, and conceptual thinking. These pieces of data, alongside skills, can help organisations identify talent with high potential, offsetting the risk that a focus on skills systemically disadvantages those that have had less access to education.

Endnotes

1. William D. Eggers et al., *Hybrid hiccups: Moving to distributed work in the public sector—Overcoming hybrid work environment challenges*, Deloitte Insights, January 14, 2022.
2. US Bureau of Labour Statistics, "Number of jobs, labour market experience, marital status, and health: Results from a national longitudinal survey," news release, August 31, 2021.
3. Eggers et al., *Hybrid hiccups*.
4. According to Jane Datta, NASA's chief HR officer, "It really just pushes open the doors of opportunity to our workforce to consider projects, rotations, details, and these kinds of experiential learning opportunities that might not ever have been possible or even thought of or considered before." See: Nicole Ogrysko, "Hybrid work brings new professional development possibilities to NASA," *Federal News Network*, December 17, 2021.
5. For instance, Adobe uses a data-driven "career discovery" tool to help employees explore new roles based on moves that others at similar levels have made previously. See: Brian Miller, "How we inspire great performance at Adobe," Adobe Blog, May 9, 2022.
6. Drew Friedman, "How agencies are trying to keep early-career employees in federal jobs," *Federal News Network*, November 8, 2022.
7. OECD, *Ageing and talent management in European public administrations*, October 2021.
8. Government of Canada Wiki, "Canada's Free Agents," accessed February 15, 2023; That public servant, "Roaming from coast-to-coast: The life of a Free Agent," Government of Canada, March 12, 2020.
9. Australian Public Service Commission, "Movement of employees," accessed February 15, 2023.
10. 18F, "About," accessed February 15, 2023.
11. Central Intelligence Agency, "CIA makes changes to adapt to future challenges," October 7, 2021.
12. Adeline Tan, "More public servants quit last year: Chan Chun Sing," *Straits Times*, February 17, 2022.
13. Justin Doubleday, "White House developing cyber workforce strategy to be more 'action oriented'," *Federal News Network*, September 9, 2022.
14. For instance, IBM's SkillsBuild program offers training to potential hires at a range of educational levels, creating a pipeline for candidates with nontraditional backgrounds. And Unilever offers employees the opportunity to grow their skill sets through cross-functional learning. "We're beginning to think about each role at Unilever as a collection of skills, rather than simply a job title," says Anish Singh, head of HR for Unilever in Australia and New Zealand. See: Therese Raft, "Unilever is turning the work week toward skills building," *Financial Review*, April 27, 2022.
15. Sue Cantrell et al., *The skills-based organisation: A new operating model for work and the workforce*, Deloitte Insights, September 8, 2022.
16. OPM, "OPM releases skills-based hiring guidance," press release, May 19, 2022.
17. Ibid.
18. Roy Maurer, "LinkedIn launches skills-based approach to hiring," SHRM, June 10, 2021.
19. Indiana Department of Workforce Development, "Indiana Office of Technology becomes first state agency to earn SEAL certification," press release, December 16, 2019.
20. Dennis Trinkle, "How skills-based hiring will help resolve Indiana's biggest tech talent challenges," TechPoint, May 24, 2022.
21. Kathy Gurchiek, "In search for qualified workers, Maryland drops requirement for 4-year degree," SHRM, April 21, 2022.
22. Defense Innovation Unit, "Transforming DoD's access to talent," April 21, 2022.
23. Deloitte, *Work toward net zero: The rise of the Green Collar workforce in a just transition*, accessed February 15, 2023.
24. American Institutes for Research, "Measuring skills at work: Lessons from the field," accessed February 15, 2023; MilGears, "Empower your career planning, decision making, and professional growth," accessed February 15, 2023.
25. Sue Cantrell et al., *Building tomorrow's skills-based organisation: Jobs aren't working anymore*, Deloitte, accessed February 15, 2023.

Endnotes

26. Medarbejder og Kompetence Styrelsen, "Virtual ledelse: Inspiration og værktøjer," November 2020; Government of Canada, "Tool kit for virtual and hybrid teams (TRN2-J05)," March 19, 2020; UAE Federal Authority for Government Human Resources, "The guide of remote working system in the federal government," 2020; US Office of Personnel Management, "Hybrid workplace tips for supervisors," accessed February 15, 2023.
27. Adobe's dashboard tracks progress on how an employee's work aligns with personal and business goals, documents actions resulting from conversations with managers, and collects real-time feedback. See: Miller, "How we inspire great performance at Adobe."
28. Cantrell et al., *Building tomorrow's skills-based organisation:* Google, "Googler reviews and development," accessed February 15, 2023.
29. National Initiative for Cybersecurity Careers and Studies, "Cyber career pathways tool," June 9, 2022.
30. OECD Observatory of Public Sector Innovation, *Design Academy for Public Policy (LabGobAR)*, accessed February 15, 2023.
31. Apolitical, "In Argentina, public servants get promoted for learning how to innovate," September 7, 2018.
32. OECD Public Governance Reviews, "Skills for a high performing civil service," accessed February 15, 2023.
33. Deloitte survey of members of the US Senior Executive Association (SEA), October 2022.
34. Government of Canada, "GCTools: re-imagined for you," November 2, 2016.
35. Government of Canada Wiki, "GCTools/achievements 2020–2021," accessed February 15, 2023.
36. UK Civil Service, "The Civil Service Awards 2022," accessed February 15, 2023.
37. Drew Friedman, "It's not just low pay causing retention issues for federal firefighters," *Federal News Network*, November 21, 2022.

Acknowledgments

The authors would like to thank **Aishwarya Rai** from the Deloitte Center for Government Insights for driving the research and development of this trend and **Meenakshi Venkateswaran** for her help in designing the graphics of the article. They also thank **Nicole Overley**, **Sarah Smith**, and **William D. Eggers** for their insights and thoughtful feedback.

About the authors

PJ Rivera
privera@deloitte.com

PJ Rivera is a principal and the Futures leader in Deloitte's Government & Public Services practice. He has worked across the public and private sectors as public health leader in the federal government, global vice president at Marriott International, and as a consulting executive. To date, Rivera has led whole-of-government and other large-scale consulting transformations across four countries, multiple states, Native American groups, multiple Fortune 500 companies, and seven federal executive branch departments.

Jacqueline Winters
jawinters@deloitte.com

Jacqueline Winters is a principal in Deloitte Consulting's Government & Public Services Human Capital practice. She has more than 20 years of experience in consulting, during which she has assisted federal leaders to execute their most complex priorities. As the leader of Deloitte's Change Strategy & Analytics practice, she designs agile organisations, empowers leaders, and develops teams to be prepared for the constant disruptions of today's digital age. Winters has pioneered Deloitte's Human Centred Change framework, which employs the use of data and social science research to help leaders to influence their organisation to perform better and to achieve ambitious goals.

Stephen Harrington

stharrington@deloitte.ca

Stephen Harrington is Workforce Strategy and Future of Work Advisory leader for the Canadian market, with a dedicated focus on public sector clients. He began writing and advising clients on the impact of the 4th industrial revolution in 2011. Through the pandemic, he has been helping clients adjust workforce strategy to the new realities and shifting attitudes of the postpandemic employment market.

Amrita Datar

amdatar@deloitte.ca

Amrita Datar is a research manager at the Center for Government Insights where she develops research publications and thought leadership focused on emerging trends at the intersection of technology, business, and society, and how they could influence the public sector. Her previous publications cover topics such as customer experience, digital transformation, innovation, and future trends in government.

Sushumna Agarwal

sushagarwal@deloitte.com

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

TREND 2

Bridging the data-sharing chasm

Although public sector data-sharing has increased, there's more to do to balance its upside with challenges

Adita Karkera, Mahesh Kelkar, Joe Mariani, and Dr. Kellie Nuttall

Expanding the canvas for safe, interoperable data-sharing

Data is a coin of the realm. Many have seen how companies—in fact, entire sectors—have come to base their business models and value propositions on effectively using information, analysing data to meet customers' rising expectations and gain a competitive advantage.

Agencies, too, are finding ways to tap the power of information to both serve citizens and improve operations. Thanks to democratisation of data, there is more data about public interests than even before. The boost that data-sharing has received across government, companies, and individuals is driving innovation, enhancing public services, and improving people's lives.[1] But in collecting and using data, the public sector faces different challenges and perhaps higher stakes, dealing with more sensitive and personal information—and, often, mandatory participation.

While government leaders increasingly recognise data's importance to improving mission performance, many are learning how to balance the upside with the dangers: The more data in circulation, the higher the privacy and security risks can be.

How can agencies alleviate the tension, balancing efforts to break down data silos with protecting citizens' data? The answer lies in effective data governance. One way is developing interoperability frameworks that allow cross-jurisdictional and cross-sector organisations and databases to safely interact and share information. It requires governments to not only secure stakeholder buy-in—especially when dealing with external citizen and private-sector data—but also showcase the meaningful change that expanded data use can bring.

Walls coming down

- **Between agencies and government:** There is an increase in data-sharing between agencies and levels of government to improve operational efficiency and decision-making (see infographic, By the numbers: Bridging the data-sharing chasm to know about the data types being used for operational efficiency and decision-making).

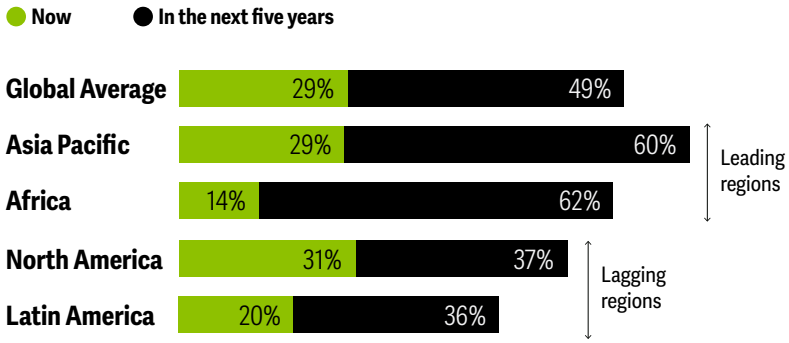
- **Between public and private sectors:** Broader data-sharing with the private sector is creating business value and benefitting the public interest.

- **Between citizens and government:** Calls for heightened data privacy and security are increasingly being heeded in government circles.

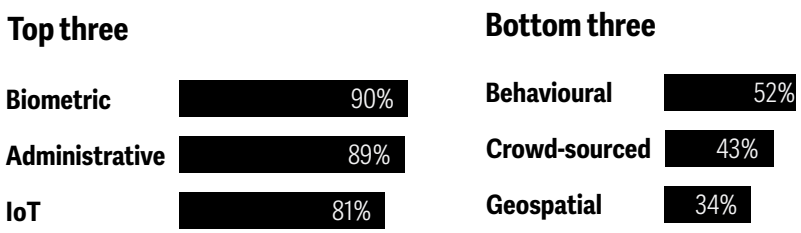
By the numbers: Bridging the data-sharing chasm

Citizens are willing to share data for public good

City leaders are focused on making data more accessible to citizens

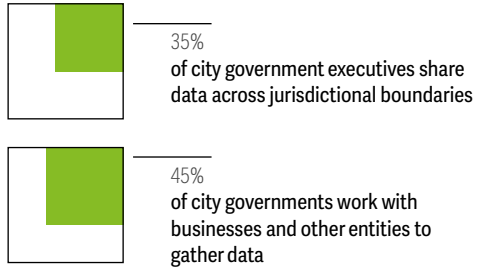


Data types used by city governments to support operations and decision-making



Citizens view state data privacy and security to be bigger challenges than city leaders

More work is needed at the city level to improve data-sharing and tap into external data



Source: Thoughtlab, "A roadmap for the next phase of urban transformation," accessed February 10, 2023.

Trend in action

Data is increasingly central to government operations, from back-office activities to delivering services to constituents, and more leaders are recognising the value of effectively sharing information. For example, by funneling data from many different city agencies into a single command centre, the Portuguese city of Cascais has made mobility, construction, waste management, law enforcement, and emergency management more efficient.[2]

Data as a tool for public good

Businesses, individuals, and agencies increasingly view data as a tool for public good rather than a commodity to be monetised. Government can derive value by convening and collaborating within and outside its boundaries; businesses need to willingly relinquish control over some data and work with policymakers to design viable solutions. There were glimpses of this during the pandemic when governments shared data widely to facilitate research and discovery, pandemic response, and even contact tracing.[3] Also, for some of the most complex policy issues of our times, the best possible evidence to inform government decisions could come from multiple departments and agencies.

Finland's Carbon Neutral Tourism project aims to use data collaboration to improve energy efficiency in the tourism industry and move toward carbon neutrality.[4] The cities of Helsinki, Turku, and Tampere are working together to balance business and societal benefits, collecting information across jurisdictional boundaries, including data on air traffic, road traffic, environment, and hotel bookings.[5] Insights based on such integrated data can help drive industry stakeholders to make more sustainable choices and reduce carbon emissions, from forward-looking hotel investments to city services nudging tourists toward environment-friendly options.

Data-sharing among government, nonprofits, the private sector, and social enterprises can also help address stubborn human services challenges. To cite a particularly visible example, homelessness—worsened by the COVID-19 pandemic and the housing crisis in many cities worldwide[6]—demands an ecosystem approach that taps into real-time, integrated data for more effective prevention and mitigation strategies.

In the United States, the Department of Housing and Urban Development collects a great deal of information on homelessness, but this does not give a complete picture, with much data residing in jurisdictional silos, making solutions harder to develop.[7] Some promising initiatives, based on local and regional data collaboration, suggest a way forward for others. For instance, Los Angeles County aims to better target prevention programs by identifying people at risk of homelessness, using a tool developed by researchers at UCLA's California Policy Lab. The tool combines and analyses data

from eight county agencies—with an algorithm incorporating some 500 data points—to pinpoint the most effective intervention points. The tool identifies critical and "at-risk" areas where services currently reach few people.[8] Similarly, the National Alliance to End Homelessness has created a "State of Homelessness" portal that aggregates data from across the nation and represents it in visual form.[9]

Improved data fluidity

If data can help serve the public good, more data sources can multiply the benefits—assuming usage is safe, responsible, and effective. The last two decades have seen agencies and organisations gain access to vast volumes of data previously stored in government silos with real results. As AI technology has improved organisations' ability to process volumes of information, many agencies have moved toward storing and presenting data in formats that are FAIR: findable, accessible, interoperable, and reusable. The FAIR principles emphasise machines' ability to assimilate and use data—in other words, making information machine-actionable.[10]

As AI technology has improved organisations' ability to process volumes of information, many agencies have moved toward storing and presenting data in formats that are FAIR: findable, accessible, interoperable, and reusable.

Interoperability is an important FAIR concept, but discussions generally revolve around *semantic* interoperability—data exchanges, data formats, and data vocabularies—basically the structuring and codification of data. For instance, the Australian Department of Finance's framework—a critical step toward transforming the nation's digital records—focuses on semantic interoperability to allow humans and machines to clearly understand information's context.[11] A similar effort in India since 2015 through the Interoperability Framework for e-Governance (IFEG) has aimed to improve open data standards and constituent services.[12]

Human–machine communication is only one factor that impacts data interoperability among agencies, departments, and levels of government. Discussions should also include cultural and legal interoperability.

In 2020, the European Union refreshed its 2017 interoperability framework to include common principles, which cities and communities can use to deliver better constituent services. The European Interoperability Framework for Smart Cities and Communities project aimed to tap into the knowledge from other EU initiatives and projects,[13] looking beyond technology to consider the human, social, and ethical aspects of large-scale data usage. The organisation developed a governance model relevant at the local level, enlisted both public and private stakeholders, and helped to engage different communities. While the earlier framework made government agencies responsible for providing integrated public services, the new version includes the private sector, nonprofits, and community organisations.[14]

This seemingly minor framework change has massive implications, demanding a more mature cultural interoperability: understanding social, cultural, political, and ideological differences between individuals and organisations. It requires debates and discussions between different stakeholders to find ways to build consensus on interoperability challenges and solutions while operating in different legal and regulatory environments—particularly with regard to the tricky area of data-sharing.[15]

Building trust, transparency, and ethics

Data interoperability frameworks can lower technical challenges to data-sharing, but they may not necessarily illustrate the benefits to stakeholders. Agencies, companies, and other parties can be far more willing to participate if they see clear value and trust their would-be collaborators. Government can help build that trust, and encourage information sharing, by adopting a clearly articulated set of ethics to guide transparent sharing of how stakeholders' data is used and what's in it for them.

For more than a decade, the city of Boston's Mayor's Office of New Urban Mechanics (MONUM) has convened an ecosystem of technology vendors, start-ups, academia, and other government agencies to create technology solutions to benefit city residents. Since its launch in 2010, MONUM has successfully deployed a range of digital applications aimed at assisting citizens with street parking, flu shots, and more; labs continue to generate prototypes and solutions in housing, playgrounds, public spaces, and education.[16]

Transparency has been a key element in MONUM's success. One project involves using cameras to collect data on street usage, to improve safety for pedestrians, bikers, and other traffic. But since such broad data collection raised obvious privacy concerns, the team focused on noninvasive sensor data, making sure to neither collect nor store visually identifiable images of faces and license plates.[17] And to alleviate public wariness, the team placed signs with scannable QR codes at data collection spots, offering information on the project, an explanation of the eventual data use, and a site for people to share comments.[18]

Getting public buy-in for data-sharing can be challenging, but business leaders are often even more wary, citing low trust in data platforms and the inability to demonstrate business or social value. A World Economic Forum study in 34 cities globally found limited private-sector participation in citywide open-data platforms, due in part to a lack of confidence in government's ability to address data misuse and prevent breaches.[19]

A lack of trust in the broader data-sharing ecosystem can slow down advances dependent on collaboration. For instance, the technology has long been in place to scale smart-kilometre or road-user charging solutions to urban areas, but data governance remains a stubbornly thorny issue for the transportation ecosystem. Vehicle manufacturers, government agencies, and other players have strug-

gled to agree how best to protect drivers' privacy when collecting data about where and how much they drive.[20] Similar problems continue to hinder progress on data-sharing in a number of domains.

Brussels has aimed to solve the problem by building data governance and privacy into its SmartMove smart kilometre-charge program from the beginning. The city developed SmartMove to adhere to GDPR guidelines and with privacy-by-design principles in mind; the program uses a federated data system in which the city's tax agency is made aware of the vehicle miles driven within a geographic zone only—not where or on which route. Only the SmartMove app user can see all of this information in one place. The city is live-testing the application with 1,500 residents and plans to scale it to the whole city in the next couple of years.[21]

Moving forward

- **Go beyond semantic interoperability:** Enabling semantic interoperability—functioning data exchanges and common data formats—is foundational to improving data-sharing. But government leaders should also focus on building cultural and legal interoperability to enable collaboration between agencies, the private sector, and citizens.

- **Be laser-focused on data privacy and security:** Constituents' and businesses' willingness to provide consent and share more data with the broader ecosystem will depend on their trust in the data ecosystem. But creating that trust is beyond the scope of any individual government leader. Rather, chief data officers, chief privacy officers, and chief information security officers, may need to blend their data and their ethical and security expertise to provide an environment that stakeholders can trust.

- **Develop a value proposition for the private sector:** In creating plans for a data-sharing ecosystem generating public benefits, government leaders should showcase business value to encourage private-sector participation.

- **Identify where to get started:** Government leaders should not boil the ocean but rather be more strategic in choosing the right policy area and solutions. They should proactively identify leading practices and success stories in different priority areas and test them further to show broader benefits on the ground.

My take

Ren Essene
Chief data officer, US Consumer Financial Protection Bureau

A good data strategy is key to mission success

The US Consumer Financial Protection Bureau (CFPB) is a relatively new organisation born in the digital age, giving us a unique advantage. While other public sector agencies may have legacy system issues or may have their data in silos across the agency, the CFPB has had a centralised approach to data since our inception. Data is at the heart of our mission and is in our DNA.

The CFPB's mission is to implement and enforce federal consumer financial law and to ensure that markets for consumer financial products are fair, transparent, and competitive, a task that is impossible without data about how those markets function.

Therefore, from the beginning our charge was to make data available to regulators and the public to bring greater sunlight to market practices and improve competition and encourage innovation. To achieve that, our data strategy is built around five priorities:

1. Increase the accessibility and volume of public data

2. Create a modern data platform by migrating to the cloud, managing costs, and enabling analytical capabilities

3. Improve the quality of data and leverage modern tools to support research and analysis

4. Increase staff's awareness and understanding of CFPB data assets

5. Foster data literacy and upskill staff

We have built a series of campaigns, one for each priority, to drive the progress across a three year horizon. We have engaged our business and technical stakeholders throughout the process and have campaign leaders from multiple offices. We are focused on incremental wins and delivering value on mission priorities. By improving our data practices, we can help to create more fair, transparent, and competitive markets to ultimately improve the lives of consumers.

Endnotes

1. Adita Karkera, *Data-fuelled government: Breaking down silos with turbo-charged data*, Deloitte Insights, March 24, 2022.
2. Deloitte Cloud, *A city sees what's possible for its citizens and visitors with a cloud-based command centre*, 2019.
3. Juergen Klenk et al., *Fluid data dynamics: Generating greater public value from data*, Deloitte Insights, March 4, 2021.
4. 6Aika, "Results: Carbon Neutral Tourism," April 20, 2022.
5. Maxim Chantillon et al., "Final study report: Proposal for a European interoperability framework for smart cities and communities," Deloitte and KU Leuven for the European Commission, July 2021.
6. German Lopez, "Homeless in America: The homelessness crisis is getting worse," *New York Times*, July 15, 2022; Kirsten McRae, "The global housing crisis: A crisis unlike any other," *Urbanet*, October 25, 2022.
7. Tiffany Fishman and et.al., *Disrupting housing insecurity and homelessness*, Deloitte Insights, January 5, 2022.
8. Emily Alpert Reyes, "A computer model predicts who will become homeless in L.A. Then these workers step in," *Los Angeles Times*, June 12, 2022.
9. National Alliance to End Homelessness, "State of Homelessness: 2022 edition," accessed December 12, 2022.
10. Klenk et al., *Fluid data dynamics: Generating greater public value from data*.
11. Australian Government Department of Finance, "Australian Government Records Interoperability Framework," July 2, 2021.
12. Government of India Department of Electronics and Information Technology, "Interoperability Framework for eGovernance, version 1.0," October 2015.
13. European Commission, "Proposal for a European Interoperability Framework for Smart Cities and Communities (EIF4SCC), accessed October 2, 2022.
14. Ibid.
15. Author interview with Deloitte Portugal team, September 9, 2022.
16. City of Boston, "New Urban Mechanics," accessed December 13, 2022.
17. New Urban Mechanics, "Numina street sensors," November 10, 2021.
18. New Urban Mechanics, "Digital transparency in the public realm," November 10, 2021.
19. World Economic Forum and Deloitte, *Governing smart cities: Policy benchmarks for ethical and responsible smart city development*, July 2021.
20. Tiffany Fishman et al., *Transportation trends 2022–23: Making the most of a huge infusion of federal funds*, Deloitte Insights, November 8, 2022.
21. Author interview with Deloitte SmartMove team, August 20, 2022; SmartMove, "SmartMove sets Brussels on the right track!," accessed December 13, 2022.

