

Government for the Future: Reflection and Vision for Tomorrow's Leaders

By Michael J. Keegan, Forum Editor

Since 1998, the IBM Center has published research from more than 400 outside contributors—largely from academia, as well as nonprofits and journalists. Collectively, these contributors created a body of knowledge about best practices and lessons learned for government improvement. In addition, the IBM Center has developed a record of public sector challenges and opportunities through more than 500 interviews with government leaders on its radio show, *The Business of Government Hour*.

It is from this longer-term perspective about the performance and potential for government that the IBM Center for The Business of Government wrote *Government for the Future: Reflection and Vision for Tomorrow's Leaders*. In our Forum, we draw from this rich repository of content to reflect on major drivers of public sector progress over the past two decades. More importantly, reflection on this content provides a foundation of what government management may look like two decades hence.

We have built on this foundation to bring together a set of viewpoints about the public sector in 2040, through a set of collaborative brainstorming sessions and a crowdsourcing of ideas about future scenarios. This vision of tomorrow's

government is framed through essays from experts that lay out a roadmap for how to maximize benefits and minimize risks.

The Center's mission has remained the same throughout our 20 years: to stimulate research and facilitate discussion of new approaches for improving the effectiveness of government at the federal, state, local, and international levels. We strive to assist public sector leaders and managers in addressing real-world problems through practical ideas and original thinking to improve government management. We hope that the Center's efforts have raised awareness about the importance of good management to an effective government that makes a positive difference in the world.

This Forum offers selected excerpts from the new IBM Center book, *Government for the Future*, as an introduction into 20 years of connecting research to practice. With our objective of crafting a future vision of government by reflecting on the past, *Government for the Future* consists of two parts. The initial chapters examine six significant and enduring management trends identified over the past 20 years:

- Going Digital
- "Liking" Social Media
- Using Data
- Becoming Collaborative
- Managing Performance
- Assessing Risk

The second part of the book looks 20 years into the future. This Forum will take you on a brief journey through both parts of the book. It is my hope that this primer will peak your intellectual curiosity and that you will find value in the insights, lessons learned, best practices, and vision of the future offered in this magnum opus that marks 20 years of connecting research to practice.



PART I: Reflections on 20 Years of Management Progress



The selected trends introduced in this Forum and detailed in the IBM Center book, *Government for the Future*, were identified through analysis of content in past IBM Center reports, as well as through insights about key government reforms gained from a survey of current and past government executives and leading academics.

The three trends highlighted in this part of the Forum focus on the digital transformation in government. This rapid movement to “going digital” over the last 20 years has served as a key enabler of the increasing capability of government to collect, analyze, and use data. Along with digital and data trends in government, many of the problems facing government executives today transcend traditional program and agency boundaries. This reality has ushered in a trend toward “collaborative governance,” which is working jointly across the traditional boundaries of governmental agencies and between the public and private sector to tackle knotty public management challenges. For a more detailed understanding of each trend as well as the documented sources from which these insights are based, I encourage you to pick up a copy of the IBM Center book, *Government for the Future: Reflection and Vision for Tomorrow's Leaders*.

Going Digital

Today's digital economy has evolved significantly since the eras of mechanical and analog electronic technology. Beginning in the 1990s, the Internet brought about a revolution in how citizens and businesses access, share, and retain information over open networks. These digital steps forward

have led to significant changes in how information technology impacts society, the economy, and government.

What is Digital Government?

Just as the private sector has adapted digital technologies and ways of doing business to serve its customers, government has grown in its digital capacity over the past 20 years. The initial adoption of Internet applications for government services two decades ago led agencies to incorporate these technologies in placing information on the web.

Today, governments can leverage open networks in the cloud, where individuals work together over the Internet in a secure environment to communicate and develop new ideas and applications. Given advances such as artificial intelligence and the “Internet of things,” mechanisms exist to collect, distribute, and access vast amounts of data in various formats from many



sources to help government leaders make decisions that deliver on missions and programs.

