



New era of global public health partnerships

Collaborating for better health preparedness

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

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

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

Trend drivers

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

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

Trend in action

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

Collaborative efforts are underway to:

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

EARLY WARNING SYSTEMS FOR EMERGING INFECTIOUS DISEASES

Every emerging disease differs in terms of its communicability, severity, and genetic makeup. Public health officials need rapid, credible information to understand these characteristics before they can tailor an effective response. The rapid spread of COVID-19 illustrates the importance of a *global* early warning system with broad international participation to rapidly identify potential outbreaks, forecast risk levels, and guide prevention and containment strategies. The current system, to the extent it exists at all, has a distressing number of weaknesses. Some nations are investing in sophisticated surveillance mechanisms for emerging diseases, but many others are far behind.⁵

Collaboration among nations and international organizations can close some of these gaps, particularly in data-sharing.⁶ WHO's Epidemic

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

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

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

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

One Health programs and plans across the globe



Americas

United States

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

EMEA

Africa

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

Denmark

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

Europe

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

Ireland

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

Tanzania

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

United Kingdom

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

Asia-Pacific

Australia

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

India

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

Vietnam

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

ACCELERATING SCIENTIFIC RESEARCH AND DEVELOPMENT

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

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

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

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

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

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

ENSURING EQUITABLE OUTCOMES

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

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

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

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

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

THE ACT ACCELERATOR: A COALITION FOR GLOBAL VACCINE EQUITY

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

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

FIGURE 1
The four pillars of the ACT Accelerator

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

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

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

Moving forward

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

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

MY TAKE

Keith Cloete, head, Western Cape Department of Health

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

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

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

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

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

MY TAKE



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

Collaborating for evidence-based public health decisions

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

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

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

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

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

Endnotes

1. Lance Saker et al., "Globalization and infectious diseases: A review of the linkages," *Social, Economic and Behavioral (SEB) Research*, 2004.
2. Catherine Mark and José G. Rigau-Pérez, "The world's first immunization campaign: The Spanish smallpox vaccine expedition, 1803–1813," *Bulletin of the History of Medicine* 83, no. 1 (2009): pp. 63–94.
3. Jessie B. Bump et al., "International collaboration and COVID-19: What are we doing and where are we going?," *BMJ* 372, no. 180 (2021).
4. The WHO became a political lightning rod for criticism on COVID-19 information and response, but it has retained trust in most nations. See Mara Mordecai, "How people around the world see the World Health Organization's initial coronavirus response," Pew Research Center, November 12, 2020.
5. See for instance Esther Krofah et al., *A global early warning system for pandemics: Mobilizing surveillance for emerging pandemic*, Milken Institute, 2021.
6. Laith Hussain-Alkhateeb et al., "Early warning systems (EWSs) for chikungunya, dengue, malaria, yellow fever, and Zika outbreaks: What is the evidence? A scoping review," *PLOS Neglected Tropical Diseases*, September 16, 2021.
7. World Health Organization, "Epidemic Intelligence from Open Sources (EIOS)," "Community of Practice" and "Technology: The EIOS system"; European Commission, "Epidemic Intelligence from Open Sources."
8. WHO, *EIOS Newsletter*, October 2021.
9. Government of India Department of Science & Technology, "Scientists from four BRICS countries to carry out genomic sequencing and mathematical modelling of the COVID-19 pandemic," August 5, 2021; Tatum Martens, "UK and US agree new partnership to fight future pandemics and tackle health inequalities," Texas Medical Center, June 10, 2021; UK Research and Innovation, "How does virus genome sequencing help the response to COVID-19?," March 25, 2020; Trina Wood et al., "Where coronavirus variants emerge, surges follow," UC Davis Veterinary Medicine, May 5, 2021.
10. K. Nagaraju Shivaprakash et al., "Mammals, wildlife trade, and the next global pandemic," *Current Biology* Vol. 31, Issue 16, August 23, 2021; Nature Conservancy, *Wildlife trade a key risk factor in the global spread of infectious disease*, July 7, 2021.
11. WHO, "26 International experts to kickstart the One Health High Level Expert Panel (OHHLEP)," June 11, 2021.
12. The Rockefeller Foundation, "The Rockefeller Foundation announces key grants & collaborations to strengthen global genomic sequencing & data sharing," June 9, 2021; Organisation for Economic Co-operation and Development, *Access to COVID-19 vaccines: Global approaches in a global crisis*, March 18, 2021.
13. The Coalition for Epidemic Preparedness Innovations was founded by the governments of Norway and India, the Bill & Melinda Gates Foundation, Wellcome, and the World Economic Forum. See Coalition for Epidemic Preparedness Innovations, "CEPI launches plan to tackle risk of future pandemics and epidemics," March 10, 2021.
14. United Kingdom Prime Minister's Office, "G7 leaders to agree landmark global health declaration," June 12, 2021; G7 United Kingdom, "G7 discuss 100 Days Mission to improve readiness for future pandemics," June 12, 2021; G7 United Kingdom, *100 Days Mission to respond to future pandemic threats*, June 12, 2021; The White House, "Carbis Bay G7 Summit Communiqué," June 13, 2021.
15. WHO, "WHO COVID-19 Solidarity Therapeutics Trial," August 11, 2021; WHO, "Solidarity Trial Plus," April 5, 2021; Better World Campaign, "WHO's 'Solidarity' Clinical Trial for COVID-19," October 26, 2021.