Acknowledgments

The authors would like to thank **Apurba Ghosal** from the Deloitte Center for Government Insights for driving the research and development of this trend and **Meenakshi Venkateswaran** for helping design the graphics of the article. They also thank **William D. Eggers** for his insights and thoughtful feedback.

About the authors

Adita Karkera

adkarkera@deloitte.com

With more than 22 years of industry experience, Adita Karkera serves as the chief data officer for Deloitte Consulting LLP's Government and Public Services where she leads the data strategy to foster value creation from the organisations' data while facilitating trust. Karkera also serves as a thought leader and fellow in the Deloitte AI Institute for Government where she strategically advises government clients on maximising business value in the areas of data management, strategy, advanced analytics, and AI.

As an advisor and thought leader, Karkera is dedicated to improving public service. She has served on numerous industry boards and data management industry forums. She is a pioneer in articulating the importance of data literacy especially in accelerating advanced analytics and trustworthy AI adoption in government.

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.

Joe Mariani

jmariani@deloitte.com

Joe Mariani is a senior research manager with Deloitte's Center for Government Insights. His research focuses on innovation and technology adoption for both national security organisations and commercial businesses. His previous work includes experience as a consultant to the defence and intelligence industries, high school science teacher, and Marine Corps intelligence officer.

Dr. Kellie Nuttall

knuttall@deloitte.com.au

Kellie Nuttall leads Deloitte's Artificial Intelligence offering and is passionate about working with organisations to turn complex data into rich insights, as well as embedding AI and cognitive technologies into business and government to deliver a better world. Nuttall is a leading expert in understanding how to best use AI, digital twins, and other emerging technologies to optimise complex operational systems and value chains. She also works extensively with organisations to design their AI operating models to best deliver high-value business benefits and outcomes. She is also a faculty member at Singularity University, where she helps to create better transport systems through exponential technologies.

TREND 3

Tackling funding silos

Fostering greater collaboration and shared problem-solving to create greater public value

Ed Roddis, Mark Bussow, Tiffany Fishman, and Ursula Brennan

Introduction

By design, government agencies are set up as specialised, hierarchical organisations funded and governed in silos, providing visibility and accountability on how public funds are used. But that defined scope itself can act as a roadblock to the creation of greater public value. Indeed, siloed budgets, regulatory constraints on fund transferability, limited flexibility, and a lack of incentives to collaborate can lead agencies to narrow their efforts even as challenges such as climate change, homelessness, and intergenerational poverty demand a coordinated whole-of-government response.[1]

Governments have long recognised the need to break down funding barriers to achieve better outcomes. And though efforts may be at different stages, an increasing number of jurisdictions are looking to overcome silos where they impede progress on major agenda items, from shifting to a citizen-centric service delivery model oriented around life events, to addressing government's cumulative quick-over-good tech debt, to giving more control over funding and decision-making to those closest to the problem at hand.[2]

The Next Generation EU (NGEU) plan represents one of the most recent, largest-scale initiatives to date. Focused on digitisation, innovation, and sustainability, the NGEU plan aims to support transformational change by distributing over €800 billion to state ministries, regional governments, local governments, and state-owned enterprises to assist in postpandemic recovery, helping to put the European Union on the path toward resilient economic growth. Structure and accountability are key: The plan establishes a governance framework that links disbursement stages with the fulfilment of milestones and targets.[3] Some countries are maximising opportunities by supplementing the funding with local money, and the NGEU plan is acting as a catalyst for greater private investment toward a more digital, sustainable, and inclusive future for EU businesses, governments, and citizens.[4]

In the sections that follow, we highlight some of the models governments are using to drive more shared problem-solving and collaboration–from shared-funding initiatives, to delegating more funding authority to lower levels of government to provide more flexibility to coordinate around specific community needs. The infographic below provides an overview of some innovative funding models deployed by government agencies around the world.

Governments have long recognised the need to break down funding barriers to achieve better outcomes.

Walls coming down

- More **issue-focused funding initiatives** that multiple agencies draw on to tackle wicked problems.
- Emergence of **new governance models** to oversee shared-funding programs.
- Increased **interagency funding mechanisms** to address common challenges across agencies.
- **Greater funding authority** delegated to local/regional governments.

By the numbers: Tackling funding silos

£2.6 billion

The Shared Prosperity Fund provides new funding to further the UK government's ambitious Levelling Up agenda.

CA$327.6 million

Canada's horizontal Initiative to Take Action Against Gun and Gang Violence allocates over $300 million to provinces and territories to combat violence in their communities.

SG$70+ million

Singapore's Smart Nation and Digital Government Office provides cross-agency funding and support for the development and implementation of digital technologies and services across the government.

AU$7.5 billion

Shared between multiple agencies, Australia's 'wellbeing budget' is aimed at tackling the rising cost of living, providing affordable child-care, and increasing paid parental leave.

New Zealand's Better Public Services Seed Fund provided initial funding for SmartStart, an inter-agency program for infant care. Recurring annual funding has been appropriated to maintain life-event initiatives.

Note: Singapore dollar value represents the annual operating budget.

Sources: Gov.uk, "UK Shared Prosperity Fund: prospectus," August 1, 2022; Government of Canada, "Public safety Canada," accessed February 9, 2023; Government of Singapore, "Budget 2021," accessed February 9, 2023; William D. Eggers et al., *How government can deliver streamlined life event experiences*, Deloitte Insights, July 12, 2022; Jack Aldane, "Australia's 'wellbeing budget' inspired by New Zealand—with related targets to come," Global Government Forum, October 26, 2022.

Trend in action

Deploying shared-funding models for cross-sector collaboration

Across the globe, governments are setting up shared-funding initiatives that aim to increase intergovernmental and cross-sector collaboration. Over the last decade, Singapore's whole-of-government approach has used funding mechanisms to encourage agency collaboration, generating programs such as Life SG and One business. The prime minister's office coordinates and oversees whole-of-government projects supported by a team of senior officials from multiple agencies. The funding is allocated to the agency leading the effort and is then dispersed to supporting agencies.[5]

Building on these, Singapore has embarked on an even more ambitious "whole-of-nation" approach wherein agencies actively collaborate with businesses, citizens, and other stakeholders to develop solutions designed to bolster the nation's finances and social services, reaffirm its digital transformation leadership, and even shore up national defence.[6]

Some countries have adopted an issue-based funding model in which multiple agencies work together to tackle a particular wicked problem. To advance clean energy nationwide, the Australian federal government established the Rewiring the Nation initiative with AU$20 billion in funding to transform the country's electric grid. Low-cost financing will enable new transmission lines, boosting economic activity and job creation.[7] Projects include the construction of the VNI West (KerangLink) transmission line between Victoria and New South Wales (NSW) and the Marinus Link transmission line between Tasmania and Victoria using a combination of low-cost financing and commonwealth equity investment.[8] Additionally, an AU$7.8 billion joint agreement was reached with NSW to support eight crucial transmission and renewable energy zone projects. Funding is available to all states.[9]

Some local and regional governments are using similar models. The city of Houston's "The Way Home" program built an ecosystem of businesses, nonprofits, churches, and federal government agencies to help people without homes get into permanent housing with supportive services.[10] This large-scale effort draws on funding from a US Department of Housing and Urban Development Emergency Solutions Grant and Community Development Block Grant, in addition to state, local, and private-sector funding.[11] In 2022, Houston, Harris County, and the Coalition for the Homeless collective received US$45 million in federal funds[12] and allocated US$100 million in COVID-19 relief.[13] The Bezos Day 1 Families Fund also awarded the city a one-time US$5 million grant to help area families move to permanent housing.[14] To date, the effort has reduced the number of Houston-area people without homes by 63%, moving more than 25,000 people into housing.[15]

Other cities have launched similar efforts. The nonprofit Family League of Baltimore pools funds from multiple public and private sources to help Baltimore children, focusing on them being born healthy, succeeding in school, graduating high school, and transitioning into higher education and the workforce.[16]

While shared governance is key for collective funding, in certain cases central government entities take charge of governance and accountability to effectively facilitate funding across silos.

The creation of intergovernmental collective funding mechanisms

Government agencies often default to working as single-purpose organisations, with inconsistent horizontal coordination between agencies. This siloed approach can create costly inefficiencies when it comes to common problems such as technology modernisation. To tackle this issue, in 2017, the US government established the Technology Modernisation Fund, an innovative funding vehicle that supports federal projects to modernise technology and make them more equitable, secure, and user-centric.[17] The fund has invested over US$500 million in 33 projects across 18 federal agencies, ranging from implementing single sign-on experience across government portals to digitising temporary worker visa programs.[18] These investments have been directed at improving citizen data protections, strengthening cybersecurity across government silos, saving taxpayer dollars, and advancing public-facing digital services.[19] With an additional US$1 billion from the 2021 American Rescue Plan and US$175 million from the annual budget process, the fund aims to continue financing modernisation projects.[20]

At the state and regional levels, some governments have created funding mechanisms that are set up and run by one agency but are accessible to others that meet established criteria. In Australia, NSW established the Digital Restart Fund in 2019 to accelerate whole-of-government digital transformation and fund cross-agency projects such as life-event initiatives, shared digital assets, legacy systems modernisations, and government workforce capability building.[21] NSW is now starting to see the benefits from the fund's investments. To date, the fund has disbursed AU$2.2 billion, supporting more than 140 projects, saving more than 3,000 working days of customer time, and generating AU$2.3 billion in economic returns.[22]

Delegating funding authority to improve regional coordination

In an effort to drive shared objectives, some governments are providing regional authorities more flexibility to deploy funds and coordinate multiple siloed funding streams around specific community needs in the jurisdiction.

The state of California created the Community Economic Resilience Fund to promote regional resiliency, equity, sustainable growth, and inclu-

sive planning.[23] Thirteen regions will get funds for planning and implementing road maps around climate change, regional infrastructure, workforce development, and other areas. Three state agencies together form the fund's leadership team, tasked with managing the program, creating program guidelines and conducting oversight.[24]

Further north, the Canadian Community-Building Fund permanently provides funds for provinces and territories to support local infrastructure priorities. The fund disburses some CA$2 billion annually to 3,600 communities across the country, supporting approximately 4,000 projects each year. Municipalities can pool, bank, and borrow against this funding, giving them greater financial flexibility.[25]

Moving forward

- **Adopt an outside-in view.** By putting themselves in the shoes of citizens and businesses transacting with government, agencies can better understand the needs of the constituencies they serve that transcend individual business units and agencies. These needs can inform the development of a road map for targeted collaboration initiatives.

- **Create a culture of collaboration in funding.** Governments can encourage collaboration by establishing cross-sectoral committees or working groups to encourage those working on similar issues to promote shared-funding mechanisms.

- **Utilise data and technology to measure impact and drive outcomes.** Data-driven processes can help enable shared governance, track the impact of cross-sector initiatives, and pivot goals as required to deliver desired outcomes.

- **Shift from siloed to shared governance models.** Governments can promote shared-funding models by revisiting historical governance policies and regulatory frameworks that hinder the scope of cross-sector financing.

My take

Sir Howard Bernstein
Former chief executive of Manchester City Council (1998–2017) and former head of Paid Service for the Greater Manchester Combined Authority (2011–2017)

Devolution in the United Kingdom: Greater Manchester Combined Authority

In 2016, the UK government passed the Cities and Local Government Devolution Act, establishing combined regional authorities with a directly elected mayor. Greater Manchester was one of the first areas to seize this opportunity. Greater Manchester Combined Authority (GMCA), an umbrella organisation comprising 10 constituent local authorities, was formed as part of the devolution agenda, allowing the combined power to identify problems and create evidence-based interventions.[26] Officials formulated integrated governance structures, giving GMCA and the mayor of Greater Manchester additional authority, flexibility, and budgetary responsibility over policing, fire services, transportation, skills strategy, planning, and economic regeneration.[27]

GMCA also oversees Greater Manchester's adult education budget, allowing the authority to develop a bespoke skills strategy tailored to needs, and is responsible for providing employment support for long-term unemployed and disabled workers.[28] Greater Manchester was one of the first regions to include health and social care in its devolution plan, which studies have linked to better health outcomes.[29] Collaborating with the NHS allows GMCA to exert partial control over a £6 billion health and social care budget, with NHS England granting the region control of its share of the national sustainability and transformation fund (£450m).[30] Greater Manchester also received £243 million from the Transforming Cities Fund for transport investment.[31]

In broad terms, this devolution agenda gives local authorities more budgetary control and incentivises a more collaborative model by providing broader flexibility to coordinate multiple siloed funding streams around specific community needs.[32] In 2022, the UK government published a blueprint for creating more regional mayors across England, with the expectation that they will be able to allocate funds and administer programs more effectively.[33] Driven by the United Kingdom's central government, the move aims to stimulate a more equitable spread of economic opportunity around the country–an agenda dubbed "levelling up."[34]

Endnotes

1. Pia Andrews, "Breaking government silos through holistic service integration," *Apolitical*, March 23, 2022; originally in William D. Eggers et al., *Linked-up government: Building connections for greater impact*, Deloitte Insights, March 24, 2022.
2. William Eggers et al., *How government can deliver streamlined life event experiences*, Deloitte Insights, July 12, 2022.
3. Maximilian Freier et al., "Next Generation EU: A euro area perspective," European Central Bank, January 2022.
4. Italy, for example, has supplemented its NGEU funds with a €30.6 billion "complementary fund;" see: Andrea Poggi, *Next Generation EU funding and the future of Europe*, Deloitte, October 28, 2021.
5. GovTech Singapore, "Whole of government (WOG) platforms and tools," accessed January 2, 2023; Kharina Zainal, "Reviewing whole-of-government collaboration in the Singapore public service," Civil Service College Singapore, January 6, 2011.
6. Yasmine Yahya, "Public service to go from 'whole-of-government' to 'whole-of-nation,'" *Straits Times*, May 9, 2018; SG101, "A whole of nation approach," December 10, 2022.
7. Katharine Murphy and Adam Morton, "'Rewiring the nation:' Albanese and Andrews governments to jointly fund renewable energy zones," *The Guardian*, October 19, 2022; Aneeq Sarwar and Jeffrey Wilson, "The National Reconstruction Fund—Australia's newest vehicle for advancing industrial development," *Ai Group*, November 23, 2022.
8. Australian Government, Department of Climate change, Energy and Environment and Water, "Rewiring the Nation supports its first two transmission projects," October 19, 2022.
9. Australian Government, DCCEEW, "Rewiring the Nation deal to fast-track clean energy jobs and security in NSW," December 22, 2022.
10. Coalition for the Homeless, "The Way Home partner portal," accessed January 4, 2023.
11. Coalition for the Homeless of Houston/Harris County, "The Way Home partner portal," accessed January 2, 2023.
12. Atirikta Kumar, "Houston's fight to decriminalize mental illness and homelessness," *Real News*, July 15, 2022; Michael Murney, "Houston City Council approves $7.1 million in COVID funding to clear homeless encampments," *Chron*, July 29, 2022; Sofia Gonzalez, "Bezos Day 1 Families Fund gives $5M to Coalition for the Homeless of Houston/Harris County," *Houston Business Journal*, November 22, 2022.
13. Lucio Vasquez, "Houston receives $45 million in federal funds to combat homelessness," *Houston Public Media*, March 15, 2022.
14. Catherine Villarreal, "City of Houston and Harris County announce unprecedented investment to house the homeless," Coalition for the Homeless of Houston/Harris County, January 26, 2022.
15. Michael Kimmelman, "How Houston moved 25,000 people from the streets into homes of their own," *New York Times*, June 14, 2022.
16. Family League of Baltimore, "About us," accessed January 2, 2023; Jitinder Kohli and Anne De Biasi, *Supporting healthy communities*, Deloitte Insights, August 2, 2017.
17. Technology Modernisation Fund, "Mission & guiding principles," accessed January 2, 2023.
18. US General Services Administration, "New Technology Modernisation Fund investments to boost network security for critical services," June 21, 2022; Technology Modernisation Fund, "Investments," accessed January 2, 2023; US General Services Administration, "Technology Modernisation Fund is making it easier and more secure for veterans to access benefits and services," April 19, 2022; US General Services Administration, "TMF invests in improving public-facing services, bolstering cybersecurity," August 3, 2022; US General Services Administration, "The Technology Modernisation Fund announces $9 million for transformative projects to protect personal data, modernise key systems at two agencies," March 7, 2022.
19. US General Services Administration, "GSA highlights progress on citizen-facing digital services, cybersecurity in first year of American Rescue Plan," March 10, 2022.

Endnotes

20. US General Services Administration, "Technology Modernisation Fund is making it easier and more secure for veterans to access benefits and services," April 19, 2022; US General Services Administration, "TMF invests in improving public-facing services, bolstering cybersecurity," August 3, 2022; US General Services Administration, "The Technology Modernisation Fund announces $9 million for transformative projects to protect personal data, modernise key systems at two agencies," March 7, 2022.
21. NSW Government, "Is my project eligible?," accessed January 2, 2023; Alita Sharon, "Digital Restart Fund supports more projects in New South Wales," OpenGov Asia, August 18, 2022.
22. Urbis, "Evaluation of the Digital Restart Fund," NSW Department of Customer Service, March 23, 2022; NSW Government, "2021–2022 in review," 2022.
23. California Labour and Workforce Development Agency, Governor's Office of Planning and Research, and Governor's Office of Business and Economic Development, "Community Economic Resilience Fund Program (CERF)," April 2022.
24. Governor's Office of Planning and Research, "Community Economic Resilience Fund," 2022.
25. Government of Canada, "The Canada Community-Building Fund," July 13, 2022.
26. HM Treasury, George Osborne, and Philip Hammond, "Devolution to the Greater Manchester Combined Authority and transition to a directly elected mayor," Gov.uk November 22, 2017; Local Government Association, "Experiences of employment and skills devolution: Greater Manchester Combined Authority," September 10, 2020.
27. Institute for Government, "Devolution to Greater Manchester," June 20, 2022.
28. Ibid.
29. University of Manchester, "Study links devolution in Greater Manchester to modest improvement in life expectancy," September 29, 2022.
30. Hugh Alderwick, "Understanding the impact of devolution in Greater Manchester on health," Health Foundation, September 29, 2022.
31. Intelligent Transport, "£69.5 million transport funding boost considered in Greater Manchester," January 25, 2021.
32. Greater Manchester Combined Authority, "Devolution," 2017.
33. West Midlands Combined Authority, "Plans to give greater powers to the West Midlands welcomed as Levelling Up strategy is published," February 2, 2022.
34. Daniel Harari and Matthew Ward, "Levelling up: What are the Government's proposals?," House of Commons Library, February 18, 2022.

Acknowledgments

The authors would like to thank **Glynis Rodrigues** and **Thirumalai Kannan** from the Deloitte Center for Government Insights for driving the research and development of this trend and **Meenakshi Venkateswaran** for helping design the graphics of the article. They also thank **Chew Chiat Lee**, **Steve Hamilton**, **Wade Horn**, **Cecelia Hill**, **Carsten Joergensen**, **Enrique Egea**, and **William D. Eggers** for their insights and thoughtful feedback.

About the authors

Ed Roddis

eroddis@deloitte.co.uk

Ed Roddis is director of Government & Public Services research at Deloitte in the United Kingdom. As author of the United Kingdom's annual *State of the State* report, Roddis spends his time studying public policy and public opinion as well as presenting research to senior leaders from across the country's public sector. Before joining Deloitte, Roddis's career focused on research, parliamentary relations, and communications for a range of public bodies spanning local government, education, and public financial management.

Mark Bussow

mbussow@deloitte.com

Mark Bussow is a specialist leader in Deloitte's Government and Public Sector Strategy offering, focusing on strategy development and organisational performance improvement. He has more than 20 years of experience leading high-priority transformation efforts across the federal government. Bussow assists clients to develop organisational strategy, align executive governance and decision-support functions to strategy, and improve organisational performance.

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 affect organisations. 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 *EducationWeek*.

Ursula Brennan

ubrennan@deloitte.com.au

Ursula Brennan is the national leader for Deloitte's Public Sector and Public Policy practice, coordinating services from across our business to support state, federal, and local government clients in delivering better outcomes for citizens. Brennan also leads Deloitte's National Business Case Center of Excellence, providing advice to assist clients in securing funding for major infrastructure, ICT, and reform programs. Her previous experience includes a broad range of corporate finance engagements, including strategic reviews, mergers, acquisitions and divestments, business planning, and capital raising.

TREND 4

Tailored public services

Digital technology is enabling greater personalisation by government. These tailored services can be more effective and equitable.

Jaimie Boyd, Chew Chiat Lee, Henry Ennis, John O'Leary, and Sushumna Agarwal

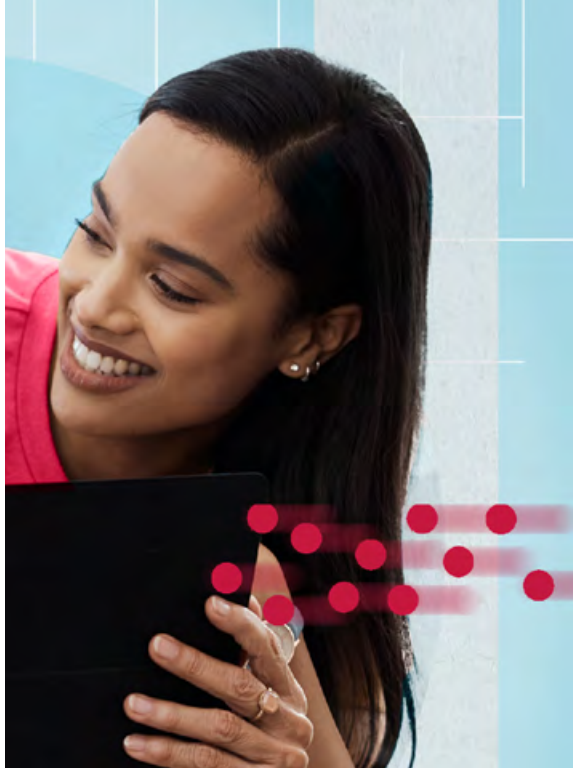
Toward a "government for one"

Companies have long used demographic information to tailor offerings to customers. Governments are also using advances in digital technology to personalise services to constituents' diverse needs.[1] It could be something as simple as scheduling a building inspection for someone who applies for a construction permit or generating a tax ID number automatically alongside a birth certificate. Or it could be ambitious enough to revolutionise how people interact with government.

Thanks to advances in digital technologies, insights from behavioural science, and new data management tools, governments are making strides in providing more personalised services. There are even examples of government service tailored to the individual—referred to as "government for one."

Tailored services can help deliver more equitable services. The UN warns against a one-size-fits-all policy for digital transformation, since it tends to leave the socioeconomically disadvantaged behind.[2] An individual's unique life experiences may generate unique service needs and delivery requirements. Age, gender, income level, disability or even geographic location can impact access. Approaches such as customer microsegmentation and life event-triggered services can help governments better tailor services to individuals by enabling deeper insights about their needs.