Evolution of Digital Government

Progress in this area has moved through three major phases over past 20 years, as shown in the chart Evolution of Digital Government: 1998-2018.

Early action: As the position of agency-level chief information officers was authorized under a landmark IT management statute in 1996 (the Clinger-Cohen Act), the growing importance of IT in implementing agency missions led CIOs to develop business cases that showed return on IT investments in the form of mission achievement and cost management. The mission-critical nature of IT also pointed agencies to start integrating security and privacy into planning and implementation. At the same time, the Internet first entered wide use in the public sector as agencies took their large volume of written public information and made it widely available on the web. Early cross-government applications, such as the FirstGov web portal, introduced the notion that government could use technology at a wide scale to improve citizen service.

Expansion: The advent of e-government was accelerated by a U.S. federal initiative that established citizen-facing IT projects, shared services for back-office operations, and cross-agency architectural standards to drive significant progress. This acceleration was codified in the E-Government Act of 2002, which authorized a presidentially appointed governmentwide leader of IT under whose direction agencies continued to advance IT policy and programs, and drive IT security and privacy. Such activity led to the use of open data and open government as ways to continue integrating innovation with citizen service and program outcomes, fueled by enabling technologies like cloud and mobile computing.

Institutionalization: Agency IT progress pointed to the need for strategy, policy, and law to support an updated framework for bringing new talent into government, while strengthening the authorities of CIOs working as leaders of technological change with other mission and mission-support executives to drive outcomes. The highly visible challenges and resolution efforts associated with the rollout of healthcare.gov in 2013 led the Office of Management and Budget (OMB) and the General Services Administration (GSA) to drive commercial best practice into government through “digital services” teams, innovation officers, and chief technology officers. Congress stepped forward with two statutes that advanced governance and funding frameworks. The government has continued to move forward through several 2018 cross-agency priority (CAP) goals, linking IT modernization to data strategy and workforce improvements as top goals in the President’s Management Agenda. The tie between IT, data, and workforce is especially important given the large volume and variety of digital data now available to agency teams. These teams can leverage analytics technologies to derive insights from the data that enable them to improve citizen service and performance.

Evolution of Digital Government: 1998-2018



Looking Forward

For digital technology to transform operations, governments will also need to change both culture and policy. To take full advantage of the transformational changes made possible through the speed and scale of digital technologies, citizens must help drive how agencies work with them. Digital government in the future must adapt to the needs and expectations of citizens, businesses, non-profits, and other partners, creating user experiences that are personalized, interactive, and easy to access and use. Digital technologies can enable “cognitive systems” that help agencies understand, reason, and learn, allowing government to interact in real time with the public to deliver mission and mission support services with strong security and privacy protections.

Ultimately, new technologies will continue to help government drive performance improvements based on leveraging data and analytics over the cloud, in a secure manner, and in real time. These emerging technologies include artificial intelligence, blockchain, the Internet of things, and initial steps toward quantum computing. Early innovators have shown a path forward for agencies to engage with and serve the public. For example, two 2018 reports on artificial intelligence—*The Future Has Begun: Using Artificial Intelligence to Transform Government* and *Delivering Artificial Intelligence in Government: Challenges and Opportunities*—highlight visible progress in the adaptation of that revolutionary technology to government at all levels, federal, state, local, and international. The evolution of digital government over the past two decades shows that when implemented effectively, securely, and cost effectively, agencies can drive significant and positive change while managing risk to the government and the taxpayer. Part II of the IBM Center book *Government of the Future* points out how government in the next 20 years can act responsibly to accelerate this progress.

Takeaways

- Technology has played a critical role in the delivery of government programs and the conduct of government operations. The evolution toward a “digital government” has improved services, reduced costs, and enhanced security through efforts that have progressed over the past two decades.
- Digital government promotes the introduction of emerging technologies, agile development, a skilled workforce, and flexible investment strategies.
- Law, policy, strategy, and organizational frameworks have laid the foundation for continued improvements in adopting commercial best practices to implement digital government.