16. European Commission, "Supporting and coordinating the development of COVID-19 therapies," September 17, 2020.
17. US National Academy of Medicine, *The R&D preparedness ecosystem: Preparedness for health emergencies*, August 9, 2020.
18. Sigal Samuel, "Why Covax, the fund to vaccinate the world, is struggling," *Vox*, May 20, 2021; Umair Irfan, "Why are rich countries still monopolizing vaccines?," *Vox*, November 9, 2021; *UN News*, "COVID vaccines: Widening inequality and millions vulnerable," September 19, 2021; Nicole Lurie et al., "Urgent lessons from COVID 19: Why the world needs a standing, coordinated system and sustainable financing for global research and development," *Lancet* 397, no. 10280 (2021): pp. 1229–36.
19. Drugs for Neglected Diseases Institute, "Global COVID-19 research agenda still missing the priorities of low- and middle-income countries," May 7, 2021; European Commission, "Republic of Senegal and Team Europe support agree to build a manufacturing plant to produce vaccines against COVID-19 and other endemic diseases," July 9, 2021; Global Health Summit, "Science and innovation for a safer world: Report of the Global Health Summit scientific expert panel," May 21, 2021.
20. Oommen C. Kurian, "The Quad's push for global vaccine equity," Observer Research Foundation, September 24, 2021; The White House, "Fact Sheet: Quad Summit," March 12, 2021.
21. European Commission, "Republic of Senegal and Team Europe support agree to build a manufacturing plant to produce vaccines against COVID-19 and other endemic diseases," July 9, 2021.
22. World Health Organization Regional Office for Africa, "Towards Africa's first mRNA vaccine technology transfer hub," September 17, 2021.
23. World Health Organization, "Lassa fever," July 31, 2017; Africa CDC, "Lassa fever," accessed January 11, 2022; International AIDS Vaccine Initiative, "EDCTP and CEPI funding moves IAVI's Lassa fever vaccine candidate into advanced clinical development," June 15, 2021.
24. WHO, "What is the ACT-Accelerator?"; WHO, "The Access to COVID-19 Tools (ACT) Accelerator"; The Global Fund, "The ACT-Accelerator: Access to COVID-19 Tools Accelerator," January 2022.
25. Our World in Data, "Coronavirus (COVID-19) vaccinations," accessed February 11, 2022.

Acknowledgments

The authors would like to thank **Neha Malik** from the Deloitte Center for Government Insights for driving the research and development of this trend. The authors would also like to thank **William Eggers, Karen Taylor, Sonal Shah, and Wendy Gerhardt** for their insights and thoughtful feedback and **Thirumalai Kannan D** for his research contributions.

About the authors

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

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

Dr. Randolph Gordon | ragordon@deloitte.com

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

Alison Muckle Egizi | amuckle@deloitte.com

Alison Muckle Egizi is the 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, and she has supported federal health agencies with program evaluation, technology innovation, and demonstration projects, and helped advance a vision for health system transformation.

John McInerney | jomcinerney@deloitte.com

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

Dr. Elizabeth Baca | ebaca@deloitte.com

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

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.

Practice leadership

Dr. Randolph Gordon

Managing director | Deloitte Consulting LLP
+ 1 234 567 8910 | ragordon@deloitte.com

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

The Deloitte Center for Government Insights

William Eggers

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

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

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, crystalizing 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.

The Future of Health

The life sciences and health care industry is on the brink of large-scale disruption. In a future of health that's defined by radically interoperable data, open yet secure platforms, and consumer-driven care, what role will you play? [Learn more.](#)

Deloitte.

Insights

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



Follow @DeloitteInsight

Deloitte Insights contributors

Editorial: Ramani Moses, Emma Downey, Arpan Kumar Saha, Dilip Kumar Poddar, and Rupesh Bhat

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

Audience development: Maria Martin Cirujano

Cover artwork: Jaime Austin and Sofia Sergi

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 organization, 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.

About this publication

This publication contains general information only, and none of Deloitte Touche Tohmatsu Limited, its member firms, or its and their affiliates are, by means of this publication, rendering accounting, business, financial, investment, legal, tax, or other professional advice or services. This publication is not a substitute for such professional advice or services, nor should it be used as a basis for any decision or action that may affect your finances or your business. Before making any decision or taking any action that may affect your finances or your business, you should consult a qualified professional adviser.

None of Deloitte Touche Tohmatsu Limited, its member firms, or its and their respective affiliates shall be responsible for any loss whatsoever sustained by any person who relies on this publication.

About Deloitte

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee ("DTTL"), its network of member firms, and their related entities. DTTL and each of its member firms are legally separate and independent entities. DTTL (also referred to as "Deloitte Global") does not provide services to clients. In the United States, Deloitte refers to one or more of the US member firms of DTTL, their related entities that operate using the "Deloitte" name in the United States and their respective affiliates. Certain services may not be available to attest clients under the rules and regulations of public accounting. Please see www.deloitte.com/about to learn more about our global network of member firms.