Tailored digital services can also enhance customer perception. A Deloitte survey conducted in 2022 across companies in Europe and Africa found that personalised service was the most important factor among respondents for driving customer satisfaction.[3] Another Deloitte survey found that a positive digital experience was a major factor in boosting respondents' trust in government.[4]



More personalised services may not always be feasible or necessary. However, customer segmentation, proactive service delivery, and personalisation can help governments deliver highly tailored services when "one-size-fits-all" approaches don't serve well or are not equitable. Wherever they are used, tailored services should respect the privacy of those receiving the services.

FIGURE 1

The personalisation spectrum

Government for one	**Individual design** • Fully tailored • Individually customised (designed around constituents' needs) • Personalised (Modified based on expressed preferences. For example, "Contact by text, email or phone.")	Most tailored
Personalised/proactive	**Life events triggered** • Births • Deaths • Job losses **Suggested services** • "If you qualify for X, you may also benefit from Y."	
Customer segmentation	**Demographic targeting** • Elderly • Low-income • Veteran **Geographic targeting** • By region • By zip code	
One-size-fits-all	**Broad services, such as** • Road repair • Fire protection services	Least tailored

Source: Deloitte analysis.

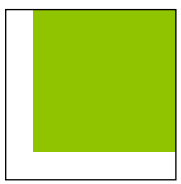
Walls coming down

- **Between governments and the individuals they serve:** Tailored services can help ensure equitable access to vital services, dissolving barriers of red tape between government and citizens.
- **Between multiple government agencies and critical data about individuals:** Individuals' needs often cross bureaucratic boundaries. Government agencies, by appropriately sharing information about the people they serve, can tailor their efforts to ensure there are "no wrong doors" for those seeking service. Data-sharing can enable a "single front door" approach that meets varied customer needs.

Personalising services requires governments to understand their citizens through data. Research findings indicate that a favourable environment exists in this regard as most citizens are comfortable with government agencies collecting their data for various purposes (see infographic, By the numbers: Tailored public services).

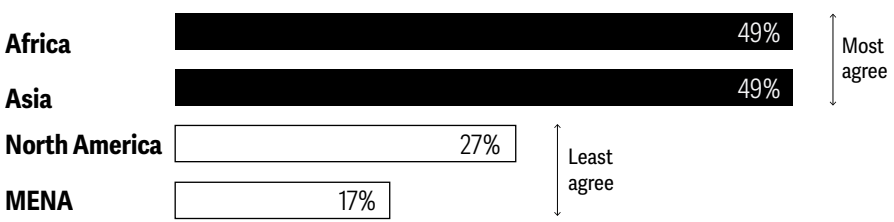
By the numbers: Tailored public services

Over the next five years, cities, globally, plan to prioritise using a digital platform



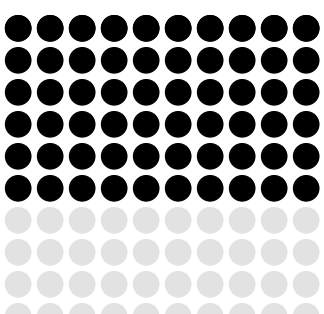
70%
plan to use a digital platform to address multiple citizen needs through one personalised interface

Citizens who agree that their city's digital services provide good customer experience



Citizens are willing to share data with government for life-event services

Citizens are comfortable with government agencies collecting their data to:



60%
of citizens say that being asked for repetitive information by government agencies is a hassle

Sources: Thoughtlab, "A roadmap for the next phase of urban transformation," accessed February 10, 2023; Deloitte Digital citizen survey, 2023.

Trend in action

Approaches to segmenting services

The "same" event can impact different people in different ways. The COVID-19 pandemic, for example, disproportionately impacted the elderly. Similarly, the "same service" can feel very different to different groups. A program that requires extensive paper documentation could be insurmountable to people who are homeless, who may neither have space to store documents nor access to technology to view or print them.

The accelerated shift to the digital world appears to have highlighted inequities in the design and delivery of some public sector services. Online permitting can disadvantage rural users who lack reliable cell service. Oftentimes, inadequate access to essential services such as broadband disproportionately impacts low-income individuals and disadvantaged communities.[5] So, as more services shift online, it becomes critical to ensure that the groups that need them most can benefit—both in terms of technical access as well as digital literacy which, in some cases, can be a more significant challenge.

A secure digital identity is foundational to providing tailored digital services. In Singapore, SingPass for individuals (and CorpPass for companies) are the digital identities used to access more than 2,000 services from more than 700 government agencies and businesses. SingPass can be used to share official personal information, such as address and next-of-kin information needed during an emergency, upon consent.[6]

Governments should consider a "no wrong door" philosophy that allows individuals to access services through whatever means they can. This also goes by the name "omnichannel support," which allows governments to integrate information that comes in through a variety of channels, including text, email, webpage inputs, or a phone conversation. Depending on an individual's needs or wants, the best service might be a "no-touch" self-service portal, a "low-touch" webpage with an AI chatbot to assist them, or a "high-touch" approach that involves interaction with a live person.

Recognising this, governments are increasingly focused on designing services for specific citizen groups. For segmentation to be most effective, it should be guided by three important principles: *equity*, to ensure that all groups' needs are met; *efficiency*, so that the service can be delivered within budget; and *experience*, to keep the focus on delivering a great service experience. When considering how to segment their users, many governments use "personas" to explore in-depth the wants and needs of various groups. For example, it is often helpful to think about how to serve newcomers to a service compared to frequent flyers who may already understand the process. Moreover, segmenting can allow the design of communications to be tailored to different groups. Bringing the philosophy of respon-

sive design to user interfaces can greatly enhance the service experience. Segmenting can deliver better performance (equity, experience) at a lower cost (efficiency).

In June 2020, Singapore wanted to give disadvantaged senior citizens a chance to escape the isolation of the pandemic and participate in digital society.[7] They introduced Seniors Go Digital, a program that connected seniors to young people to help upskill their digital competencies. The program mobilised ambassadors to train senior citizens through one-to-one personalised coaching and small groups.[8] For those with financial challenges, the program even subsidised smartphones and mobile plans.[9]

Around 15% of the world's population lives with some form of disability.[10] In Canada, Laval, Quebec launched a smartphone app to help citizens with special needs, such as autism or intellectual disabilities, ride a city bus. The app aims to reduce travellers' anxiety, increase their independence, and improve their overall public transit experience. Once registered, users receive detailed instructions to help them reach their destinations, including photos of landmarks and a reminder to ring the bell when approaching the correct bus stop. It even tracks the rider and can send a notification to a friend or family member if they deviate from the path provided.[11] Ingrid Falaise, stepmother to a child with autism from the pilot program, told the local TV news, "He's getting more self-confidence. He's just like anyone else and can take public transit by himself. It's a big step."[12] In the United States, where roughly 6 million individuals have dementia, transit systems in Olympia, Washington and Rock County, Wisconsin have introduced programs to help people with dementia successfully access public transportation.[13]

Location/geography-specific services

In most countries, economic prosperity is unevenly distributed geographically. Some regions blossom, while others stagnate in comparison. To address this disparity, many governments tailor services by geography.

The United Kingdom's "levelling up" initiative is a long-term plan to reduce geographic economic disparities, including policies designed to more equitably distribute infrastructure and other forms of productive capital. The plan aims to invest at least 55% of the total R&D funding outside the Greater South East by 2024–25, funneling £100 million into three new innovation accelerators to create new clusters of research excellence, and setting up educational institutions where educational attainment is the weakest.[14]

The US federal government's Justice40 initiative seeks to allocate 40% of the benefits of specific federal programs for disadvantaged communities. Investment aims to address issues such as climate change, clean energy, affordable housing, and workforce development.[15]

India, a country eager to level rural inequality, launched free legal aid via videoconference for rural villagers.[16] The Tele-Law initiative was piloted in 500 village

councils in the northern states of Uttar Pradesh and Bihar, and then rolled out across the rest of the country. The service is expected to eventually be available in 22 languages.[17] Hundreds of village women will be trained as paralegal volunteers to act as the first point of contact for rural citizens.[18]

Access to high-speed internet opens up crucial digital-age economic opportunities. Yet, a 2021 Pew Research Center analysis concluded that 28% of rural Americans lack a high-speed internet connection.[19] Unfortunately, laying miles of fibre-optic-based internet cable often isn't economically feasible.

New technologies such as low-earth-orbit (LEO) satellites can offer rural populations broadband access. In March 2021, more than 5,000 satellites were in LEO; that number is expected to rise exponentially.[20] Satellites and 5G can make high-speed connectivity in rural and mountainous regions much more feasible.[21] The Hoh Tribe of western Washington, for example, lacked reliable internet service until recently. Tribal officials reached out to the state government, which connected them with SpaceX's Starlink team to discuss accessing its new satellite internet service.[22] The timing seemed to line up well for both parties; Starlink was planning beta trials for that region and was able to provide early access to the tribe.[23] This tweet from the Hoh Tribe says it all:

"What a difference high-speed internet can make! Our children can participate in remote learning, residents can access #healthcare. We felt like we'd been paddling up-river with a spoon on this. @SpaceX Starlink made it happen overnight. Thanks @WAStateCommerce for introduction."[24]

Event-based services

Life-event service delivery is triggered by an event experienced by constituents, such as the birth of a child, death of a loved one, or loss of a job. These events often entail services from multiple government agencies. By rethinking what constituents need in these circumstances, government can proactively offer related services, achieving mission outcomes and removing challenges for users.[25] An essential aspect of a life-events model is the "once-only" approach: Individuals contacting government should never need to provide the same information more than once because departments should be able to seamlessly share this data behind the scenes.[26]

Research in the United Kingdom has shown that after a death, some citizens had to contact the central government and local authority departments up to 44 times, to complete tasks ranging from cancelling passports to stopping pensions.[27] To tackle this problem, the UK government adopted

a once-only approach for death notification and administering an estate.[28] "Tell Us Once" notifies up to 30 different services, saving the government an estimated £20 million a year in vestigial benefit payments, and saving the bereaved time and effort.[29] According to one study, 98% of citizens surveyed felt favorably about their experience of the "Tell Us Once" service.[30]

More recently, in 2021, the UK government launched a "One Login" for government program—a multiyear project to simplify access to central government services. The program aims to improve the digital experience and replace duplicative systems so that users will not need to enter same information multiple times for different services.[31] Research found that 61% of UK citizens were positive about sharing information with the government and were comfortable with departments sharing that data.[32]

The Estonian government is developing an AI virtual assistant called *Bürokratt* to provide integrated services tailored to individual life events. It allows citizens to apply for benefits, make payments, register a birth, file taxes, renew a passport, and access other government services through voice commands. As the government's chief data officer Ott Velsberg stated, "*Bürokratt* is Siri on steroids." It will offer personalised information based on the user's data and proactively contact citizens to remind them when tasks require their attention.[33]

Government for one

Government for one refers to government services personalised to the individual level. This represents the deepest level of customisation, wherein services are tailored not just for a segment of the population but for a particular citizen. The creation of unique services derived from crowd-based insights has been termed the "billion-to-one" experience.[34]

This personalisation is made possible due to the availability of data on thousands or millions of other individuals through mobile devices, sensors, and other means. Finland's artificial intelligence program *AuroraAI*, which continues to evolve, uses both personal data and population-level data to provide proactive, seamless services based on life events.[35] The program might suggest popular classes to a worker needing retraining, or show college applications to a graduating student.[36]

It's noteworthy that Aurora is designed with the long-term future in mind and data ethics built into its foundations. The flexible framework allows public and private entities to connect to Aurora's network of services. Finns can opt to share their data with an entity at the tap of a smartphone.[37] Hypothetically, with buy-in from tax authorities, realtors, and a bank, a citizen could share all the data, public and private, necessary to close on a home, and not have to ferry paperwork from office to office.

Contextualising a user's behaviour with aggregate data may allow for better intuiting a unique user's

needs. Adding a layer of human-centred design to this offers governments an opportunity to deliver products or services with features that customers desire. In 2021, Deloitte research found that one in three Australian citizens surveyed would be more likely to use government websites if they were better tailored.[38] Four-fifths of the respondents would be willing to use a personalised service.[39]

Understanding citizens' needs and pain points, through both qualitative and quantitative analyses, can enable more efficient services.[40] The UK Office for National Statistics has combined new surveys with existing census data to better understand the impact of the COVID-19 pandemic on demographic subgroups, which enables targeting improvements to those services.[41]

In New South Wales, Australia, officials noted that senior citizens didn't appreciate the hassle of carrying a physical card for senior discounts. The province moved its Seniors Card program to a digital platform on the Service NSW app in April 2022.[42] Since then, around 30,000 seniors a month have enrolled in the program, alongside 6,500 businesses, earning a customer satisfaction rating of 90%.[43] The registration process for business, which once required a four-week wait, now takes less than 10 minutes.[44]

In some cases, governments are devoting resources to personalised one-to-one services. This has primarily affected areas like education and skill development, where success may not only depend on the quality of service delivered but also on the individual's unique circumstances. In the United States, children with disabilities are eligible for Individualised Education Programs (IEPs) where a team of individuals from different educational disciplines, with help from family members, may create an IEP for the child.[45]

Moving forward

The boundaries of an agency's jurisdiction often won't match the interlocking needs of individual users. A family dealing with poverty may need housing assistance, financial assistance, and help with finding a job, but the various agencies charged with delivering these services typically operate independently, resulting in a patchwork of services. Delivering more personalised and tailored services generally requires data-sharing, clear communication about responsibilities, and funding that rewards cooperation. One key issue to tackle is often **executive branch leadership and funding**. Agencies should work diligently on the back end to ensure simplicity for users at the front end. Agencies that retain a siloed approach may struggle to work across boundaries to deliver integrated services unless there are changes to their incentives and accountability.

Through it all, leaders should constantly review the data that provides both hard measures of performance (average wait time on a call, percentage of success in completing an online transaction) as well as softer perception measures (customer satisfaction ratings). Bringing down the walls between agencies can help provide a more complete data picture of the services being provided, and ultimately deliver the best service possible.

My take

Mark Raymond
Chief information officer for the State of Connecticut

Realising Connecticut's vision of better service through digital government

When Governor Ned Lamont took office in January of 2019, he challenged the State to create the first all-digital government. No longer should a resident be confused or stressed after working with a complex or repetitive government service. Instead, government would be simple, accessible, and efficient. And we have progressed Governor Lamont's vision through the lenses of user need and Human-centred design.

Generally, the idea of electronic government has progressed through various methods, and with varied success. Today's digital approach drives development activities from the point of view of the public. We believe research-led delivery paired with the resident's comfort in using technology lend all the conditions required for success.

Our journey started shortly after Governor Lamont's initial inauguration. Connecticut adopted a cloud-based technology platform with a single identity management solution, enabling one state-based account for online services. Today, almost half a million of Connecticut's 3.5 million residents have created an account. Good-bye multiple usernames and passwords.

With this foundation, the collective team took a human-centred design approach, emphasising field-based observations, research, and data-driven insights. Early efforts included the 2020 launch of Business.CT.gov, an efficient set of tools for entrepreneurs looking to start their business in Connecticut. Residents can generate a customised checklist to start a business in nine minutes; 93% of all business filings within the state are now filed online.

The next step was modernising the Department of Motor Vehicles (DMV), a "brick and mortar" facility residents would have to visit to receive any services. Now, less than two years later, with the ability to access 20 DMV transactions online, 60% of all of residents' transactions with DMV are now conducted online and not "in-line."

Recent work also supports children and families. Last year, the launch of the Care 4 Kids (Child Care) Self-Service Parent Portal made it easier to learn about childcare options, pre-screen, and apply—especially timely for parents looking to return to work, postpandemic. Since launching the portal, the office has seen a 50% reduction in phone calls, a 52% reduction in incomplete applications, and a 24% reduction in illegible applications.

These are a few examples of what "becoming digital" means in Connecticut. The journey continues, and our guiding North Star is the resident experience.

Endnotes

1. William Eggers, et al., *Seven pivots for government's digital transformation*, Deloitte Insights, May 3, 2021.
2. Jack Aldane, "UN warns against 'one-size-fits-all' policy for government digital services," Global Government Forum, October 4, 2022.
3. Deloitte Digital, "Customer Service Excellence Survey 2022," May 2022.
4. John O'Leary, et al., *Improving trust in state and local government*, Deloitte Insights, September 22, 2021.
5. Lindsay M. Monte, Daniel J. Perez-Lopez, "How the Pandemic Affected Black and White Households," United Census Bureau, July 21, 2021; Carolina Sánchez-Páramo, "COVID-19 will hit the poor hardest. Here's what we can do about it," blog, WorldBank, April 23, 2020.
6. Singpass, "Singpass - Your Improved Digital ID," accessed January 20, 2023.
7. SeniorsGoDigital, "Project Aims," accessed January 20, 2023.
8. Gov.sg, "Mission: Digital training for 100,000 seniors," September 09, 2020.
9. Ibid.
10. World Health Organisation, "Disability and Health," November 24, 2021.
11. Société de Transport de Laval, "STL Compagnon Program," accessed January 20, 2023; Mass Transit, "The STL Launches the STIL Compagnon Program To Help Special-Needs Clientele Ride Its Regular Bus Network," August 18, 2021.
12. Kelly Greig, "'It's a big step': Laval launches public transit app for people with intellectual disabilities," *CVT News*, August 18, 2021.
13. National Aging and Disability Transportation Center, "2021 Trends Report," accessed January 20, 2023.
14. HM Government, "Levelling Up the United Kingdom," accessed January 20, 2023.
15. The White House, "Justice40 A Whole-of-Government Initiative," accessed January 20, 2023.
16. United Nations, "Reducing poverty and inequality in rural areas: key to inclusive development," May 20, 2021.
17. India Department of Justice, "Tele-Law Scheme," accessed January 20, 2023.
18. The Hindu, "India launches free legal aid via video conferencing to villagers," June 13, 2017
19. Emily A. Vogels, "Some Digital Divides Persist Between Rural, Urban and Suburban America," Pew Research Center, August 19, 2021.
20. Aaron C. Boley and Michael Byers, "Satellite Mega-Constellations Create Risks in Low Earth Orbit, the Atmosphere and on Earth," *Nature*, May 20, 2021.
21. Brian Greenberg et al., *5G in Government: The Future of Hyperconnected Public Services*, Deloitte Insights, August 28, 2020.
22. Jason Murdock, "SpaceX Starlink Internet 'Catapulted Us Into the 21st Century,' Native American Tribe Says," *Newsweek*, September 10, 2020.
23. Michael Kan, "Native American Tribe Gets Early Access to SpaceX's Starlink and Says It's Fast," PCMag, October 8, 2020.
24. Twitter, "Tweet from the Hoh Tribe," October 7, 2020.
25. William Eggers, et al., *How government can deliver streamlined life event experiences*, Deloitte Insights, July 12, 2022.
26. Gustav Jeppesen, "One And Done: A Human Approach To Government Service Delivery," *Forbes*, October 11, 2022.
27. Sir David Varney, "Service transformation: A better service for citizens and businesses, a better deal for the taxpayer," Gov.uk, December 2006.
28. Gov.uk, "What to do after someone dies: Tell Us Once," accessed January 20, 2023.
29. Gov.uk, "100% coverage, an increase in online users and award nominations for Tell Us Once," accessed January 20, 2023.
30. SCOOP4C, "United Kingdom's Tell Us Once project," accessed January 20, 2023.
31. Gov.uk, "20 September 2022: One Login for Government Accounting Officer assessment," September 29, 2022.
32. Gov.uk, "One Login for Government: December 2021 update," December 1, 2021.
33. Global Government Forum, "Estonia steps up virtual civil servant project," July 26, 2022; e-Estonia, "Government Chief Data Officer Ott Velsberg: Bürokratt is Siri on steroids," January 21, 2022.

Endnotes

34. William Eggers, *A billion to one: The crowd gets personal*, Deloitte Insights, January 15, 2015.

35. Jaana Leikas, et al., "Governing Ethical AI Transformation: A Case Study of AuroraAI," Frontiers in Artificial Intelligence, February 10, 2022.

36. Jaana Leikas, et al., "Governing Ethical AI Transformation: A Case Study of AuroraAI;" Ministry of Finance, "Implementation of the national AuroraAI programme," accessed January 20, 2023; William Eggers, Pankaj Kishnani, Jason Manstof, Jean Barroca, "Pandemic Hastens Governments' Digital Transformation," *The Wall Street Journal*, August 31, 2021.

37. Susan Fourtané, "AuroraAI: Finland's National Artificial Intelligence Program," InterestingEngineering.com, July 09, 2020.

38. Deloitte, "A blueprint for enhanced citizen experiences," accessed January 20, 2023

39. Ibid.

40. Ibid.

41. Office for National Statistics, "Impact of COVID-19 on ONS social survey data collection," accessed January 31, 2023.

42. NSW Government, "Seniors Card goes digital for 30th anniversary," April 1, 2022; NSW Government, "100,000 Seniors now using digital Seniors Card," July 28, 2022.

43. NSW Government, "100,000 Seniors now using digital Seniors Card," July 28, 2022; NSW Government, "More savings, more businesses, better Seniors Card Program," November 9, 2020.

44. NSW Government, "More savings, more businesses, better Seniors Card Program."

45. Access computing, "What is an Individualised Education Plan," accessed January 20, 2023.

Acknowledgments

The authors would like to thank **Glynis Rodrigues** from the Deloitte Center for Government Insights for driving the research and development of this trend and **Meenakshi Venkateswaran** for helping design the graphics of the article. They also thank **Jean Barocca** and **William D. Eggers** for their insights and thoughtful feedback.

About the authors

Jaimie Boyd

jaiboyd@deloitte.ca

Jaimie Boyd is Deloitte Canada's national Digital Government leader. She works with clients to accelerate digital change in the public sector, helping governments to better serve citizens using modern technologies. She previously served as the chief digital officer for the Government of British Columbia and has held a variety of leadership roles in the Government of Canada. Recognised as one of the World's 100 Most Influential People in Digital Government, Boyd is a frequent speaker on service modernisation, data-driven leadership, and the future of government.

Chew Chiat Lee

chewlee@deloitte.com

Chew Chiat Lee is an executive director for Deloitte Consulting and the Government & Public Services leader for Deloitte Southeast Asia. He has more than 27 years of consulting experience serving government clients in Singapore, Malaysia, Brunei, Indonesia, Myanmar, and Vietnam, with a focus in strategy and operations, technology, and large public sector program implementation and operations. As an industry veteran, he brings insights into government and public service as well as regional experience to government clients.

Henry Ennis

hennis@deloitte.com

Henry Ennis is a leader in Deloitte's Digital Government Transformation practice where he advises clients on accelerating the adoption of emerging technologies to improve government service delivery. Ennis has 15 years of experience defining and implementing innovative and practical enterprise and program strategies for global government, private sector, and nonprofit organisations.

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 at Harvard University. He is the coauthor of the 2009 *Washington Post* bestseller *If We Can Put a Man on the Moon*.