Using Data

The rapid movement toward “going digital” over the last 20 years has served as a key enabler to the increased capability of government to collect and analyze data. This capability has similarly been a valuable tool to shift the emphasis from



complying with reporting requirements to generating more useful data that informs performance improvement efforts.

Leveraging Data as a Strategic Asset

In 2018, the President’s Management Agenda designated Leveraging Data as a Strategic Asset as a cross-agency priority (CAP) goal. In its description of the CAP goal, the administration set out three key opportunities to more effectively use data in coming years.

- Develop a long-term federal data strategy to better govern and leverage the federal government’s data.
- Enable government data to be accessible and useful for the American public, businesses, and researchers.
- Improve the use of data for decision making and accountability for the federal government, including policy making, innovation, oversight, and learning.

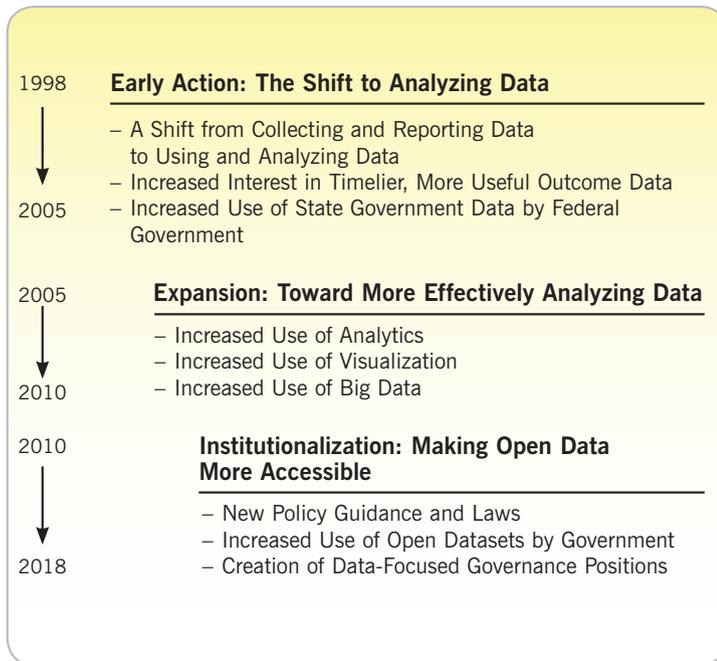
The last two decades have been characterized by a more robust supply of useful data and performance information that can serve as a foundation for more evidence-based insights and decisions in the future. Government policy in recent years has encouraged the greater availability of open data, which has contributed to the growing supply of useful information.

Evolution of the Use of Data

Progress in this area has moved through three major phases over the past 20 years, as shown in the chart Evolution of Data: 1998-2018.

Early action: This phase was characterized by an important shift from simply collecting and reporting data to using and analyzing data. Government organizations at the federal, state, and local levels all demonstrated an increased interest

Evolution of Data: 1998—2018



in timelier, more useful data. This emphasis was seen in the creation of PerformanceStat initiatives in localities across the nation. During this phase, the federal government also continued its interest in the use of data generated by state and local governments.

Expansion: Based on the increased production of data, government organizations began to focus on new ways to more effectively use the datasets that were being produced. New, more effective uses of data included increased use of analytics, data visualization tools, and big data.

Institutionalization: Based on government's increased experience with the creation and use of data, government policies needed to change. These changes resulted in a series of new policies, increased use of open datasets, and the creation of chief data officer positions.

Looking Forward

A variety of important issues appear on the horizon regarding the future use of data by government agencies. For instance, how can government use data collected by the private sector? To date, the emphasis has been on making data “open” from the government to the public, including the private sector. A future challenge will face the private sector to make its data “open” to the government and other users. This sharing would create the possibility of effectively combining data collected by the government and the private sector.

A series of issues relate to sharing of data between federal government agencies themselves, between the federal government and other levels of government, and between local governments. Presently, the sharing of data between federal agencies poses problems because of statutory limits on sharing data. Proposed legislation, the Foundations for Evidence-Based Policymaking Act of 2017, would ease barriers, which currently make the sharing of data between agencies difficult. The capacity of the federal government to both manage and analyze its data continues to be a major issue, as discussed earlier in findings from the Pew Charitable Trusts report on the state use of data. Another report, the 2017 report of the Commission on Evidence-Based Policymaking, set forth two key capacity challenges for the federal government related to data:

- The capacity to support the full range of evidence-building functions is uneven, and where capacity for evidence building does exist, it is often poorly coordinated within departments.
- The federal evidence community has insufficient resources and limited flexibilities that restrict the ability to expand evidence-building activities. A key recommendation of the Commission is that the president directs federal departments to increase capacity for evidence building throughout government.

Takeaways

- The use of data has risen exponentially. However, government agencies face challenges in transforming data into actionable insights.
- With the increased use of data, the challenges of handling data have also increased. As government makes open data more accessible, challenges include finding data experts and managing data accessibility, data quality, and data sharing.
- Data sharing by the private sector, data sharing among government agencies, and the government's capacity to manage and analyze its increasing volumes of data will be critical.

Becoming Collaborative

The concept of “collaborative governance”—that is, working jointly across the traditional boundaries of governmental agencies, and between the public and private sectors—has proven an effective strategy for implementing policy initiatives over the past two decades in an increasingly interdependent environment. The descriptive terms for these phenomena vary—from networks and collaborations to partnerships, horizontal government, boundary spanning, joined up government, and more.



What drives Collaborative Governance?

Professor Rosemary O’Leary describes how government has steadily increased its use of collaborative approaches in lieu of the traditional hierarchical and bureaucratic approach. She says there are several explanations for this shift.

- First, most public challenges are larger than one organization, requiring new approaches to addressing public issues such as housing, pollution, transportation, and healthcare.
- Second, collaboration helps to improve the effectiveness and performance of programs by encouraging new ways to provide services.
- Third, technology advances have helped “organizations and their employees to share information in a way that is integrative and interoperable.”
- Finally, citizens are seeking additional avenues for engaging in governance, resulting in new and different forms of collaborative problem solving and decision making.

Evolution of Collaborative Networks

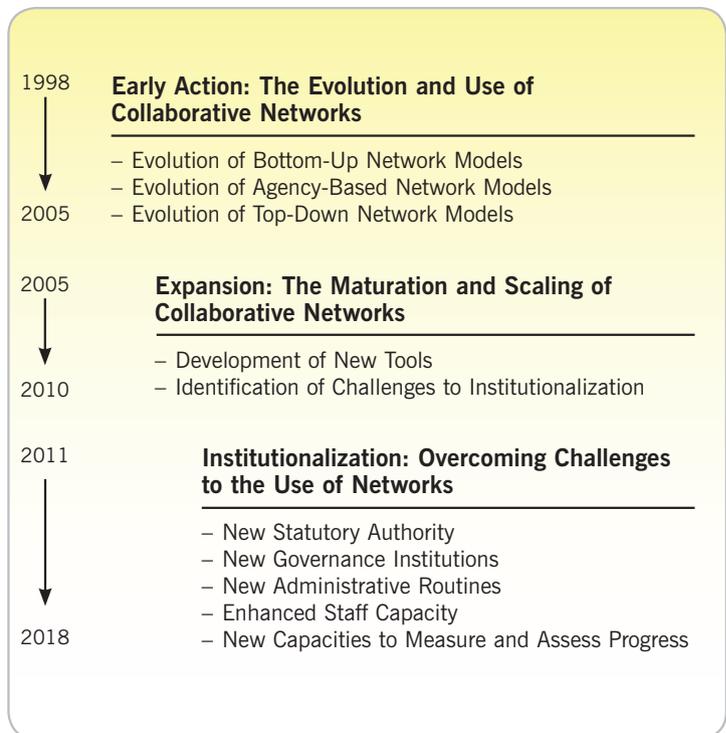
Progress in this area has moved through three major phases over past 20 years, as shown in the chart Evolution of Collaborative Networks: 1998-2018.