Sushumna Agarwal

sushagarwal@deloitte.com

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

TREND 5

Back-office innovations improving mission performance

Government back-office functions and processes are moving beyond automations and internal efficiency

Sam Kapreilian, Aprajita Rathore, Jean Gil Barroca, Joe Mariani, and Pankaj Kishnani

Introduction

Entire industries have grown up around some tools to improve back-office operations. Data analytics is its own field, cloud technology conferences are now a staple in major cities around the world, and automated processes operate like engines in the background of the digital economy. As both back-office and mission tasks centre more on information, many government organisations are finding that back-office innovations not only improve efficiency but can also have considerable mission benefits.

Technology is just one factor turning the back office into a launchpad for better service delivery. Investments in cloud data storage not only improve the efficiency of the IT function but can also make mission data available to decision-makers in new ways. New recruiting approaches can attract workers with critically needed skills.

While shifting how government agencies procure can allow them to create fundamentally new ways of delivering services to citizens, it also forces organisations to work in new ways. As changes to back-office systems—from procurement to human capital to technology systems—enable mission innovation, they require back-office and line-of-business leaders to work together to quantify the value of innovations in new ways.

These changes can be challenging, but by working with the right partners and keeping mission outcomes in mind, government can incorporate new tools to help make operations more efficient and missions more effective.

Technology is just one factor turning the back office into a launchpad for better service delivery.

Walls coming down

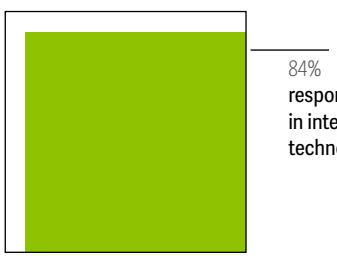
- **Barriers between back office and front office:** The mindset that places a wall between front office and back office won't survive. Agencies should view back offices as *mission-enabling offices* that are key to achieving an organisation's mission.

- **Barriers between legacy and new technologies:** Numerous legacy systems underpin key government services, and not all systems need to be replaced. One key to both back-office and mission innovation is harmonising technology, both new and old.

By the numbers: Back-office innovations improving mission performance

Most executives across the globe are using AI to improve both front-end and back-end systems

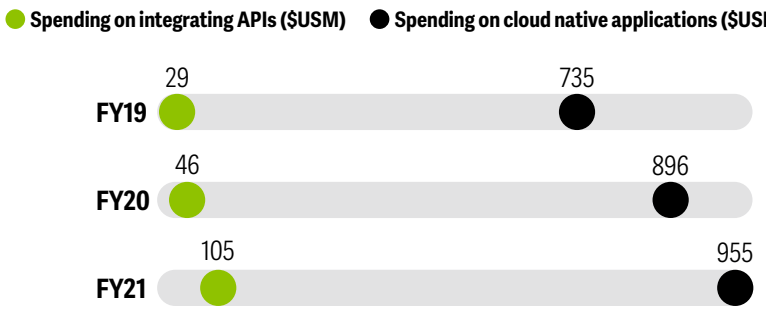
But government organisations have started to integrate new technologies in their businesses processes



84%
respondents invest in integrated technologies

Cloud is a foundational technology enabling back-office innovations to have a mission impact

The US federal government has exponentially increased cloud spending on integrating APIs into workflows while it also continues to spend on cloud-native applications and development



However, many leaders still view internal efficiency and mission outcomes as two separate modernisation goals

15%
of leaders view enabling mission outcomes as a modernisation goal

25%
of leaders view internal process efficiency as a modernisation goal

Sources: Edward Van Buren et al., *Scaling AI in government: How to reach the heights of enterprisewide adoption of AI*, Deloitte Insights, December 13, 2021; Bloomberg Government; Deloitte analysis.

Trend in action

Back-office innovations and mission tasks are converging

As both mission and back-office tasks become increasingly data-focused, improvements to one area can benefit the other. Many government agencies across sectors are using data to innovate back-office functions to allocate resources, identify risks, and improve service delivery.

Allocate resources: Components within the US National Institute of Health (NIH), the biggest funder of biomedical research in the world, deployed artificial intelligence (AI) to assist in assigning grant applications to appropriate review groups.[1] Prior to this, staff would manually read applications to sort them by scientific discipline—a process that took several weeks and delayed the referral process. The AI tool scans an application's text, title, and abstract and assigns it to an appropriate group with 92% accuracy.[2] This innovation has reduced the time taken to process grant application from 2–3 weeks to less than a day, ultimately accelerating NIH's core mission of making scientific discoveries.[3]

Identify risks: Transport Canada, the department responsible for regulating transportation, receives nearly one million preload air cargo records a year. It began requesting these records after authorities (acting on a tip-off) intercepted two bombs hidden inside LaserJet printers shipped in 2010.[4] Transport Canada hoped to identify other potentially dangerous cargo early. Reading manifests by hand simply wouldn't work.[5]

An AI tool came to the rescue. Using previous air cargo records and the results of manual risk assessments, Transport Canada trained an AI model to rank cargos by likely level of risk. In parallel, they trained it with natural language processing to sort cargo into meaningful categories. Combining these capabilities, the tool collects detailed cargo data, detects anomalies, and identifies unusual patterns for staffers to evaluate.[6] The back-office task of reading manifests not only speeds processing, but also helps protect Canada's air, rail, and other freight.

Improve service delivery: Trelleborg, Sweden, has used AI to automate various social assistance decisions. The automated decision-making system has reduced the time to process applications for home care and sickness and unemployment benefits from 10 days to less than 24 hours. Caseworkers review applications the system rejects to ensure the AI has not made an incorrect decision.[7]

Reimagine operations: Cascais, Portugal, reimagined its operating model through digital twins by integrating data from multiple verticals, ranging from health and transportation to energy and public infrastructure. Implementation of their smart waste-management system combined with real-time traffic data allowed the city to optimise routes, identify best times to collect waste, and reduce operating costs by 40%.[8]

Breaking down barriers between back-office and mission innovation changes how value is created

Governments are recalibrating. To make the most of new technologies, back offices should streamline workflows. A Deloitte AI survey revealed that organisations that have significantly changed workflows are 36% more likely to achieve desired outcomes from their AI projects.[9]

The United Kingdom's "Tell Us Once" program allows residents to notify tax authorities, the passport office, local governments, and benefits programs with a single click, instead of notifying each agency separately. The program rests on a new application programming interface (API) that allows for the sharing of information between agencies while still preserving citizen privacy. But this new technology needed to be complemented with new business processes within each agency to take advantage of it. The benefits of such changes may be far-reaching. Not only can it reduce citizens' efforts, but the program also saves the UK government £20 million annually.[10]

Saving money is not the only way to quantify the value of an innovation. Breaking down the barriers between back office and mission also mean that improvement to mission can be an important way to quantify the value of an innovation. For example, moving to an intelligent digital process helped the US Department of Education improve the application process for student aid. The redesigned back end allowed students to pull tax information directly from the Internal Revenue Service systems and include it in the application. This redesign was designed to simplify the process, increase accuracy, and reduce improper payments. Furthermore, the application saves students' personal information, so they don't have to reenter it when they apply the next year.[11]

But new innovations creating value in new ways often won't work with old business processes. Rather, creating new processes can better fit innovations to the value they create, increasing time savings and reducing backlogs. In 2016, Azerbaijan automated a system to clear 165,000 uncontested court cases. Just as some automatic processes must be integrated with current back-end systems, this one had to be integrated with the legal system. New legislation was needed to allow for electronic filing of court documents and centralised management of those cases. With that legislation in place, the pilot could proceed, and the average time to clear a case dropped from three days to one.[12]

These shifts change how work is done and who is doing it

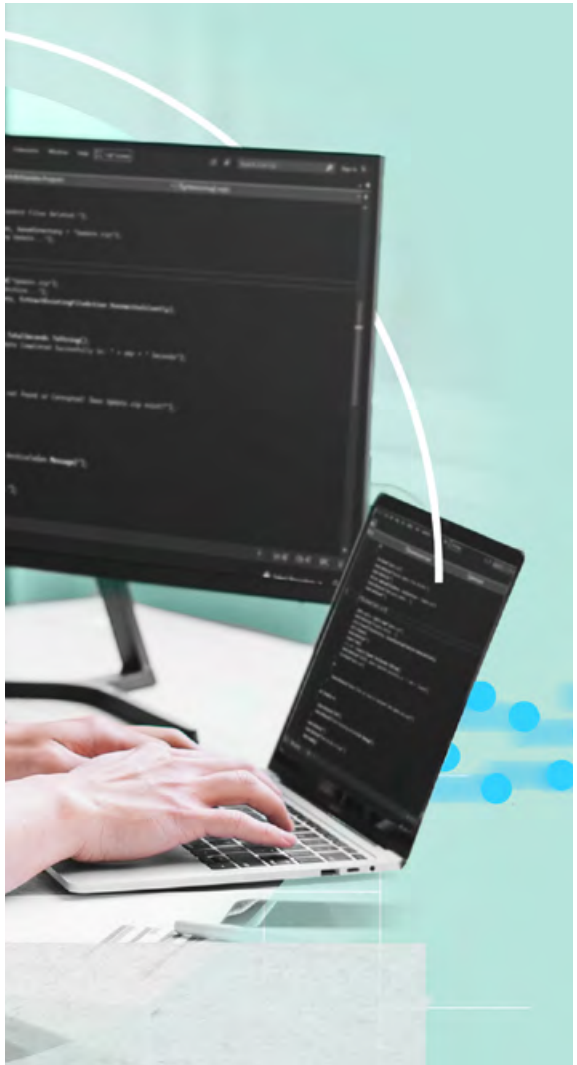
Governments can tap into external ecosystems to reimagine their back office. Many of the capabilities and infrastructure to support data-driven decisions may reside outside of government.

During the pandemic, demands on government services increased and changed *how* citizens requested those services. People applied online for services

they used to wait *in* line for. Many government agencies turned to the private sector to upgrade their technology systems to meet demand. In our 2021 global digital survey of government officials, 85% of respondents said that collaborating with external partners positively impacted their agencies. More than 80% also indicated the same for the use of contractors.[13]

VITAL, a government shared-services agency in Singapore, is launching a cloud-based platform that would make robotic process automation (RPA) a norm for finance, HR, and procurement services. Agencies are expected to be able to use the platform to generate reports from extracted data, send automated notifications, and reconcile data and information through software bots.[14] For recruiting, VITAL partnered with an external AI provider to enhance the existing process. The AI solution can help agencies incorporate inclusive hiring processes by masking personal information, automate screening and matching, and verify candidate documents. It ultimately is designed to help multiple agencies reduce the time and cost to hire talent.[15]

Engaging the right partners can also reduce the risks of modernisation. The US Food and Drug Administration (FDA) used a managed-services approach to automate its highly complex and manual invoice processing. The FDA used RPA bots to input data and perform calculations on the invoices, some of which were 50 pages long with more than 500 line items. The bots sped up the process and reduced human error. The automation is designed to help the agency meet governmentwide objectives of modernisation, improve transparency, and accountability to Congress and taxpayers.[16] The FDA's choice to use managed services meant that it could quickly deploy the bots without having to train or hire a dedicated workforce. The managed-service contract also covers continuous maintenance of software and retraining of bots to respond to future conditions.[17]



Resettlement agency uses AI for refugee placement

Some host countries receive tens or even hundreds of thousands of refugees for permanent resettlement each year. Administrators or reception staff then decide in which communities to place them, based on available housing or predefined allocation rules.

The Hebrew Immigrant Aid Society (HIAS), a refugee resettlement agency, teamed up with researchers at the University of Oxford, the University of Lund, and the Worcester Polytechnic Institute to repurpose existing administrative data to improve refugee placement.[18] The team built an AI-based tool to recommend areas where refugees are more likely to find employment.[19]

The tool applies machine learning methods to find patterns in a large data set of all placements that HIAS had collected over the past decade. The algorithm can pick out the characteristics of refugees that make them likely to find employment in particular communities. It also considers that communities have the capacity to meet the specific needs of refugees. This isn't just housing. If refugees speak only Arabic, then the tool would place the refugees in communities where at least some support staff speak Arabic. By breaking down the barriers between back-office data and mission goals, the tool has boosted employment chances by at least 30%.[20]

Moving forward

- **See all investments through a mission lens from the start:** Build the back office by applying a mission lens to investments.[21]

- **See the mission in everything:** A mindset that takes the back office for granted may prevent growth. It should not be a static cost centre. To break the mold, the back office should be run like a business, measuring performance and assessing outcomes against set performance metrics.

- **Overcome siloed technology systems:** Many agencies store data on fragmented legacy systems. Integrating data across agencies can multiply its benefits and interagency policies.

- **Innovation is more than just new technology:** Innovation requires redesigning processes that can adapt to new technology. Dropping a new software on top of legacy systems won't cut it. Assess your current manual workflows and decide what changes need to be made before digitising the workflows.

- **Don't try to do it all alone; take advantage of partners' expertise:** As technology and data augment back offices, agencies should look to partners to reimagine what this quiet engine of productivity can do.

My take

Dennis Lui
Chief executive, VITAL, Ministry of Finance, Singapore

Leveraging technology for corporate services transformation—the VITAL experience

VITAL is Singapore Public Service's central agency for corporate shared services. We serve over 100 agencies and more than 100,000 public servants. Our staff strength is approximately 500—almost 3% are persons with disabilities. We aggregate and transform common corporate services in areas such as human resources and payroll, finance, and procurement to achieve economies of scale, improve efficiency, strengthen governance, and enhance service quality.

VITAL is constantly exploring new technologies to make government services even more efficient and robust. We are a pioneer adopter of robotics process automation (RPA) in public service. RPA application has helped us reduce manual effort, human errors, and turnaround time substantially. This translates to delivering more effective corporate services to the public service agencies that we serve.

In 2020, VITAL was entrusted with a new role as the robotics and automation lead in corporate and administrative services. VITAL's ambition is to scale up the adoption of automation across Singapore Public Service. VITAL is now a platform for corporate services innovation. We actively seek opportunities to partner with policymakers, public service agencies, and vendors to help transform the delivery of corporate services. For instance, we are harnessing artificial intelligence and machine learning recruitment technology for process automation and better decision-making, enabling data-driven insights for a more effective end-to-end recruitment process.

VITAL is developing central infrastructure, using a "build once, use by many" approach. If each of the 100 public service agencies tried to develop its own tools, it would take hundred times the effort. We are creating a cloud-native automation platform to allow agencies to access best of breed automation tools without having to dedicate time or staff to build them on their own.[22]

These new automation tools will augment rather than replace our workforce. The workforce of the future would be "citizen developers"—using low-code/no-code applications to develop and maintain their own bots and workflows. The bots will do the heavy lifting while officers can become "supervisors of bots," with a focus on continuous process improvements, exception handling, and other higher-value–added tasks. However, to become "citizen developers," significant investment in human capital is required. Therefore, VITAL is sending all our staff back to school—to be equipped with either a certificate or a specialist diploma in data analytics, RPA, and design thinking.

To conclude, the application of robotics and automation is not just enabling VITAL to provide public service agencies with more effective and efficient services; the core of our purpose is to equip and empower our people by giving them the tools and opportunities to move up the value chain. VITAL will become an engine of transformation for Singapore Public Service.

Endnotes

1. Patti Brennan, "How NIH is using artificial intelligence to improve operations," National Library of Medicine, November 19, 2019; also see, National Institutes of Health, "Assisted referral tool (ART)," accessed February 13, 2023.
2. Brennan, "How NIH is using artificial intelligence to improve operations."
3. Ibid.
4. Jamie Berryhill et al., *Hello, world: Artificial intelligence and its use in the public sector*, OECD and Observatory of Public Sector Information, November 2019.
5. Ibid.
6. Ibid.
7. Gianluca Misuraca and Colin van Noordt, *AI watch: Artificial intelligence in public services*, European Commission Joint Research Center, 2020, pp. 43–44.
8. Miguel Eiras Antunes, Jean Gil Barroca, and Daniela Guerreiro de Oliveira, *Urban future with a purpose: 12 trends shaping the future of cities by 2030*, Deloitte, accessed February 13, 2023.
9. Edward Van Buren et al., *Scaling AI in government: How to reach the heights of enterprisewide adoption of AI*, Deloitte Insights, December 13, 2021.
10. Michael Deeble and Richard Nurse, "100% coverage, an increase in online users and award nominations for Tell Us Once," Department for Work and Pensions, July 17, 2020.
11. ACT-IAC Institute for Innovation, *Harnessing life events to connect citizens and services: An innovator's guide*, December 2015; Mary Ann Monroe, "Government services through a life events approach," Digital.gov, February 15, 2020.
12. World Bank Group, *Automating processing of uncontested civil cases to reduce court backlogs in Azerbaijan*, accessed February 13, 2023.
13. William D. Eggers et al., *Seven pivots for government's digital transformation: How COVID-19 proved the importance of "being" digital*, Deloitte Insights, May 3, 2021.
14. Luke Cavanaugh, "Opinion: The Malaysian government's overabundant app development is a reminder of digital government's longevity challenge," GovInsider Asia, September 19, 2022.
15. X0PA AI, "VITAL partners X0PA to make hiring processes more effective and efficient," VITAL Shared Services, September 1, 2021.
16. Deloitte, "RPA on a grand scale at the FDA," *Wall Street Journal*, February 18, 2020.
17. Ibid.
18. University of Oxford, "Using AI to improve refugee integration," news release, October 3, 2018.
19. Observatory of Public Sector Innovation, "Annie™ MOORE (Matching for Outcome Optimization and Refugee Empowerment)," September 16, 2020.
20. Ibid.
21. Paul Rogers and Hernan Saenz, "Make your back office an accelerator," *Harvard Business Review*, March 2007.
22. Ming En Liew, "Singapore government agency launches automation platform for whole of government," GovInsider, September 23, 2022

Acknowledgments

The authors thank **Apurba Ghosal** for driving the research and development of this trend as well as **William D. Eggers** for his insights and thoughtful feedback on the draft. They would also like to thank **Meenakshi Venkateswaran** for her help in designing the graphics of the article.

About the authors

Sam Kapreilian

skapreilian@deloitte.com

Sam Kapreilian is a principal in Deloitte Consulting and serves as Deloitte's senior relationship leader with NASA. He also has responsibility for Deloitte's managed services marketplace across government and public services. For more than 25 years, he has driven dozens of large-scale, mission-focused programs spanning across the Global 1000 and public sector. He specialises in helping clients bring innovation and advanced technologies to their operations as they execute their outsourced and cosourced strategies.

Aprajita Rathore

aprathore@deloitte.com

Aprajita Rathore is a principal with Deloitte Consulting LLP with more than 20 years of experience helping Fortune 100 organisations transform the delivery and operations of their enterprise functions to drive sustainable efficiency gains and long-term capability-building. She has advised global CxOs across industries on navigating their journeys, from strategy-setting through successful execution, creating long-term impact that sticks. She currently leads the Enterprise Services Transformation and Shared Services practices for the government and public sector.

Jean Gil Barroca

jbarroca@deloitte.pt

Jean Barroca is the Global Public Sector Digital Modernisation 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 modernisation phase. Barroca is also Synergy's general manager, working with clients globally to support their Smart City and Future of Mobility initiatives.

Joe Mariani

jmariani@deloitte.com

Joe Mariani is a senior research manager with Deloitte's Center for Government Insights. His research focuses on innovation and technology adoption for both national security organisations and commercial businesses. His previous work includes experience as a consultant to the defence and intelligence industries, high school science teacher, and Marine Corps intelligence officer.

Pankaj Kishnani

pkamleshkumarkish@deloitte.com

Pankaj Kishnani is a research specialist with the Deloitte Center for Government Insights. He specialises in emerging trends in technology and innovation and their impact on the public sector.

TREND 6

Regulation that enables innovation

To catalyse innovation, government regulatory agencies can encourage investment, streamline regulation, and set standards to promote industry best practices

William D. Eggers, Sam J Walsh, Carsten Joergensen, and Pankaj Kishnani

Introduction

Traditionally, regulators aim to mitigate social, economic, safety, and environmental risks for consumers while ensuring fair markets. As sweeping changes in technology alter the regulatory environment, regulators increasingly aren't just reacting—they are being proactive, anticipating innovations and even encouraging them. In an era where AI diagnoses symptoms of diseases, climate change poses an existential risk, and technology-based business models can rise and fall within days, regulators are anticipating and preparing for change more than ever.

Regulatory agencies are being called upon to not only protect consumers from the negative effects of technology and economic shifts, but also to help catalyse innovation in areas such as climate sustainability and AI ethics. The twin role creates a strategic tension for regulators: protecting consumers and citizens through regulation while ensuring regulations don't discourage innovation and growth.

Wind energy projects, for example, struggle to thread this regulatory needle. Many wind farms worldwide are stuck in the permitting process. Only 19% and 21% of planned projects are under construction in Europe and the United States respectively.[1] The South Fork Wind project off the coast of Rhode Island, proposed in 2015, started its permitting process under The National Environmental Policy Act (NEPA) more than four years ago and remains undeveloped.[2] The Environmental Impact Statement process lasted nearly three years and required a bevy of permits related to fisheries, endangered species, clean water, and clean air.[3]

Regulatory agencies worldwide are adapting to these tensions. Strategies include clarifying risks to encourage investments, incentivising innovation, streamlining regulation, and setting standards that promote industry leading practices.

Only 19% and 21% of planned projects are under construction in Europe and the United States respectively.

Walls coming down

- **Innovation vs. consumer safety:** The safety of consumers shouldn't come at the expense of innovation. Regulators are deploying several tools, such as sandboxes and accelerators, to ensure consumer safety while promoting an environment conducive to new technologies and new business models (see infographic, By the numbers: Regulation that enables innovation).

- **Pace vs. effective regulation:** Effective regulation doesn't necessarily require years of drafting regulations. Soft law instruments, such as guidelines and standards, can rapidly adapt to new business models.

- **Regulated entities vs. regulators:** A customer experience lens and risk-based regulations can improve the relationship between businesses and regulators.

- **Higher protection for consumers vs. lower regulatory requirement**: Agencies can cut red tape while maintaining consumer protections. Digital technologies can streamline regulatory processes; and regulators can proactively engage with regulated entities to develop standards and guidelines that protect consumers from risks but at the same time do not put unnecessary burden on regulated entities.

By the numbers: Regulation that enables innovation

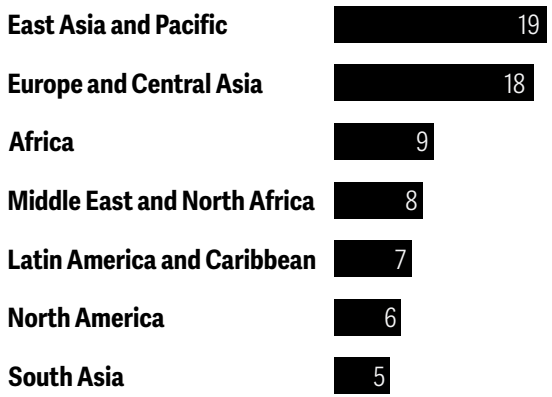
Fintech regulators are adopting innovative regulatory initiatives to create a conducive regulatory environment and improve oversight

Introduced new initiatives or accelerated planned regulatory initiatives

Financial regulators are also using technology (suptech) to become more data-driven and proactively monitor risks

Number of suptech initiatives in 30+ countries

Regulators globally have embraced sandboxes as a regulatory instrument to test innovative business models



Energy sector sandboxes

Implemented

- Germany
- Italy
- South Korea
- The Netherlands
- Singapore
- The United Kingdom

In progress

- Austria
- France
- Norway
- Sweden

Regulatory innovation offices across the globe

Innovation offices

Australia	Hong Kong	The Netherlands
Austria	Hungary	Norway
Bahrain	Iceland	Poland
Belgium	Indonesia	Romania
Canada	Ireland	Singapore
Cyprus	Italy	Spain
Denmark	Japan	Sweden
Estonia	Latvia	Switzerland
Finland	Liechtenstein	Thailand
France	Lithuania	The United Kingdom
Germany	Malaysia	The United States

Regulator/central bank–linked accelerators

Abu Dhabi	Hungary
Bahrain	Portugal
Dubai	Singapore
France	South Korea

Note: Suptech is supervisory technology that helps agencies to support supervision using innovative technologies.

Sources: World Bank and Cambridge Center for Alternative Finance, *The global Covid-19 FinTech regulatory rapid assessment study*, accessed February 10, 2023; World Bank, "Key data from regulatory sandboxes across the globe," November 1, 2020; ISGAN, *Innovative regulatory approaches with focus on experimental sandboxes—casebook*, May 2019; Simone di Castri et al., *FSI Insights on policy implementation no. 19: The suptech generations*, Financial Stability Institute, October 2019; UNSGSA, *Early lessons on regulatory innovations to enable inclusive FinTech: Innovation offices, regulatory sandboxes, and RegTech*, accessed February 10, 2023.

Trend in action

Encouraging investment by clarifying or mitigating risks

Stakeholders rely on regulations to set expectations for risks. Regulatory uncertainty, on the other hand, could foster distrust among consumers, limit investments, and can even endanger markets.[4] The recent implosion of a cryptocurrency exchange left many wondering if tighter regulations could have prevented disaster.[5]

Regulatory tools, such as sandboxes, can provide increased certainty to regulators and regulated entities. Sandboxes are safe testing environments in which innovators can see their inventions play out with certain regulatory leeway and appropriate consumer protections. The use of such tools signals to investors that regulators are inclined to support innovation but will closely watch how the market develops.

A Bank for International Settlements study analysed how entering the United Kingdom's fintech regulatory sandbox affects fintech firms' ability to raise funding. Firms selected for the sandbox witnessed up to a 15% increase in capital raised.[6] The sandbox reduced regulatory uncertainty, helped firms bake in appropriate safeguards, and reduced expenditures on regulatory consulting.[7]

Singapore's regulatory sandbox that aims to mitigate risks around autonomous vehicles (AV) has been attracting investment to the city-nation. The launch of Singapore's AV sandbox in 2015 attracted many foreign AV players. In 2017, Singapore introduced traffic rules to regulate AV trials. Key requirements included mandatory liability insurance, installation of a data recorder, a safety driver, and obligation to report malfunctions. Singapore set up a testing centre to assess AV capabilities before allowing new tech on the road.[8] Engineers train public transit AV at the same facility.[9] Singapore is counted among the world's top countries ready for accepting and implementing AVs.[10] The country has gradually opened public roads spanning more than 1,000 km to AVs.[11]

Promoting innovation for regulators and funding innovators

Regulatory agencies must evolve to adapt to innovative new business models. Regulatory innovation requires experimenting with new approaches, such as sandboxes, and a shifting mindset that calls for protecting the public while ensuring sustainable market growth. Adopting regtech technologies that improve oversight and enforcement can promote regulatory innovation. For example, Denmark aims to develop digital-ready legislations that are interoperable and less burdensome for public administrators and businesses.[12] The country requires every new legislation to go through a digital-ready assessment.[13]

Encouraging such innovations is the purpose of the UK Regulators' Pioneer Fund. The fund invests in regulatory projects which encourage business innovation, investing up to £10 million between 2018 and 2022.[14] Care Quality Commission, the UK's regulator of social and health care services, received funding to test its sandbox ideas, engage stakeholders through open discussions, and set innovation principles as a guidebook for future regulatory experiments.[15]

While the United Kingdom funds regulatory innovations through the Pioneer Fund, Australia funds businesses through challenges and grants to encourage regulatory innovation. One startup, with a grant from the Business Research and Innovation Initiative, developed an AI-powered, sensor monitoring system to monitor the health of exportable livestock.[16] Another startup developed language processing solutions to analyse disclosures of listed companies in real-time. Another grant-funded innovation will allow regulators to perform more accurate asbestos testing.[17]

Similarly, governments can also fund innovators, especially early-stage R&D in promising areas that might be too high risk for private investors. Government's many funding tools include grants, challenges, prizes, loan guarantees, advanced purchase agreements, and in some cases, direct equity. Government financing propelled the research and development (R&D) of COVID-19 vaccines and helped assure businesses that they could invest in vaccine production.[18]

Similar grant mechanisms have also been used for green energy and climate funding. The Swedish Energy Agency has supported 250 startups with approximately US$100 million in grants. The agency grants up to US$770,000, depending on stages of development, from concept development to viable pilot.[19]

Government agencies and regulators can also use loans, loan guarantees, and direct equity to boost innovation. The US Department of Energy manages US$35 billion of debt and loan guarantees (see section, How US Department of Energy catalyses innovation for clean energy).[20] Morocco and Israel allow startups to choose financing either as a refundable grant or equity investment.[21]

Incentivising businesses to invest in and consumers to adopt innovations

Incentives shape markets. Regulators can incentivise investment in innovations through a slew of direct and indirect tools.

The growth in Norway's electric vehicles (EV) market has been buttressed by policy incentives. In 2021, nearly 65% of cars sold in Norway were EVs.[22] By 2025, the country aims to reach 100%.[23] The government's car tax system incentivises this transformation. Low emission cars are exempt from purchasing and vehicle registration tax, import tax, and annual road traffic insurance tax. EVs also enjoy reduced tolls, subsided parking, and access to bus

lanes. Norway also has in place the "polluter pays" principle, where high-emission vehicles pay more taxes than EV owners.[24]

Charging infrastructure has kept pace with EV sales. In 2015, the Norwegian government subsidised a push to construct a charging station every 50 kilometres along main roads, resulting in 21,000 charging stations across Norway in 2022.[25] The country also passed legislation empowering people with the "right to charge," including those living in apartments and buildings—giving them the right to access charging stations.[26]

Some regulators are going far beyond financial incentives. The German government is funding the KelRide, an on-demand autonomous electric vehicle (AEV) ridesharing project for public transportation.[27] Though the funding is sizeable, the key attraction noted of the project is an ecosystem of stakeholders and an AEV testing environment. The project allows electric AVs to run on a 14 km public road with dynamic re-routing of AVs (as opposed to fixed routes) and a chance to test AVs under real-life adverse weather conditions such as rainfall, snowfall, and fog.[28] If successful, the project is expected to act as a blueprint across Germany.[29]

Likewise, Germany's Energy Agency (Deutsche Energie-Agentur) launched the Start-Up Energy Transition (SET) awards in 2017. The top 15 finalists receive promotional videos and introductions to potential customers, investors, and corporate partners.[30] Since 2020, SET has also added an element called SET Mentoring that allows start-ups to get their business models reviewed by the energy agency.[31] When engaging with businesses and offering advice, regulatory agencies should guard against "regulatory capture." Keeping separate teams for regulatory and advisory functions, providing equitable participation platforms, and reforming internal decision-making processes, can help agencies prevent regulatory capture.[32]

Endorsing and setting standards to drive growth and convergence

Standards contribute to flexible, agile policymaking.[33] Standards also encourage collaboration, allow technologies to interface with each other, and give consumers accepted baselines of quality. They can be a powerful tool.

The introduction of the Global System for Mobile Communications (GSM) standards represents a major success story in standard setting. The European Telecommunications Standards Institute (ETSI) defined protocols for telecom operators and telecom equipment manufacturers. GSM made technologies interoperable, saved development and production costs, and allowed users to roam freely across the globe.[34] The GSM, first launched as European standards and then adopted globally, currently has more than 5 billion unique mobile users.[35]

Similarly, the Boiler and Pressure Vessel Code (BVPC), first created in the United States and issued every two years, has been adopted in over 140 countries.[36] The standards improve safety, prevent accidents, and mitigate adverse environmental impacts by avoiding leaks.[37]

As emerging business models mature, we may see agencies setting standards to prevent online harms, protect privacy, and encourage convergence of technologies under metaverse.[38]

Streamlining regulatory processes

Long delays involved in permitting infrastructure projects can be frustrating. This is particularly problematic for green infrastructure given many countries are committed to move towards green energy. In the US, an Office of Management and Budget-led effort to shrink those delays reduced the average time needed for obtaining a permit from 4.5 years to 2.5 years, a 45% reduction that saved billions of dollars.[39]

Australia has also recognised the issue. The 2022-23 Australian budget provides AUD$139.6 million to advance environment law reform.[40] This includes AUD$10 million for a single touch system to remove the patchwork approval process at the federal, state, and local level.[41] The *on-time* decisions have markedly improved, from 21% in December 2019 to 83% in June 2022.[42]

Moving forward

- **Catalyse ecosystem to bring innovation from lab to market:** Regulatory agencies should catalyse stakeholders, including researchers, academia, industry, and philanthropies, to build self-sustaining markets.

- **Use soft laws to drive convergence:** Soft laws such as industry guidelines, codes of conduct, and standards can help regulators drive convergence, enable interoperability between different products, and set quality standards.

- **Mitigate risks to increase consumer confidence:** Proactively mitigating risks in markets such as AVs and fintech can protect consumers, encouraging consumer confidence.

- **Experiment and innovate:** To promote agility, regulatory agencies should experiment with new regulatory approaches to catalyse innovation.

How the US Department of Energy catalyses innovation for clean energy

The US Department of Energy (DoE) has prioritised incentivising clean energy technology. DoE appointed its first chief commercialisation officer in 2018 to ensure that technologies developed in national labs are commercialised for the American people.[43] The DoE recognises that funding is not enough to catalyse innovations. It also acts as a partner, regulator, and convenor to encourage businesses to innovate in clean energy.

- **Funder:** DoE funded projects include the small business innovation research (SBIR) program, technology commercialisation fund, and the Advanced Research Projects Agency-Energy (ARPA-E).[44] DoE's funding is not limited to early-stage R&D. They have issued over US$35 billion of loans and loan guarantees for 30+ large-scale energy projects.[45]

- **Partner:** The Lab Partnering Service (LPS) is a collection of online services that connect businesses to information on leading specialists, successful innovations, and patents across the DoE and national labs.[46] DoE's American-Made challenge even offers startups vouchers to access DoE's 17 national labs.[47]

- **Convenor:** The LPS also connects investors and innovators. The National Renewable Energy Laboratory's (NREL) Innovation Incubator program, funded by private philanthropies, assigns a researcher to each startup. The researcher guides them through the capabilities of the lab and its network of researchers, investors, and industry partners.[48]

- **Regulator:** DoE sets energy efficiency standards—another catalyst for innovation. The DoE authorised an industry council to create uniform standards for low-emissivity windows. Some states mandated the standards, which substantially increased demand for such windows. The construction industry benefited, not to mention power grids and consumers.

My take

Scott Streiner
Scott Streiner, former chair and CEO, Canadian Transportation Agency (CTA), 2015–21, now senior advisor, Deloitte Canada

Reforms in regulatory mechanisms to ease the way for citizen-centred innovation

In 2016, the Canadian Transportation Agency (CTA)—a quasi-judicial tribunal and independent regulator—launched a regulatory modernisation initiative that involved a comprehensive review of all regulations made and administered by the organisation. The initiative's goals were:

- Ensuring that industry's obligations are clear, predictable, and relevant to a range of existing and emerging business practices
- Seeing that the demands associated with compliance are only as high as necessary to achieve the regulations' purposes
- Facilitating the efficient and effective identification and correction of instances of noncompliance

This ambitious project was completed in three years. It resulted in the elimination of some requirements and simplification of others to reduce compliance burdens and allow transportation companies to operate with greater agility. For example, the need for the CTA to approve code-share agreements between airlines was removed and the advance notice airlines need to provide for certain leasing arrangements was shortened from 45 to 15 days.

The initiative also produced a common set of air passenger rights for the first time in Canada. Given the high level of interest sparked by this component of the initiative, the CTA used a creative mix of methods to allow stakeholders and the broader public to have their say: traditional written submissions, online questionnaires, randomised surveys of travellers in airports, bilateral discussions with industry and consumer group representatives, and virtual and public sessions across the country.

While the *Air Passenger Protection Regulations* were criticised by some airlines for going too far and some consumer advocates for not going far enough, they spurred adoption of a range of innovative techniques by industry to keep passengers informed in real time when flights were delayed, to track luggage, to process compensation claims, and the like.

Alongside new rules for consumer protection, the CTA enacted groundbreaking *Accessible Transportation for Persons with Disabilities Regulations* aimed at eliminating barriers for travellers with disabilities. Based on feedback from disability rights groups and the broader industry, these regulations were made relatively prescriptive to avoid debate about complex technical specifications—but critically, they were accompanied by a legislative provision allowing the CTA to exempt a company from a particular

requirement if the company has a different way of achieving equivalent or better results.

That provision was designed to facilitate innovation by allowing transportation providers to develop and implement new technologies and approaches for ensuring accessible travel without running afoul of the rules. This strategy for reconciling detailed requirements with scope for innovation may be worth considering in other regulatory contexts.

The CTA was under no obligation to undertake such fundamental and sweeping regulatory reform. But it recognised that the status quo, while not intolerable, was far from optimal; so, it decided to be a catalyst for change—a choice more and more regulators are making as business models and public expectations rapidly evolve.

Endnotes

1. Nick Ferris, "Data Insight: The Permitting Problem for EU Wind Farms," Energy Monitor, April 5, 2022.
2. Sanjay Patnaik and Rayan Sud, "How Does Permitting for Clean Energy Infrastructure Work?," Brookings, September 28, 2022.
3. Ibid.
4. Gregory N. Mandel, *Regulating Emerging Technologies*, Temple University Beasley School of Law, April 8, 2009; Daniel Kuhn, "The Role Regulators Played in the FTX Fiasco," CoinDesk, November 11, 2022.
5. Carla Mozée, "Everyone is wondering if better regulation could have prevented FTX's collapse. The answer is both yes and no," *Business Insider*, November 20, 2022.
6. Giulio Cornelli, Sebastian Doerr, et al., *Inside the Regulatory Sandbox: Effects on Fintech Funding*, Bank for International Settlements, November 3, 2020.
7. Ibid.
8. Si Ying Tan and Araz Taeihagh, "Adaptive governance of autonomous vehicles: Accelerating the adoption of disruptive technologies in Singapore," ScienceDirect.com, April 2021.
9. Abigail Ng, "Singapore has big driverless ambitions and the pandemic is unlikely to stop them," *CNBC*, September 21, 2020.
10. Dale John Wong, "Singapore ranked world's 4th most ready country for self-driving transport," Mashable SE Asia, November 18, 2021.
11. Si Ying Tan and Araz Taeihagh, "Adaptive governance of autonomous vehicles: Accelerating the adoption of disruptive technologies in Singapore."
12. Agency for digital government, "Digital-ready legislation," accessed on January 20, 2023.
13. William D. Eggers et al., *Government Trends 2021*, Deloitte Insights, March 4, 2021.
14. U.K. Department for Business, Energy & Industrial Strategy, "Regulators' Pioneer Fund: round 3," July 21, 2022.
15. Kantar, "Regulators' Pioneer Fund Evaluation," accessed on January 20, 2023.
16. The Hon Angus Taylor MP, "Businesses to test great ideas to cut regulatory burdens," January 21, 2022.
17. The Hon Angus Taylor MP, "Businesses to test great ideas to cut regulatory burdens," January 21, 2022.
18. Abigail Ng, "Singapore has big driverless ambitions and the pandemic is unlikely to stop them."
19. Swedish Energy Agency, "Part of How Governments Support Clean Energy Start-ups," March 14, 2022.
20. Energy.gov, "Department Of Energy, Loan Program Office Brochure 2020," accessed January 23, 2023.
21. IEA, "How Governments Support Clean Energy Start-ups," accessed January 23, 2023.
22. Tom Willerton-Gartside, "Let's Learn from Norway: How Governments Can Accelerate EV's Road to the Mainstream," *Ibex Publishing*, March 1, 2022.
23. Ibid.
24. Felix Serrano, "Norway – Leading the way with zero-emission transportation," MSXInternational, accessed January 23, 2023.
25. Corporate leaders group, "Insights and lessons for successfully delivering the European Green Deal," accessed on January 23, 2023.
26. Ibid.
27. KelRide, "Large autonomous, on-demand public transport service launches in Germany," EasyMile.com, September 14, 2022.
28. Sustainable Bus, "Autonomous vehicles in Munich area, the KelRide project enters new phase (with EasyMile and Via Transportation involved)," September 15, 2022.
29. Green Car Congress, "Germany awarding €10.9M to KelRide autonomous vehicle project," March 30, 2021.
30. International Energy Agency, "How Governments Support Clean Energy Start-ups," accessed January 23, 2023.
31. International Energy Agency, "How Governments Support Clean Energy Start-ups," p. 131.
32. Stefano Pagliari, "Mitigating Capture in Financial Regulation," ICFR, accessed January 23, 2023.
33. ISO, "Standards for effective regulations," accessed on January 23, 2023.

34. Martin Sauter, *GSM to LTE-Advanced Pro and 5G: An Introduction to Mobile Networks and Mobile Broadband,* 3rd Ed. (Wiley Online Library: John Wiley & Sons Ltd: 2017), p. 1-69.

35. ETSI, "Back to the future: GSM," July 2021.

36. ScienceDirect, "Pressure Vessel Codes," Practical Onshore Gas Field Engineering, 2017.

37. Ibid.

38. John Woodhouse, "Regulating online harms," House of Commons, March 15, 2022; George Lawton, "The metaverse standards forum: What you need to know," TechTarget Network, November 02, 2022.

39. Federal Permitting Improvement Steering Council, "FPISC Annual Report to Congress 2020," accessed January 23, 2023.

40. Ashleigh Gleeson, "Federal budget: $130m plan to slash development 'green tape'," March 15, 2022.

41. Ibid.

42. Australian Government DCCEEW, "Quarterly assessment performance report: April to June 2022," accessed January 23, 2023.

43. Department of Energy, "Department of Energy Announces Conner Prochaska as Director of the Office of Technology Transitions," November 13, 2018.

44. Water Power Technologies Office, "Other DOE Funding Opportunities," accessed January 23, 2022.

45. Loans Program Office, "Financing Options for Energy Infrastructure," accessed January 23, 2022.

46. US Department of Energy, "Lab Partnering Service," accessed January 4, 2023.

47. Simon Bennett et al., "How Governments Support Clean Energy Start-ups," International Energy Agency, accessed on January 23, 2023, p. 42.

48. Simon Bennett et al., "How Governments Support Clean Energy Start-ups," p. 119.

Acknowledgments

The authors thank **Apurba Ghosal** for driving the research and development of this trend as well and **Meenakshi Venkateswaran** for helping design the infographics of the article.

About the authors

William D. Eggers

weggers@deloitte.com

William D. Eggers is the executive director of Deloitte's Center for Government Insights, where he is responsible for the firm's public sector thought leadership. His most recent book is *Delivering on Digital: The Innovators and Technologies that Are Transforming Government* (Deloitte University Press, 2016). His other books include *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*, the *Wall Street Journal*, and the *Washington Post*.

Sam J Walsh

sjwalsh@deloitte.co.uk

Sam J Walsh has worked with the United Kingdom's regulators for almost 15 years. She has advised on the establishment of new UK regulators and on the transformation of existing regulators in industries including food, health, space, and financial services. Her experience includes supporting the establishment of the Prudential Regulation Authority and the setting up of the UK regulator for space flight, advising on the transformation of the Health & Safety Executive and Financial Conduct Authority, and advising the Food Standards Agency on applying anticipatory regulation techniques.

Carsten Joergensen

cajoergensen@deloitte.dk

Carsten Joergensen specialises in the public sector, regulation and deregulation, reforms in the public sector, and public sector strategies. He is managing partner for Government & Public Services in North South Europe and the Middle East. He has 25 years of experience as a consultant and advisor for the public sector, where he has led several highly complex analyses and large transformation programs.

Pankaj Kishnani

pkamleshkumarkish@deloitte.com

Pankaj Kishnani is a research specialist with the Deloitte Center for Government Insights. He specialises in emerging trends in technology and innovation and their impact on the public sector.

TREND 7

Teaming up to deliver whole health

Governments are exploring an approach that centres on wellness and prevention, not just treatment of disease

David Betts, Julia Elligers, and Alison Muckle

Introduction

For centuries, a reductive approach to health care divided patients into components: organs, tissues, cells, organelles. Doctors would identify the parts responsible for illness and attempt to treat those parts. Only recently have treatment approaches begun to recognise that patients don't just break into smaller systems; they exist within *larger* ones.[1] Centuries after John Snow removed the handle of the Broad Street Pump,[2] we still rely on curious clinicians to identify patterns among the population, and we still diagnose and treat patients roughly like we'd fix a broken car. But health care can do more than just conceive of an ideal body, compare it to the patient, and address the faulty parts.

Advances in medical science have improved our understanding of complex biological systems and how they contribute to disease and dysfunction. We've also learned that human health is influenced profoundly by factors such as pollution, the built environment, and economic conditions.[3]

As costs continue to rise, health care systems everywhere face pressure to meet increasing demand with limited resources.[4] Cost savings from prevention thus look extremely tempting. To reap these benefits, many governments are exploring what we're calling "whole health," an approach centred on *wellness* rather than illness.[5] A whole-health approach emphasises the many external factors involved in human health and encourages community investments that foster it. It stresses communication, collaboration, and integration across health services, sectors, and agencies.

The whole-health approach is not altogether new—for decades, health leaders have coordinated care to manage chronic conditions like diabetes, and more recently, health-financing models are beginning to prioritise population health.[6] Today, governments across the globe are committing to creating capacity for populations to invest in their goals, satisfy their needs, and optimise their health and well-being.

Whole health can help improve health outcomes, reduce health care costs, and enhance the experiences of both patients and caregivers.[7] It attempts to unite the aims of public health and health care, aligning the often-competing incentives of the two sectors behind shared objectives. Many agencies today are working with multiple partners to improve population health while increasing the value and reach of their investments, with shared mechanisms for governance, accountability, and funding.

Walls coming down

- **Among health services:** Primary care physicians, specialists, and psychological and therapeutic providers collaborate to put patients first.

- **Across government agencies that support health:** Agencies recognise that their collective impact could improve with coordination.

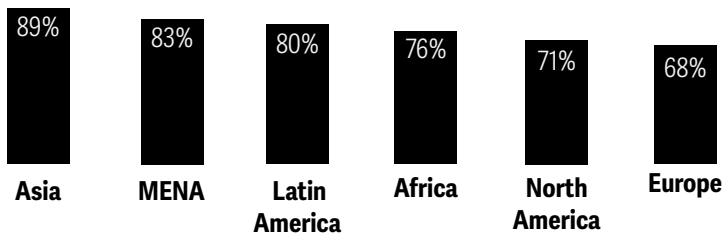
- **Between health care and other sectors that support health:** Understanding how social, economic, and environmental factors influence health can shape expectations for many sectors.

- **Between government agencies and the private sector:** Businesses realise that contributing to healthy communities, and investing in the health workforce, improves their bottom lines.

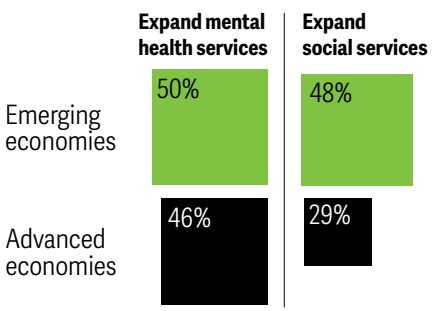
Many agencies today are working with multiple partners to improve population health while increasing the value and reach of their investments, with shared mechanisms for governance, accountability, and funding.

By the numbers: Teaming up to deliver whole health

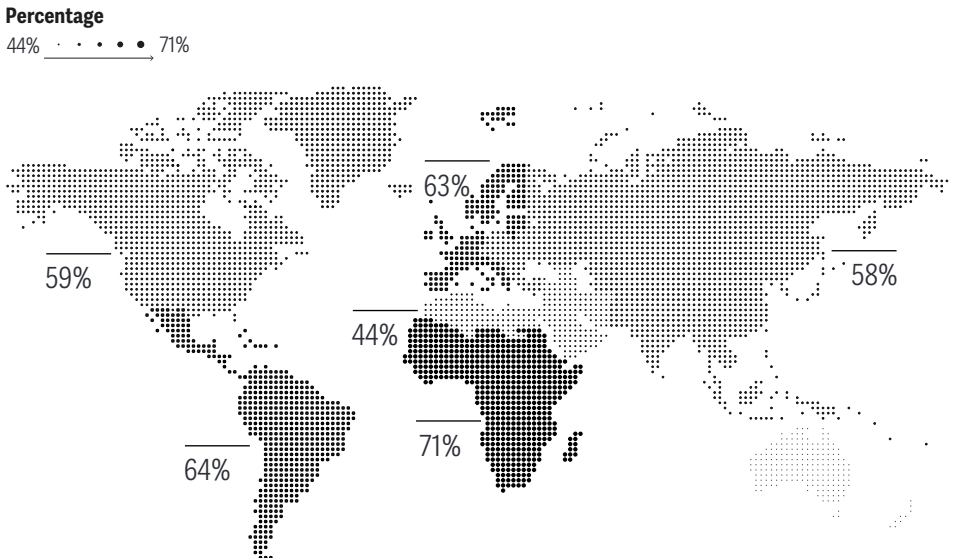
Percentage of city leaders who responded to the survey across the globe who plan to increase investments in mental health services



Percentage of citizens surveyed across the globe who want their city leaders to expand mental health and social services over the next five years



Percentage of city leaders surveyed across the globe who plan to use public-private partnerships to deliver public health, mental health or addiction treatment services over the next five years



Source: Thoughtlab, "A roadmap for the next phase of urban transformation," accessed February 10, 2023.

Trend in action

To leverage a whole-health approach, governments can help support care recipients, care deliverers, and the entire health ecosystem.

The "whole person" receiving care

The World Health Organisation defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."[8] Yet, our health systems are still designed largely to target and treat disease, not to optimise whole health. Given ever-rising health care expenditures, policymakers are seeking new ways both to improve population health and reduce costs.[9]

Community-integrated health systems

A whole-health approach often implies integrating care across different organisations and settings, linking hospital and community-based services, physical and mental health services, and social care.

In 2022, England's National Health Service (NHS) established 42 geographically based Integrated Care Systems across England as part of a statutory reorganisation.[10] These systems were designed to connect NHS providers and commissioners with local authorities and other area partners to plan, coordinate, and administer health and social care services; each receives a budget based on an assessment of local needs.

Other organisations apply a personalised approach to care. In 1998, Anchorage, Alaska's Southcentral Foundation (Southcentral) introduced the Nuka System of Care, an award-winning and globally influential approach to health. According to the foundation, "The Nuka System of Care focuses on understanding each individual's unique story, values, and influences."[11] The entire staff takes core training in Alaska Native storytelling culture; patients in turn use stories to relate to their health and continue their personal stories in treatment. Patients make care decisions in conjunction with their families and a team of care providers. This focus on the patient's individual history, self-image, and relationships helps the system identify and address factors such as access to housing, food, and safe neighbourhoods.[12]

The World Health Organisation defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."

Southcentral has achieved a 98% patient satisfaction rate, reached the 95% percentile in national standards of diabetes care, and sustained a 58% reduction in visits to specialist clinics.[13] Nearly 900 organisations and 33 nations around the world have studied the Nuka system for best practices.[14]

Taking a more holistic approach to health, as well as addressing gaps in equity, is a key goal of New Zealand's health reforms. The Pae Ora (Healthy Futures) Act 2022 provides a new vision for holistic care and Māori health.[15] The legislation aims to provide a platform to address health inequities faced by Māori and better health outcomes for all, by encompassing three key elements:

1. Mauri Ora: Healthy individuals
2. Whānau Ora: Healthy families
3. Wai Ora: Healthy environments

These elements of Pae Ora are interconnected and mutually reinforcing. The reforms aim to bring decision-making to the local level through place-based strategies; Māori Iwi Partnership Boards play a key governance role in development of locality-based plans. These plans extend beyond just health care needs and consider social, housing, and other service needs through a community-led consultation process.

The reforms aim to bring decision-making to the local level through place-based strategies; Māori Iwi Partnership Boards play a key governance role in development of locality-based plans.

To help address the large gaps in equity, Pae Ora centres on the importance of mātauranga Māori, or Māori knowledge, being critical for finding a pathway forward. It emphasises Māori leading their own health gains and strategic direction for the future: Māori solutions developed by Māori for Māori.

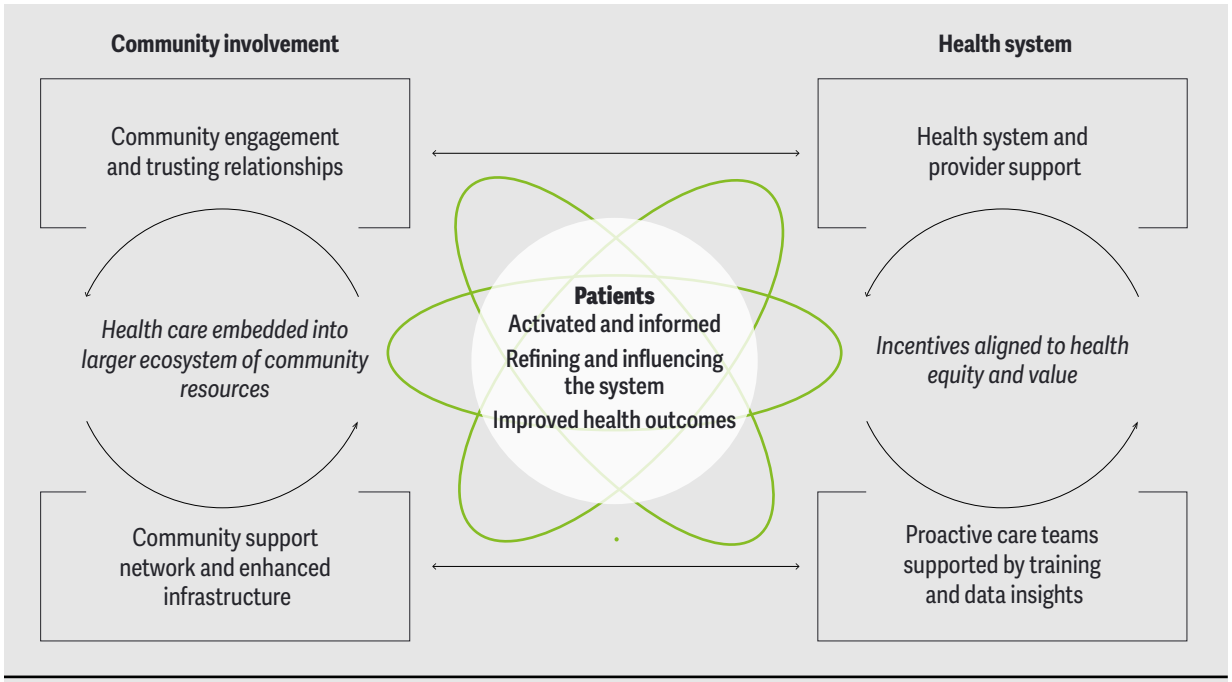
A new value proposition for population health

Common fee-for-service payment models can limit the transformative potential of integrated care approaches. Some US states are legally restricted from billing for both primary care and behavioural health services on the same day, and Medicare coverage of collaborative care can be inadequate. Startup costs to implement integrated care, including staffing and technology, are not always reimbursable.

To realise savings through integrated care, some health systems now link payments with results through *value-based care models* that reward physicians for the quality of care provided, rather than the number of patients treated. Value-based care allows patients to drive their own care and considers them in context of their families, communities, and the entire health ecosystem. These models have picked up steam over the last decade; investments in them quadrupled during the COVID-19 pandemic.[16] **Figure 1** visualises the whole-health approach in a value-based care framework.

FIGURE 1

A value-based care framework for whole health



Source: David Betts et al., *Leveraging virtual health within a value-based care framework: Advancing health equity in the Medicaid population*, Deloitte and United States of Care, January 23, 2023.[17]

Extending the reach of health care

Health leaders increasingly seek to prevent health problems before they occur. Clinicians care for the whole person by screening for social and environmental risk factors linked to health outcomes. A recent US Bureau of Labour Statistics survey found that 70% of community health centres screen for these risk factors.[18]

One model is Developmental Understanding and Legal Collaboration for Everyone (DULCE), currently in use at 13 sites across the United States.[19] Since families are most likely to visit the doctor during a child's first six months, those entering the program are screened for a set of social-related health needs and then connected to a multisectoral care team of specialists that meets weekly to review each case.[20] Each team includes clinical care workers, a representative of a community early-childhood organisation, a family specialist trained in evidence-based and empathetic care and a legal expert to help with access to programs.[21]

A whole-health program treats veterans

American veterans are twice as likely as the general population to die from opiate overdose. Drug abuse problems are particularly complex, often involving both physical conditions and social factors. In 2018, the US Veterans Health Administration (VHA) introduced its Whole Health program, which works with veterans to develop personal health plans and teaches them skills for ongoing self-care. An integrated clinical care team helps manage each veteran's treatment and seeks to account for factors such as the veteran's sense of purpose, psychological profile, and physical health.

Veterans meet with fellow veterans trained as peer facilitators to discuss their lives and aspirations. They also can take advantage of evidence-based complementary health approaches offered in their communities, such as acupuncture, meditation, yoga, and tai chi.

VHA piloted the program at 18 sites, reaching more than 130,000 veterans. In two years, 31% of veterans with chronic pain had used whole-health services. Average opioid use among the participants fell by 38%, versus just 11% for nonparticipants. Veterans who used whole-health services also reported less stress and increased healthy behaviours, indicating improvements in overall well-being.

A randomised-controlled trial of the program found that it resulted in quicker access to supports, better completion rates for well-child visits and immunisations, and reduced use of emergency room care by DULCE families.[22]

The "whole person" delivering care

Whole-health care requires a capable and healthy workforce. Yet many health workers face growing workloads, daunting administrative burdens, inadequate funding, and mental and emotional exhaustion.[23] A 2020 survey of more than 2,700 health professionals in 60 nations found that more than half reported signs of burnout.[24] Many health professionals are leaving the field; in 2023, the United States alone may face a shortage of up to a million nurses.[25] Some have posited that health worker burnout is not just a matter of individual emotional exhaustion but could also involve inadequate and outdated systems.[26] The current workforce crisis

represents an opportunity to rebuild our care delivery systems and refocus on meaning and value in health care work.[27]

A better-supported workforce can better support its patients. Australia's Stability, Encompassing, Endurance and Direction (SEED) program is a team-based approach to health worker wellness codesigned by health workers to meet their specific needs.[28] The model works to create a supportive workplace atmosphere to foster collective resilience, by encouraging personnel to look after their own well-being while on the job.

Examples of some of the activities SEED has implemented include a "S(Crap) Notebook" communal journal allowing frontline staff to reflect and share their stressful and unique stories during the pandemic. Another example is a handcrafted wooden "Reflection Tree" placed upon the wall to reflect the growth of a hospital after it was endangered by bushfires. Staff used the tree to post acts of kindness or thoughts of gratitude. SEED's Wellness Warrior Training trained staff members in ways to create a supportive work environment, such as purposeful listening to colleagues' concerns. Participating staff have described a sense of human flourishing as a result of SEED.[29]

Diversifying and expanding the workforce can also help relieve some of the pressures on health workers.

Some governments are redefining "health care worker" to include nontraditional workers, such as faith leaders, barbers, teachers, and other community members, expanding the workforce in ways that increase community connections. Community health centres have long led the way in bringing community members, or peers with lived experience, into health care through the incorporation of "promotores" or community health workers.[30] This approach can help ensure the values and priorities of the communities served are embedded into care delivery.

Community members can also be trained in mental health awareness to identify common concerns and help treat people in the community or refer them to care. In Zimbabwe's Friendship Bench program, "grandmothers" offer problem-solving therapies to community members, stationing themselves at benches. Participating older women are taught to identify the symptoms of common, easily managed mental health conditions and offer support. The Friendship Bench has demonstrated promising results, with one study of more than 500 participants finding that after six months only 14% of those assigned to the Friendship Bench reported depression versus 50% assigned to standard psychiatric care.[31]

In short, caring for the whole health of care workers—and expanding the definition of who can be a health worker—can lead to a more resilient, satisfied workforce better equipped to go beyond disease-centric care to creating healthier communities.

The whole health of the care ecosystem

Whole health should be a collaborative effort, linking health aims, data, and incentives with services such as housing, transportation, education, and social supports. Federal, state, and local agencies can partner with the private sector, nonprofits, and local communities to leverage population data about what factors drive health and scale effective programs.

The pandemic forged a number of relationships between health agencies and nonhealth sectors. Some countries created new infrastructure to enable data-sharing and communication between health agencies and health care entities.

Investing in population health data systems

The pandemic forged a number of relationships between health agencies and nonhealth sectors.[32] Some countries created new infrastructure to enable data-sharing and communication between health agencies and health care entities.

The US Centers for Disease Control and Prevention funds cross-cutting initiatives to help bolster the infrastructure for future pandemic preparedness.[33] The program has scaled up a number of efforts to modernise public health data, including electronic case reporting, a method for real-time data-sharing between health care entities and health agencies. The effort also resulted in the creation of a national centre for epidemic forecasting and outbreak analytics, which acts as a hub for advanced disease modelling which can disseminate data rapidly for public health decision-making.[34]

In Sweden, the Hope platform offers a one-stop destination for health data. It enables communication and data-sharing between patients and health care and research entities. Through the HOPE app, patients can share their data, book appointments, receive notes and reminders, and access records from all of their care providers in a single place.[35]

Multisectoral collaboration

Linking health services with multiple government services like housing, transportation, education, and social care can equip government to make whole health a collaborative aim. Various federal, state, and local agencies are partnering with the private sector, NGOs, and local communities to address social determinants of health and scale programs.

The US Department of Health and Human Services launched in 2023 a first-of-its-kind Federal Plan for Equitable Long-Term Resilience and Recovery (ELTRR), which details a whole-of-government strategy for federal agencies to collaboratively strengthen

the vital conditions for community well-being and resilience across the United States.[36] The 35-member interagency work group is composed of senior leaders in both health and nonhealth agencies. The plan aims to foster community-centred collaboration within and outside of government to achieve the aim of "all people and places thriving, no exceptions."[37] Notably, the plan also recommends adapting steady-state and other current funds to transform systems and enable wellness. Leveraging existing flexibilities across federal assets can allow for more efficient and impactful spending toward whole health.[38]

In Los Angeles, the Magnolia Community Initiative (MCI) exemplifies a whole-health, whole-of-community approach to care. More than 75 partners including local nonprofits, government agencies, early-childhood care providers, universities, and faith-based organisations, collaborate to co-design policies and practices for improving child health and educational outcomes.[39] The initiative serves 35,000 children living in a neighbourhood where 50% of children live in poverty, 35% are overweight, and 70% are not proficient in reading by the third grade.[40] Leveraging data from a population dashboard that measures actions toward improvement, MCI developed a daily reading practice tracker, with family support programs, teachers, and families tracking children's daily reading routines. The program works to increase child language acquisition and reduce childhood vulnerability.[41]

MCI has also become a physical and virtual one-stop-shop centre for family support. Residents enter information only once to access all community-based services. When families visit MCI, they have access to a range of educational, health, and social service providers in one location.[42] The halls are covered with cheerful murals, a nature centre allows for exploration, and once a week, a farmers' market is stationed on site with subsidised produce.

Likewise, the Healthy Chicago initiative began with an effort to directly address the social determinants of health, creating strategies to increase access to healthy foods and create more walkable neighbourhoods. Hundreds of community partners from different disciplines contributed to more than 200 coordinated strategies. The Chicago Department of Transportation, for instance, began redesigning streets to make them more walkable for the elderly in low-income neighbourhoods. In the next iteration of the initiative, Healthy Chicago 2025, partners are working to develop a citywide equity dashboard to measure progress against a set of indicators for health and racial equity. The dashboard will serve as a North Star for planning, implementation, and evaluation of all city programs.

On-the-ground knowledge and shared purpose of community can complement government and medical expertise to help create a whole health ecosystem. Data collection and sharing can render this combination more powerful. Communities, health organisations (public and private), and government services each have important roles to play.

Moving forward

Globally, health care is often a convoluted patchwork of misplaced incentives, interwoven social conditions, and urgent, real-life needs. Keeping one community healthy may rest on the shoulders of neighbours, community organisations, hospitals, schools, counsellors, insurers, employers, health departments, and city planners.

Aligning their different interests isn't easy. And that's why the public sector should explore alternate funding models, such as broadening the use of value-based care models and incentivising interagency collaboration, and recognise the influence of social determinants of health on patient wellness. Connecting the big picture to the acute problem can save money, produce better health outcomes, and hopefully improve some of society's interrelated problems.

Endnotes

1. National Library of Medicine, *Crossing the quality chasm: A new health system for the 21st century* (Washington, D.C.: National Academies Press, 2001).
2. Theodore H. Tulchinsky, "John Snow, cholera, the Broad Street Pump; waterborne diseases then and now," *Case Studies in Public Health* (2018): pp. 77–99.
3. David Betts et al., *The future of the public's health*, Deloitte Insights, November 29, 2021.
4. Alan D. Kaye et al., "Economic impact of COVID-19 pandemic on healthcare facilities and systems: International perspectives," *Best Practice and Research in Clinical Anesthesiology* 35, no. 3 (2021): pp. 293–306.
5. Thierry Malleret, *Wellness + Governments: The case for coming together*, Global Wellness Summit, accessed February 23, 2023.
6. Neal Haflon et al., "Applying a 3.0 transformation framework to guide large-scale health system reform," *Health Affairs* 33, no. 11 (2014).
7. World Health Organisation, *WHO global strategy on integrated people-centred health services 2016–2026*, accessed February 23, 2023; Donald M. Berwick, Thomas W. Nolan, and John Whittington, "The triple aim: Care, health, and cost," *Health Affairs* 27, no. 3 (2008): pp. 759–769.
8. WHO, "Constitution," accessed February 23, 2023.
9. Thomas Armooh et al., *Public health forward: Modernising the US public health system*, Bipartisan Policy Center, December 2, 2021; Marquisha Johns, *Maximising federal investments to address social determinants of health*, Center for American Progress, February 14, 2022; McKinsey & Company, "Social determinants of health infrastructure," November 1, 2022; Vijay Raaghavan and Kanchan Raghuwanshi, *Time to act: Investing in addressing social determinants to improve health*, World Economic Forum, October 2021.
10. *United Kingdom National Health Service*, "Integrated care systems and integrated care boards in England," accessed February 23, 2023.
11. Southcentral Foundation, "Nuka System of Care," video, April 10, 2021.
12. Katherine Gottlieb, "The Nuka System of Care: Improving health through ownership and relationships," *International Journal of Circumpolar Health* 72, September 1, 2013.
13. Southcentral Foundation, "A deep dive on Nuka System of Care performance data," August 2022; Gottlieb, "The Nuka System of Care."
14. Southcentral Foundation, "Home," accessed February 23, 2023.
15. Government of New Zealand, "Pae Ora (Healthy Futures) Act 2022," January 13, 2023.
16. Zahy Abou-Atme et al., "Investing in the new era of value-based care," McKinsey & Company, December 16, 2022.
17. David Betts et al., *Leveraging virtual health within a value-based care framework*, Deloitte and United States of Care, accessed February 23, 2023.
18. US Bureau of Labour Statistics, *Community and social service occupations: Occupational outlook handbook*, accessed February 23, 2023.
19. Center for the Study of Social Policy, "DULCE: Creating family-centred systems of care," accessed February 23, 2023.
20. Ibid.
21. Ibid.
22. Mary Catherine Arbour et al., "New evidence of DULCE's family-centred impact," Center for the Study of Social Policy, October 28, 2021.
23. Vivek H. Murthy, "Confronting health worker burnout and well-being," *New England Journal of Medicine* 387 (2022): pp. 577–579.
24. Luca A. Morgantini et al., "Factors contributing to healthcare professional burnout during the COVID-19 pandemic: A rapid turnaround global survey," *PLOS One*, September 3, 2020.
25. Murthy, "Confronting health worker burnout and well-being," pp. 577–579.
26. Sachin H. Jain, "Have we overcomplicated the American physician burnout conversation?," *Forbes*, October 17, 2022; Eric Reinhart, "Doctors aren't burned out from overwork. We're demoralized by our health system.," *New York Times*, February 5, 2023.
27. Maureen Medlock et al., *Addressing health care's talent emergency*, Deloitte Insights, November 15, 2022.

Endnotes

28. Padmini Pai et al., "The SEED wellness model: A workplace approach to address wellbeing needs of healthcare staff during crisis and beyond," *Frontiers in Health Services* 2 (2022).
29. Ibid.
30. Shreya Kangovi et al., "Evidence-based community health worker program addresses unmet social needs and generates positive return on investment," *Health Affairs* 39, no. 2 (2020); Sara Heath, "Considerations for recruiting, hiring community health workers," *PatientEngagementHIT*, January 31, 2022; Caitlin Allen and Nell Brownstein, "Capacity building and training needs for community health workers working in health care organisations," *Journal of Community Medicine & Health Education* 6, no. 1 (2016).
31. Friendship Bench Zimbabwe, "Creating safe spaces," accessed February 22, 2023.
32. Randolph Gordon et al., *New era of global public health partnerships: Collaborating for better health preparedness*, Deloitte Insights, March 24, 2022.
33. Tim Hulsen, "Sharing is caring: Data sharing initiatives in healthcare," *The International Journal of Environmental Research and Public Health* 17, no. 9 (2020): p. 3046; CDC, "Data modernisation initiative," accessed February 22, 2023.
34. CDC, "CDC stands up new disease forecasting centre," press release, August 18, 2021.
35. ADDI Medical, "How HOPE platform works," accessed February 22, 2023.
36. Bobby Milstein et al., "Organising around vital conditions moves the social determinants agenda into wider action," *Health Affairs*, February 2, 2023.
37. Health.gov, "Announcing the federal plan for equitable long-term recovery and resilience!," news release, November 15, 2022.
38. Health.gov, *Federal plan for equitable long-term recovery and resilience for social, behavioural, and community health,* January 20, 2023.
39. Sam Joo and Therese Wetterman, "Community Engagement + Resource Referral Tech = Whole-Person Health," Health Leads, May 31, 2019.
40. Ibid.
41. Moira Inkelas and Patricia Bowie, "Magnolia Community Initiative: The importance of measurement in improving community well-being," *Community Investments* 26, no. 1 (2014).
42. Patricia Bowie, *Getting to scale: The elusive goal*, Magnolia Place Community Initiative, accessed February 22, 2023.

Acknowledgments

The authors would like to thank **Thirumalai Kannan** from the Deloitte Center for Government Insights for driving the research and development of this trend and **Meenakshi Venkateswaran** for her help in designing the graphics of the article. They also thank **Caroline Hope**, **Emma Southgate**, **Krissie Ferris**, and **William D. Eggers** for their insights and thoughtful feedback.

About the authors

David Betts

dabetts@deloitte.com

David Betts is the leader for Public Health Transformation at Deloitte Consulting. He focuses on assisting clients in the public health arena to create a more resilient public health infrastructure, building on lessons learned in the pandemic. Betts brings more than 17 years of experience working with clients in the private sector health care industry where he drove significant transformations focused on creating a more human-centric health care system.

Julia Elligers

jelligers@deloitte.com

Julia Joh Elligers is a principal with Deloitte Consulting's Government and Public Service practice. She has 20 years of experience working with local, state, and federal public health agencies and nonprofit organisations. Elligers advises public health organisations on developing and implementing data-driven strategies that improve health across the country.

Alison Muckle

amuckle@deloitte.com

Alison Muckle Egizi is Government Health Policy Research lead for the Deloitte Center for Government Insights. Egizi 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. Egizi has supported federal health agencies with program evaluation, technology innovation, and demonstration projects, and helped advance a vision for health system transformation.

TREND 8

End-to-end justice

Creating a more just society calls for collaboration and resource-sharing across the justice system and beyond with businesses, non-profits, and communities

Alex Mirkow, Karen von Monsjou, Claire Gibson, Lauren Jackson, and Joe Mariani

Introduction

"Who is not against child labour?" That is the question that occurred to Alberto Mora when he was general counsel for an international food and candy company.[1] Travelling to Ghana to visit the farms where cocoa was harvested, he quickly realised the situation was more complicated. Much of the cocoa was grown on family farms of 1–2 acres, where cocoa pods were laboriously harvested by hand with machetes and baskets. While these families desperately wanted their children to get an education (without exception, none of the families Alberto met wanted their children to follow them into cocoa farming), they had very limited resources. So, if another family member fell ill or there was another problem, they often had no choice but to pull their children from school to be able to turn in the harvest.

A trained lawyer, Mora came to understand that simply passing a law against child labour would not change this situation. But he also saw that his company could play a role and, indeed, had to play a role. Much of the child labour he encountered in Africa resulted from the economic realities faced by poor families living on the margin. Being against child labour required more than just regulatory compliance; it demanded that companies also work to improve the economic situation of their farmers, providing them with the resources to hire workers so that they could both earn a more secure livelihood and still send their children to school.

Improving the economic situation of farmers in West Africa is a complex problem that even a large multinational company cannot affect alone. In this way, it illustrates one of the major trends emerging in justice today: creating a more effective and equitable justice system takes more than just laws and police; it takes organisations from the public and private sectors working together to tackle some of society's most difficult challenges, particularly for those at the bottom of the production chain.

Justice is not the purview of a single government entity. It takes shape from multiple moving parts, including government agencies, civil society, the private sector, and policies that influence incentives in our communities. Even the three major components of the justice system—courts, corrections, and law enforcement—are themselves made up of thousands of moving parts. Law enforcement in the United States alone includes more than 18,000 distinct police departments at the federal, state, county, and local levels.[2]

As a result, achieving a justice system's desired outcomes—whether a reduction in crime or swifter, fairer operations—demands collaboration. An effective justice system works together.

Take court backlogs. Backlogs, like other outcomes of the justice system, are a complex phenomenon beyond the control of any one organisation. A 2021 report found that each US state and local court faces an average backlog of 1,274 cases.[3] The Hawaiian

Island of Oahu's courts were no exception. However, an analysis of Oahu's backlogs revealed that a large chunk of cases belonged to a relatively small group of repeat offenders in the homeless population—with an average of over 10 cases each. They faced violations related to homelessness, such as sitting or sleeping on sidewalks. This wasn't an issue of courts needing to move faster—it was of courts being the wrong venue. The Prosecutor and Public Defenders' offices collaborated to create an alternative—the Community Outreach Court, with multiple locations across Oahu. The alternative court cleared 601 cases in its first year by focusing on solving homelessness rather than on prosecution.[4]

Walls coming down

- Sharing data, budgets, programs, intelligence, and other resources **among different components of the justice system** not only curtails errors and redundancies but also enhances the capacity of justice organisations to fulfill their mission.

- Proactive collaboration **between justice organisations and other government entities** when dealing with common issues reduces friction and enhances efficiency.

- Partnerships **between justice organisations and nongovernmental entities** such as commercial companies, universities, civic organisations, and community groups make the justice system more responsive to public needs and resilient to sudden shocks (see infographic, By the numbers: End-to-end justice).

By the numbers: End-to-end justice

Countries are building interoperability within their criminal justice systems

HM Courts and Tribunal Service Common Platform, United Kingdom

A €300 million digital case management system that replaced multiple outdated software in the legal system with a single cloud-based platform, Common Platform enables all stakeholders to access and log case information on a single portal.

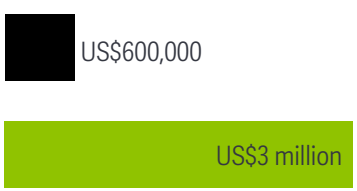
Justice organisations are collaborating with private players to expand their reach and capacity

Law enforcement agencies in 35 countries worked collaboratively with technology companies, cybersecurity firms, internet service providers, and domain registries to take down the Necurs botnet, which had infected more than 9 million computers globally.

Law enforcement agencies are collaborating with other public entities to enhance justice outcomes

Police coresponder program, Boulder County (United States)

In Boulder, Colorado, clinicians ride along with police when responding to emergency calls to divert persons dealing with mental health crises into treatments instead of incarceration. The program costs around US$600,000 a year but saves the community US$3 million by reducing jail costs.



Sources: Catherine Baksi, "Common platform for case records 'so flawed it has a mind of its own'," *Times*, September 21, 2022; Brian Barrett, "How Microsoft dismantled the infamous Necurs botnet," *Wired*, March 18, 2020; "Christopher N. Osher, "Mental health and substance-use disorders are growing problems in Colorado. Pairing police with mental health professionals could help," *Denver Post*, January 2, 2018.

Trend in action

Complex problems typically cut across the remits of different organisations and sectors. Breaking the barriers between organisations creates more opportunities for collaboration and data-sharing, helping justice organisations make progress on the toughest challenges they face.

Unlocking efficiencies within the justice system

Justice organisations are not monolithic. Courts pursue very different missions than law enforcement or corrections. Yet, the common goal of creating a more just society creates interdependencies.

Sharing information, resources, or expertise among justice organisations can improve outcomes. For example, India is setting up the Interoperable Criminal Justice System (ICJS), a cloud-based national platform to enable the seamless transfer of data and information among different pillars of the criminal justice system,

including police, courts, jails, and forensic science laboratories. In Phase I of the project, designers implemented and stabilised individual IT systems. They also enabled a function to search records. Phase II, which is targeted for completion by 2026, will build on the system to enable the principle of "one data, one entry," whereby data entered once in a single pillar is seamlessly available in all other pillars.[5] By enabling seamless data-sharing, the ICJS platform aims to increase effectiveness and efficiency across the criminal justice system. Providing all the relevant case information to courts in real time should enhance case and court management. The analytics built into the platform will also help improve investigations and enable lawmakers to make timely, evidence-based decisions.[6]

Coordinating interagency response

The very nature of a justice organisation's work brings it in close proximity to other government agencies. For example, when responding to violent crime, the police collaborate with traffic, emergency medical, and health agencies on the same incident.

Agencies have disparate missions, cultures, and processes. They also have different areas of expertise. Collaboration, done effectively, can provide beneficial perspectives and aligned goals. Proactive collaboration even allows agencies to establish protocols for situations involving multiple jurisdictions, like the interagency incident command structure developed after Hurricane Katrina.[7]

Collaboration is key to police helping people undergoing a mental health crisis. It is estimated that at least 20% of police calls for service in the United States involve a person with a mental illness or substance abuse.[8] Such calls require more of a police officer's time than burglaries, assaults, or traffic accidents.[9] While the police are trained to investigate crime, they typically are not equipped to support mental health crises. Therefore, many cities are experimenting with coresponder programs, where teams of police officers and social workers respond to calls together. The logic for such partnerships is clear; getting more people into social programs not only helps them overcome their crises but also lightens the load on police, freeing up resources for crimes within their training. For example, the Denver Police Department has partnered with the Mental Health Center of Denver to launch the Crisis Intervention Response Unit (CIRU). CIRU is a coresponder program in which trained clinicians ride along with police officers to offer assistance to people suffering from mental, or substance-use issues.[10] Coresponder programs not only help people dealing with mental or substance-abuse crises, but they also save money. A coresponder program implemented in Eugene, Oregon, saved the city more than US$14 million in ambulance rides and emergency room visits in 2018 alone.[11]

Deploying community-enabled solutions

Crime doesn't happen in a vacuum. It affects everyone in some form, be they citizens, businesses, or nonprofits. With the involvement of this wide swath of stakeholders, the past few years have witnessed a rise in community-driven solutions to tackle some of society's biggest problems, including crime. Justice organisations and the government at large are increasingly collaborating with an extensive network of problem-solvers.

Take, for instance, cybercrime. Cyberattacks have become increasingly pervasive. Their targets are widespread—citizens, universities, businesses, and governments. The current stream of attacks may be the tip of the iceberg. It is estimated that there will be new ransomware attacks every two seconds by 2031, up from every 11 seconds in 2021.[12] The sheer scale of cyberattacks makes it impossible for any single organisation, government, or even a country to have visibility into the entire spectrum of cybercrime, let alone deploy countermeasures. Therefore, countries are beginning to share information and take collaborative action against cybercrime.

One transnational public-private cybersecurity collaboration took down Emotet, the world's largest botnet. Europol, the European Union's law enforcement agency, led a coalition of law enforcement agencies from eight countries—the United States, Canada, the United Kingdom, the Netherlands, Germany, France, Lithuania, and Ukraine—and private security researchers to eradicate the Emotet infrastructure.[13] To disrupt Emotet, law enforcement agencies and a large group of security industry players collaborated to simultaneously hijack hundreds of Emotet's command and control infrastructure (spread across more than 90 countries). The expertise of technology firms also played a critical role in the global takedown. For instance, in the United States, Team Cymru—a threat intelligence company—helped the US Federal Bureau of Investigation (FBI) pull off the operation. The company detailed and validated the IP addresses of Emotet's controllers and recruited network operators to help take down the servers.[14]

Dutch investments to tackle organised crime

Organised crime doesn't respect borders. It cuts across nations, and its negative impacts touch every aspect of the justice system. So, when authorities in the Netherlands decided to tackle organised crime, they did so not with a single investment but with many investments spread out across both justice organisations and industry. The goal was not just to catch more criminals but to deprive criminals of the opportunity to commit crimes.[15]

That goal required actions that prevented, disrupted, and punished crime:

- **Prevention.** Recognising that turning youth away from a life of crime would deprive organised crime of a key source of new recruits, Dutch authorities dedicated €103 million to programs for youth workers, teachers, and community officials to divert youth from crime.[16]

- **Disruption.** Denying the opportunity to commit a crime also means disrupting criminal activity where it takes place, often in public markets and places. Therefore, Dutch investments spread beyond purely government organisations and extended to private industry as well. For example, €73 million was dedicated to beefing up screening and surveillance at ports and airports, while another €10 million went to entrepreneurs to counter money laundering and help spot illegal activity.[17]

- **Punishment.** Organised crime leaders stop at nothing to continue running their operations, even from behind bars. Therefore, authorities in the Netherlands invested €34 million in corrections to establish a higher-security division of prisons to house organised crime leaders to help prevent them from continuing to run the business while incarcerated.[18] By working with courts to adopt video hearings, corrections officials can even cut down on escape risk by reducing the need for high-risk transits to court.

Complex justice problems such as countering organised crime defy easy solutions. They take concerted efforts spread across many players, both within and outside government.

Moving forward

- **Align on a common vision.** Proactively engaging with multiple stakeholders can help justice organisations set community-defined goals, which can in turn help justice organisations think of outside-the-box approaches to solving challenges. Further, setting measurable metrics of success in achieving those goals can align priorities, operations, and resources to better match the needs of the broader community.

- **Execution by network.** Justice organisations should nurture collaborative public-private ecosystems of technology companies, universities, research labs, and other public sector entities. These ecosystems can contribute to collective intelligence that exponentially increase justice organisations' ability to mitigate society's biggest challenges.

- **Set clear expectations and boundaries for collaboration.** Setting terms and establishing protocols at the onset of collaboration helps define each organisation's role in situations involving multiple organisations. It also helps organisations avoid overstepping boundaries.

- **Look to peers for examples of success.** While no two justice systems are identical, many are wrestling with the same challenges. Therefore, establishing "coalitions of the willing" of justice organisations grappling with similar challenges can help surface success stories, gather data on what works and why, and accelerate the success of end-to-end justice for all participants.

My take

Toby Hayward-Butcher
Head of strategy and delivery for BOLD, UK Ministry of Justice

Connecting data to better help society's most vulnerable

Governments around the world hold vast amounts of data, but it's not always in the best shape. Our data sets have grown organically over decades; as a result, they vary in quality, are sometimes on outdated systems, and are often held across multiple departments.

In the United Kingdom, we recognised that improving and joining some of those data sets could help us better design support for the people we want to help. For example, suppose we could link employment data to prison data. In that case, we could better understand whether the rehabilitative interventions we provide to prisoners are helping them find work when they leave prison. That's why we set up the Better Outcomes through Linked Data (BOLD) program.

BOLD is focused on four pilot projects: reducing homelessness, supporting victims of crime, reducing substance misuse and reoffending. Ultimately, the program seeks to understand peoples' pathways in these areas—and crucially, the interplay between them—to identify which government interventions make a difference. We want to know how best to support people and invest taxpayer's money.

Our approach focuses on "use cases," so we start with real-world applications in mind where linking data could lead to improvements. From there, we identify which data sets to link, analyse the linked data to generate insights, and augment our findings with user research. The use-case approach means we don't look for data for the sake of it, and we don't deploy technology just because we can—we see both data and technology as enablers for the improvements we want to unlock.

Of course, linking data is not straightforward.Across the United Kingdom's government departments, there isn't yet a central catalogue of data sets, and we pseudonymise data to ensure privacy is respected at every step.

But the overarching challenge is creating shared incentives between different agencies and departments to collaborate and share their data. In contrast to the traditional transactional model of data-sharing across government, BOLD is a cross-government program designed upon the shared problems that government departments will be motivated to collaborate on. We have hired staff into multiple government departments (health, justice, housing), and they all work out of those departments but as part of a single unified program.

Data linking in government and public services has transformative potential—and the BOLD program aims to show precisely that.

Endnotes

1. Conversation with the authors, September 14, 2022.
2. Duren Banks et al., *National sources of law enforcement employment data*, US Department of Justice, October 4, 2016.
3. Lyle Moran, "Court backlogs have increased by an average of one-third during the pandemic, new report finds," *ABA Journal*, August 31, 2021.
4. Lori Scialabba et al., *Government backlog reduction: Five ways government agencies can improve services and mission delivery*, Deloitte Insights, May 06, 2019; Hawaii Public Radio, "The latest: 57 new cases statewide; DOH, Honolulu conduct vaccine distribution training," December 15, 2020.
5. Bharti Jain, "Inter-operable criminal justice system gets government approval,"*Times of India*, February 18, 2022.
6. Ministry of Information and Broadcasting, India, *Interoperable criminal justice system*, June 23, 2022.
7. Sophia B. Liu, Leysia Palen, and Elisa Giaccardi, "Heritage matters in crisis informatics: how information and communication technology can support legacies of crisis events," *Crisis Information Management*, accessed February 13, 2023, pp. 65–86.
8. Ashley Abramson, "Building mental health into emergency responses: More cities are pairing mental health professionals with police to better help people in crisis," *Monitor on Psychology* 52, no. 5 (2021).
9. Amy C Watson et al., "Improving police response to persons with mental illness: A multi-level conceptualization of CIT," *International Journal of Law and Psychiatry* 31, no. 4 (2008): pp. 359–368.
10. WellPower, "Co-responder program," accessed February 13, 2023.
11. Julota, "Are co-responder programs the future of policing?," accessed February 13, 2023.
12. Steven C. Morgan, *Boardroom cybersecurity 2022 report*, Secureworks, August 09, 2022.
13. Andy Greenberg, "Cops disrupt Emotet, the internet's 'most dangerous malware'," *Wired*, January 27, 2021.
14. Joe Mariani et al., *Incentives are key to breaking the cycle of cyberattacks on critical infrastructure*, Deloitte Insights, March 08, 2022.
15. Government of the Netherlands, "Additional investments in fight against international drug trafficking," March 15, 2022.
16. Government of the Netherlands, "Investing in tackling crime and access to justice," September 20, 2022.
17. Sofia Stuart Leeson, "Dutch to invest in entrepreneurs to fight organised crime," Euractiv, June 09, 2022.
18. Government of the Netherlands, "Investing in tackling crime and access to justice."

Acknowledgments

The authors thank **Akash Keyal** from the Deloitte Center for Government Insights for driving the research and development of this trend as well as **Adam Routh** for his insights and thoughtful feedback on the draft. The authors would also like to thank **Meenakshi Venkateswaran** for helping to design the infographics in the article.

About the authors

Alex Mirkow

amirkow@deloitte.com

Alex Mirkow leads Deloitte's relationships with the US Department of Justice and the US Courts. He specialises in advising federal, international, and private sector clients on strategy and operations. In particular, Mirkow brings more than 25 years of experience in strategic planning, financial modelling, and performance measurement of law enforcement and security clients. Previously, Mirkow led Deloitte's relationship with the Transportation Security Administration (TSA). He also serves as the national leader for Deloitte's Hispanic/LatinX and Allies and Community.

Karen von Monsjou

KvanMonsjou@deloitte.nl

Karen von Monsjou is partner in the Operations practice of Deloitte Consulting Netherlands and leads the Defence, Security & Justice domain in the country. She is responsible for several large-scale transformation programs around digital strategy, legacy transformation, and case management in the Justice domain. She is dedicated to help her clients to keep society safe, secure, and fair. In 2020, von Monsjou and the global team created the Future of Criminal Justice insights collection.

Claire Gibson

clgibson@deloitte.co.uk

Claire Gibson has spent over 20 years working with organisations to deliver transformational change across the public and private sector. She is the account director for the Justice & Rehabilitation account, which includes the Ministry of Justice and its executive agencies.

Lauren Jackson

laurenjackson@deloitte.ca

Lauren Jackson is partner at Deloitte and serves as the National Security & Justice leader in Canada. Through her work, she has supported some of Canada's most complex public safety and ongoing digital justice transformations in different regions across the country, including within policing, courts, corrections, and probation and parole. Jackson is a former public servant, previously serving within a provincial health care agency and as a senior civilian member of the Halton Regional Police Service within the Office of the Chief.

Joe Mariani

jmariani@deloitte.com

Joe Mariani is a senior research manager with Deloitte's Center for Government Insights. His research focuses on innovation and technology adoption for both national security organisations and commercial businesses. His previous work includes experience as a consultant to the defence and intelligence industries, high school science teacher, and Marine Corps intelligence officer.

TREND 9

Security by network

Aligning business and government interests for national security

Beth McGrath, Darren Hawco, Elizabeth Mardell, Adam Routh, and Akash Keyal

Introduction

On May 13, 1972, the newly christened *USS Nimitz* slid down Slipway 11 of Newport News Shipbuilding and Dry Dock Co.,[1] launching not just one ship but the largest class of warships ever built.[2] Indeed, the *Nimitz*, at more than 1,000 feet long, was more: an advertisement for and indicator of American dominance in the entire scope of national security. The US government was the world's largest player in technology and innovation; lawmakers in Washington, D.C., could set industry agendas through purchases, grants, and regulations.

Decades later, the global security environment has shifted. The *Nimitz* class of warships would remain the world's largest for the next four decades,[3] but they no longer served as the same metaphor for supreme federal power. Globally, commercial R&D spending eclipsed government levels,[4] and democratising technology meant that industrial decisions would now be driven by a host of different international public and private participants, each with differing agendas and incentives. When it comes to national security today, government is less an aircraft carrier than one ship—albeit a large ship—among many, with routes intersecting and crisscrossed with destinations varied.

Russia's invasion of Ukraine has highlighted this trend toward a more disaggregated, interest-driven world, with a wide range of public- and private-sector organisations making independent decisions, each with an impact on military and security outcomes.

Shortly after Russia's invasion of Ukraine, companies began to pull out of the Russian market,[5] motivated not by any central security decision, such as a nation's imposition of sanctions, but by the diverse pull of shareholders and customers overwhelmingly opposed to Russia's actions and the business risk they believe resulted from Moscow's choices.[6] The trend of disaggregated action continued as the conflict evolved. For example, when attacks threatened Ukrainian communications infrastructure, Ukraine's deputy prime minister tweeted an appeal to SpaceX, which moved quickly to provide Starlink internet service and terminals.[7] The satellite-based technology's ubiquity and jamming resistance helped Ukraine, in the words of an adviser to President Zelenskyy, "survive the most critical moments of war."[8] But the nation's appeal to and reliance on the actions of a private company—one based thou-

sands of miles away, no less—to bolster its national security put Ukraine in an awkward position where it had to consider the interests of a private sector actor to preserve a critical wartime capability.[9]

As governments around the world grapple with this trend, it is increasingly clear more collaboration with public and private participants is necessary to protect national security. Indeed, leaders are beginning to evolve new approaches and new tools to shape commercial partners' incentives and protect public security.

Walls coming down

- Traditional distinctions **between purely commercial and national security issues** are becoming increasingly fuzzy with corporate actions to pull out of countries, relocate manufacturing plants, or provide/deny service having significant national implications.

- Renewed **strategic competition between major powers is driving new collaboration between other nations** on issues beyond security as they find their interests currently aligned.

- Global, interdependent supply chains also increase the shared **risk for both government and businesses** as conflicts, or other disruptions, can cause whole industries to grind to a halt.

By the numbers: Security by network

Independent commercial decisions have an impact on security outcomes

1,000+

companies have curtailed operations in Russia since its invasion of Ukraine.

Increasingly blurred lines between good and bad actors in cybersecurity

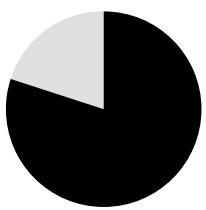
Researchers assess that at least four of the most advanced cyberthreat groups in the world are freelancers who work for both nation-states and criminal interests.

Consolidation of commercial supply chains can create national security vulnerabilities

63%

Global market share in assembly, testing, and packaging of semiconductors

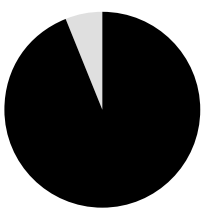
Taiwan
China
South Korea
Japan



80%

Global market share in photovoltaic cell manufacturing

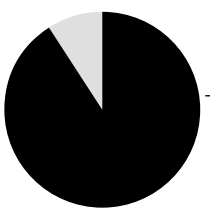
China



94%

Global market share in rare earth permanent magnet production

China



91%

Global market share in rare earth metal or alloy production

China

Sources: CELI, "Over 1,000 companies have curtailed operations in Russia—but some remain," February 8, 2023; Mandiant, "Advanced persistent threats (APTs)," accessed February 9, 2023; Saif M. Khan, Alexander Mann, and Dahlia Peterson, *The semiconductor supply chain: Assessing national competitiveness*, CSET, January 2021; US Department of Energy, *Solar Photovoltaics*, February 24, 2022; Vasileios Rizos, Edoardo Righetti, and Amin Kassab, "Developing a supply chain for recycled rare earth permanent magnets in the EU," CEPS, December 2022.

Trend in action

The breaking down of these walls is creating perceptible shifts in how national security is achieved.

Shift from central control to disaggregated action

Once centrally controlled, security is now increasingly driven by the actions of disaggregated players. For example, military supplies traditionally flowed to foreign countries through a closely regulated sales process tightly controlled by ministries or departments of defence. But the increasing dual-use applicability of consumer technologies to military tasks means that suppliers increasingly have the opportunity to sell directly to militaries around the world. Defence ministries already purchase consumer-grade drones, hacking software, and more—SpaceX developed its Starlink internet system for consumers, not for Ukrainian national security.[10]

And if companies are free to **do** business with countries, they can choose **not to** do business as well. Traditional government tools such as economic sanctions or military blockades have long controlled the process of limiting a country's markets to certain buyers, but corporations pulling out of Russia showed that the same effect could be achieved by individual companies electing—based on their own commercial interests—to no longer do business there.[11] While the Russia pullouts happened to align with Western nations' security goals, they raise the troubling issue of whether a government could influence, much less control, such actions if commercial incentives and national security interests pulled in opposite directions.

The intelligence space is confronting rising tensions between security needs and other potentially competing incentives. The proliferation of commercial satellite imagery, online data, and, especially, social media has given amateur analysts the tools to track even sensitive military radar systems in real-time while sitting at their kitchen tables.[12] While internet detectives had used these tools to do everything from tracking warship deployments in the Syrian conflict to identifying those responsible for downing Malaysian Air flight 17, the Ukraine conflict focused fresh attention on the trend.[13] In advance of Russia's invasion, online communities were able to track and share details of Russian troop buildup and accurately predict the invasion's movements.[14] Once the invasion began, communities used social media posts and facial recognition to identify individual Russian service members serving in Ukraine,[15] particular munitions used,[16] and even members of a clandestine Russian military unit programming missile flight paths.[17]

Again, in all of these cases, the actions of these online sleuths aligned with key Western security goals. But there's no guarantee that future independent initiatives will share those objectives.

The clash of familiar roles and shifting interests

The proliferation of players now acting in the security space means that government must adjust traditional roles to work within a more diverse ecosystem, often only able to exert influence—not control. In place of fixed rules set by a department of state or ministry of defence, each participant is often guided by their own unique, ever-shifting set of incentives: how they can make money, what sales and activities align with stated organisational values or brand, how certain contracts might conflict with others, and so on. The way a government agency is currently organised or equipped may not be suited to meet changing private-sector incentives.

Nowhere might this struggle between government roles and industry incentives be more visible than in cyberspace, where lines between sanctioned and freelance, legitimate and rogue, often blur. In April 2022, a Russian hacker group launched a ransomware attack on the government of Costa Rica, crippling the nation's electric grid. As with previous cyberattacks on Brazil and Argentina, Costa Rica found itself in discussions and negotiations with other governments, private companies, and hackers to bring the issue to resolution.[18]

The conflict in Ukraine sounded a clarion call for online freelancers on all sides, guided largely by their own sense of right and wrong: Russia-backed hackers aimed to take down Ukrainian government websites; Western hackers targeted Russian sites and even Russia-backed hackers themselves.[19] And this activity often occurred without state sanction and, thus, outside of any internationally agreed-upon principles of conduct.[20] This type of behaviour—which will likely become more common[21]—not only complicates attribution and response by other nations but can make these activities difficult for even an aligned state to control. What do you do if a hacker invokes your nation's name in taking down a hospital, whether in an allied or enemy country? Are you legally responsible? Can an adversary legitimately encourage its own freelance hackers to respond?

Finding mechanisms to coordinate these disaggregated, interest-driven actions is key to solving or at least mitigating these difficult possibilities.

This shift challenges traditional tools

For government leaders looking to steer behaviours through a new set of incentives, the challenge is exacerbated by the ineffectiveness of many traditional tools. National security is increasingly tangled with economic and other considerations.

Take semiconductors, for instance. A critical component of electronic devices, from personal vehicles to fighter jets, semiconductor availability is vital to a country's economic and national security. But their production is highly concentrated, with companies in Taiwan, the United States, China, and South Korea owning 84% of the global market share in assembly, testing, and packaging.[22] Furthermore, just two regions—Taiwan and South Korea—manufacture nearly all advanced chips.[23] This concentration creates supply chain chokepoints and

vulnerabilities, which could leave entire industries and countries without access to semiconductors during heightened geopolitical tensions or other trade disruptions.[24]

As the COVID-19 pandemic and the Russian invasion of Ukraine disrupted a range of global supply chains, some governments moved to bolster or jumpstart domestic semiconductor industries: The European Union recently announced a €43 billion EU Chips Act with the aim of making the region self-sufficient in semiconductors, while the US government's CHIPS Act laid out plans for more than US$52 billion in federal funding.[25] Yet some governments—especially those without the means to stand up a new high-tech industry—may have little choice but to deal with an uncomfortably tenuous supply chain.

The promise of making national security more, well, secure—aligning the interconnected challenges of semiconductors, cybersecurity, and open-source intelligence, among other areas—demands tools more fine-grained than the blunt instruments of export controls and similar regulations. Agencies need agile tools that can inform and align private-sector interests and guide decisions without costly consequences for government or industry.

Efforts to shore up vulnerabilities have thus far focused on encouraging closer collaboration around shared interests. For example, the FY2023 US National Defense Authorization Act requires key government agencies to study how to build a more collaborative cyber information environment.[26] The European Union has also doubled down on collaboration through Horizon Europe, a research and innovation program with particular emphasis on pressing transnational or regional issues, such as climate change and support to Ukraine. The program pays special attention to open-science policies and new approaches to partnerships with industry.[27] It's likely that governments and agencies will further expand such initiatives as national security ecosystems continue to sprawl.

Battling botnets

Governments, often through law enforcement agencies, have traditionally taken the lead in investigating and preventing crime. But in the cyber domain, tech giants such as Google, which see a huge chunk of global internet traffic pass through their systems daily, are increasingly incentivised to take down wrongdoers.

Governments had long tracked the Glupteba botnet. Spread by tricking users into downloading malware via third-party "free download" sites; the malware would then steal user credentials and data, secretly mine cryptocurrencies on infected hosts, and use infected machines and routers to channel other people's internet traffic.[28] Glupteba posed a real and growing threat to not only victims' finances but entire systems, both private and public.

Google took the initiative to study the extent of the problem and found that Glupteba had infected around one million devices worldwide and that hackers were using Google's own services to distribute the malware. Google moved to shut it down. The company terminated around 63 million Google Docs, more than 1,000 Google accounts, and over 900 Google Cloud projects that hackers were using to distribute Glupteba. Google also worked with internet infrastructure companies worldwide to disrupt the botnet's command-and-control infrastructure, preventing infected devices from receiving new commands from their controllers.[29] And Google successfully sued two Russia-based hackers it alleged were behind Glupteba's operations.[30] The effort suggests how broad cybersecurity moves may be increasingly public-private partnerships.

Moving forward

A more disaggregated and interest-driven world means that government agencies and ministries cannot go it alone even when it comes to national security, a role topping any list of government responsibilities. Increasingly, governments must collaborate with a broad ecosystem that includes a wide variety of players—often quickly, with crises and events still developing—to advance national security outcomes. If that collaboration is well-managed, new and more effective security capabilities may emerge. Recommendations to establish and manage that collaboration include:

- **Be receptive to shifting interests and adjust plans accordingly.** As is evident from the private-sector pullout in Russia, companies' interests can change rapidly. Government and business leaders should carefully assess the significance of changing interests to identify where opportunities for collaboration exist and where they may arise, communicating

to discuss potentially aligned agendas. For government agencies and ministries, this may mean challenging entrenched organisational culture and assumptions that may blind people to the realities of a changing world. For business leaders, this may mean not waiting until government requests and/or requires action but, rather, being proactive in recognition of shifting security imperatives as well as business interests.

- **Identify bridgebuilders who can span both worlds.**[31] Whether in industry, academia, or government, sectors often speak different languages. Finding leaders who understand the nuances of various interests and can translate is often a first step to establishing the trust and communication necessary to work together on tough security issues. Recognised bridgebuilders need to be empathetic of partners and their positions and be incentivised to grow strong relationships around shared—or at least not opposing—interests.

- **Create platforms for collaboration.** Once initial trust has been established, government and the private sector need forums where they can share information and work out the details of the collaboration. These forums should be outcome-oriented, flexible in design, quick to stand up, and easy to dissolve as interests shift. The internet governance community offers this through various technical and policy working groups and task forces.

- **Take an iterative approach.** Finally, wherever conflicting interests are concerned, progress will not be instantaneous or assured—especially when the stakes are so high. But the consequences of conflicting government and private-sector interests are likely to impair security equally. Where collaboration proves difficult, remain agile in changing people, processes, and techniques to allow new ideas, tools, and practices to break barriers. Sustained dialogue over time will create opportunities for increased alignment and collaboration.

My take

David Perry
PhD, president and senior analyst, Canadian Global Affairs Institute

Aligning national and commercial interests requires new forms of knowledge-sharing and collaboration

The last few years have brought into sharp focus the tension between industry and government interests and the need to work together in response to a seemingly ever-shifting national security landscape. In Canada, we've seen the COVID-19 pandemic, supply chain issues, and Russia's invasion of Ukraine stress government and industry's capacity to respond to unexpected national security threats. Whether the goal is to quickly procure personal protective equipment to save lives during the pandemic or provide timely critical aid to Ukraine, government and industry tend to understand what a good solution looks like, but struggle to identify and align interests to realise it, at least at first.

This tends to stem from weak linkages between government and industry, leading to poor knowledge-sharing. Indeed, assumptions often underwrite too much of government and industry's relationship: what industry may assume the government needs or government's assumptions about the risks or vulnerabilities that might be influencing industry interests. This problem makes it difficult to identify shared interests, synchronise resources, and identify courses of action across the national security enterprise.

Strengthening industry and government linkages to align interests requires new forms of knowledge-sharing and collaboration. Improving knowledge-sharing requires better communication between government and industry, with particular focus on avoiding assumptions about what the other may know or need. A strong dialogue should include a process for quickly understanding what resources or solutions each can bring to a problem set and what each needs to offer additional solutions. Improving collaboration should include joint efforts to forecast national security needs, enabling government and industry to identify cross-sector solutions and any challenges that may impede a desired response. Improved collaboration should also include mechanisms to act before a forecast risk becomes real.

At the Canadian Global Affairs Institute, we've been working to prompt conversations on improving industry and government linkages. Our recent conference assessing defence procurement challenges, including rebuilding the industrial base and overcoming labour shortages, is one such example. We understand that as the national security environment changes, the relationship between industry and government will also change, and that they must make these changes together.

Endnotes

1. U.S. Carriers, "USS NIMITZ CVN 68," accessed December 15, 2022.
2. Naval Technology, "Nimitz Class Aircraft Carrier," January 6, 2020.
3. Shamseer Mambra, "USS Nimitz: One of the biggest war ships in the world," *Marine Insight*, August 7, 2011; Naval Technology, "Nimitz class aircraft carriers," January 6, 2020.
4. Rebecca Mandt, Kushal Seetharam, and Chung Hon Michael Cheng, *Federal R&D funding: The bedrock of national innovation, MIT Science Policy Review 1*, August 20, 2020, pp. 44-54.
5. Irina Ivanova and Kate Gibson, "These are the companies that have pulled out of Russia since its invasion of Ukraine," *CBS News*, March 11, 2022; *New York Times*, "Companies are getting out of Russia, sometimes at a cost," October 14, 2022.
6. Nicolas Boyon, "Global public opinion about the war in Ukraine," Ipsos, April 19, 2022.
7. Jeff Foust, "SpaceX worked for weeks to begin Starlink service in Ukraine," *SpaceNews*, March 8, 2022; Minda Zetlin, "Here's the untold story of how a single tweet to Elon Musk changed history," Inc.com, March 26, 2022.
8. Isabelle Khurshudyan et al., "Musk threatens to stop funding Starlink internet Ukraine relies on in war," *Washington Post*, October 14, 2022.
9. Matt Binder, "Providing Starlink to Ukraine was Elon Musk's biggest PR victory. Now he doesn't even want to do that," *Mashable*, October 14, 2022.
10. Nicholas Gordon, "Chinese drone maker DJI has suspended sales in both Ukraine and Russia, where its consumer tech was deployed in war," *Fortune*, April 27, 2022; Mark Mazzetti, Ronen Bergman, and Matina Stevis-Gridneff, "How the global spyware industry spiraled out of control," *New York Times*, December 10, 2022.
11. Belinda Luscombe, "Hundreds of CEOs came out against Russia. Their involvement could change war forever," *Time*, March 11, 2022.
12. Ollie Ballinger, "Radar Interference Tracker: A new open source tool to locate active military radar systems," Bellingcat, February 11, 2022.
13. Karl Vick, "Bellingcat's Eliot Higgins explains why Ukraine is winning the information war," *Time*, March 9, 2022.
14. Thomas Eydoux, "Meet the anonymous internet investigators tracking Russian movements on the Ukrainian border," *The Observers*, February 10, 2022.
15. Tom Simonite, "Online sleuths are using face recognition to ID Russian soldiers," Wired, March 10, 2022.
16. Janosch Deeg, "How Bellingcat investigators verified the brutal use of cluster munitions in Ukraine," *Scientific American*, March 18, 2022.
17. Christo Grozev, "The remote control killers behind Russia's cruise missile strikes on Ukraine," Bellingcat, October 24, 2022.
18. Paul Brian, "Ransomware hackers declare total war on Costa Rica," *National Interest*, May 22, 2022.
19. Carmela Chirinos, "Russian hackers started a vigilante cyber militia to take down Ukraine's websites and steal data," *Fortune*, February 25, 2022; *Reuters*, "Russian ministry website appears hacked; RIA reports users data protected," June 5, 2022.
20. Ibid.
21. Simon Handler and Liv Rowley, "The 5x5—cybercrime and national security," Atlantic Council, June 29, 2022; Lucas Ropek, "Are hackers targeting critical infrastructure more often?", *Government Technology*, March 3, 2020.
22. Saif M. Khan, Alexander Mann, and Dahlia Peterson, "The Semiconductor Supply Chain: Assessing National Competitivenessk," Center for Security and Emerging Technology, January 2021.
23. Deloitte Center for Government Insights, Boosting resilience: Working with like-minded partners to orchestrate critical supply chains, Deloitte, 2022.
24. Melanie Rojas et al., *Reshoring and "friendshoring" supply chains*, Deloitte Insights, March 24, 2022.
25. European Commission, "European Chips Act—questions and answers," February 8, 2022.
26. Nihal Krishan, "NDAA requires intelligence agencies to study creation of cyber collaboration program," *FedScoop*, December 8, 2022.
27. European Commission, "Horizon Europe," accessed December 20, 2022.

Endnotes

28. Shane Huntley and Lucy Nagy, "Disrupting the Glupteba operation," Google Blog, December 07, 2021.

29. Gerrit De Vynck, "Google disrupted a massive botnet that hackers used to steal information and mine cryptocurrency," *Washington Post*, December 7, 2021.

30. oyal Hansen and Halimah DeLaine Prado, "A ruling in our legal case against the Glupteba botnet," Google, November 18, 2022.

31. William D. Eggers and Donald Kettl, B*ridgebuilders: How Government Can Transcend Boundaries to Solve Big Problems* (Cambridge MA: Harvard Business Review Press), 2023.

Acknowledgments

The authors thank **Joe Mariani** for his insights and thoughtful feedback on the draft. They would also like to thank **Meenakshi Venkateswaran** for helping design the infographics of the article.

About the authors

Beth McGrath

bmcgrath@deloitte.com

Beth McGrath is Deloitte's global leader for government and public services. In her role, she is committed to strengthening synergies across global industries and government and public services with a focus on client mission needs and solutions. McGrath has broad, multidisciplinary, strategic, and operational management experience acquired from 25+ years of successful performance in the United States government sector.

Darren Hawco

dhawco@deloitte.ca

Darren Hawco is an executive advisor in the Monitor Deloitte strategy practice. He is a retired vice admiral from the Royal Canadian Navy and an executive with extensive public, military, and allied services experience. Hawco is particularly skilled in intelligence, operational, and tactical planning, as well as capability design and crisis and operations management. Hawco holds a master of defence policy and a master of public administration focused in defence policy and public administration from Royal Military College of Canada.

Elizabeth Mardell

emardell@deloitte.co.nz

Elizabeth Mardell leads Deloitte's Defence team in New Zealand. Her work focuses on decision-making for infrastructure-intensive entities, particularly in the public sector. She is passionate about investigating investment opportunities, solving problems, and connecting with project teams. Mardell's experience spans areas such as defence, transport, justice, education, and culture and heritage.

Adam Routh
adrouth@deloitte.com

Adam Routh is a manager with Deloitte's Center for Government Insights and a PhD student in the defence studies department at King's College London. His research areas include space policy, the future of defence, 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 *National Review, The Hill, The National Interest, Space News, The Space Review, Real Clear Defense,* and *Defense News*, among other outlets.

Akash Keyal
akkeyal@deloitte.com

Akash Keyal is a research specialist within the Deloitte Center for Government Insights. He specialises on issues related to defence, security, and justice (DS&J), and climate change.

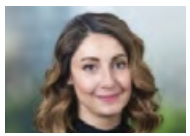
Contact us

Our insights can help you take advantage of change. If you're looking for fresh ideas to address your challenges, we should talk. Reach out to our AU government trend subject matter experts below:

Trend: Tackling funding silos

Ursula Brennan | National Leader, Public Sector & Public Policy
ubrennan@deloitte.com.au

Trend: Regulation that enables innovation



Rita Gatt | Partner, Risk Advisory
rigatt@deloitte.com.au

Trend: Bridging the data-sharing chasm

Alex Burrows | Partner, Deloitte Consulting
aburrows@deloitte.com.au

Trend: Back-office innovations improving mission performance

Sheila Pringle | Partner, Consulting
springle@deloitte.com.au

Trend: Fluid government workforce models

Cameron Pitt | Australian Workforce Transformation Lead Partner
capitt@deloitte.com.au

Trend: Security by network

Matt O'Donnell | Lead Partner, Australian Federal Government
matodonnell@deloitte.com.au

Trend: Teaming up to deliver whole health

Luke Baxby | Priority Sector Leader, Health & Human Services
lbaxby@deloitte.com.au

Trend: End-to-end justice

Frank O'Toole | National Security and Justice Lead Partner
frotoole@deloitte.com

Trend: Tailored public services

Cecilia Hill | Strategy & Design Partner, Deloitte Digital
cehill@deloitte.com.au

About the Deloitte Center for Government Insights

The Deloitte Center for Government Insights shares inspiring stories of government innovation, looking at what's behind the adoption of new technologies and management practices. We produce cutting-edge research that guides public officials without burying them in jargon and minutiae, crystalising essential insights in an easy-to-absorb format. Through research, forums, and immersive workshops, our goal is to provide public officials, policy professionals, and members of the media with fresh insights that advance an understanding of what is possible in government transformation.

Government and public services

Deloitte's Government & Public Services practice—our people, ideas, technology, and outcomes—are all designed for impact. Deloitte Consulting LLP is recognised as an industry leader, ranked No. 1 globally by IDC, Gartner, and ALM Intelligence, and also named a leader in US systems integrators serving the federal government by IDC and in global cloud consulting by ALM Intelligence. Deloitte's Government & Public Services practice serves all 15 US cabinet-level agencies, the majority of civilian agencies, all branches and agencies of the Department of Defense (DoD), and many state and local governments. Deloitte's team offers industry-leading experience and capabilities in strategy and analytics, operations, technology and cloud consulting, and customer experience transformation, and has a proven track record with government. Learn more.

Deloitte.
Insights

Sign up for Deloitte Insights updates at **www.deloitte.com/insights**

Follow @DeloitteInsight

Deloitte Insights contributors

Editorial: Ramani Moses, Abrar Khan, Arpan Kumar Saha, Emma Downey, Aparna Prusty, and Shambhavi Shah
Creative: Natalie Pfaff, Jaime Austin, Meena Sonar, Rahul B, and Govindh Raj
Deployment: Kelly Cherry, Maria Martin Cirujano, and Nikita Garia
Cover artwork: Natalie Pfaff

About Deloitte Insights
Deloitte Insights publishes original articles, reports and periodicals that provide insights for businesses, the public sector and NGOs. Our goal is to draw upon research and experience from throughout our professional services organisation, and that of coauthors in academia and business, to advance the conversation on a broad spectrum of topics of interest to executives and government leaders.
Deloitte Insights is an imprint of Deloitte Development LLC.