Early action: Informal networks of people, programs, and organizations—and the use of partnerships (a more formalized approach)—grew organically, largely from the bottom-up, as pragmatic responses to specific situations. These included community-led efforts to improve the water quality of rivers, as well as the Federal Emergency Management Agency’s efforts to prevent future damage to communities facing natural disasters—versus only responding to a community after a disaster has occurred.

Expansion: Policy makers began to proactively use network-based, collaborative governance models to address broader issues, such as improving food safety, addressing changes brought about by climate change, cross-agency law enforcement efforts, and creating veteran-centric approaches to myriad resources available to veterans.

Institutionalization: Statutory authority, strategic plans, and capacity-building efforts helped legitimize and provide the foundation for policymakers to use collaborative networks in a wide array of policy arenas. This has been reflected in statutory provisions creating cross-agency priority goals, Office of

Evolution of Collaborative Networks: 1998—2018



Management and Budget directives, and presidential directives to use collaborative approaches and to develop a cadre of career executives with experience working across organizational boundaries. Some Congress appropriated funding has also specifically targeted these efforts.

In addition, there is a shift underway to create and use “platforms” to organize and deliver internal services. Platforms are electronic business models that have become a foundation for virtually frictionless transactions and interactions between “many-to-many”—like eBay, Facebook, Airbnb and Uber. Digital platforms may presage the future of how collaborative governance evolves.

Looking Forward

All of government will not suddenly transition to collaborative networks. And this model is not appropriate for everything that government does. As in the private sector, there will continue to be “dual operating systems,” with traditional hierarchies and collaborative networks operating side by side.

But, as the prevalence of collaborative governance increases, the use of “collaborative platforms” will grow as part of the broader family of collaborative network models. The platform concept is not new and has been widely adopted in the private sector. Businesses such as Uber, Airbnb, and Facebook all have a platform-based business model. Currently, platform models in the public sector are more prevalent at the state and local levels, and in other countries, than in the U.S. federal government. They seem more sustainable than some other forms of networks.

What is meant by “platform”? Collaborative platforms are defined as organizations or programs with dedicated competencies and resources for facilitating the creation, adaptation, and success of multiple or ongoing collaborative projects or networks. They also noted that collaborative platforms specialize in facilitating, enabling, and to some degree regulating “many-to-many” collaborative relationships. More effective platforms do not mandate participation, but rather catalyze and facilitate voluntary efforts.

Two key platform characteristics are (1) to provide a framework for other activities to be organized, and (2) to provide a stable framework that is easily reconfigured to respond to changes in demand and the broader environment. The use of platforms may mitigate in ensuring the sustainability of networks by capturing information on progress, knowledge, and work products. The use of a platform may also allow networks to scale and more quickly pivot in response to external shocks, such as funding cuts or the loss of a critical stakeholder.

In a 2008 report, *Integrating Service Delivery Across Levels of Government: Case Studies of Canada and Other Countries*, Jeffrey Roy and John Langford describe how other countries have adopted digital platforms to improve the delivery of services to citizens. They wrote that public services are “traditionally delivered by a plethora of government agencies via programs that are not connected to each other.” They found a global movement to be more citizen-centric in the design and delivery of services using a network approach that relies on the use of digital platforms. This is being done in countries such as Canada, Belgium, Denmark, and Australia.

At the U.S. federal level, this approach is not yet widely used in citizen interactions. However, the federal government has committed to the use of “enterprise platforms” for internal services, which is more about integrating services onto a common platform than using a voluntary collaborative networking approach. Examples include the move to shared services for human resources and payroll, the creation of the Defense Health Agency that is a new platform for providing healthcare services such as pharmaceutical support across military services, and the Department of Homeland Security’s development of a multiagency operations center. As state and local citizen services platforms multiply and gain experience in delivering integrated services in the coming years, this model will likely be adopted more widely at the federal level as well.

Takeaways

- Collaborative governance—that is, working jointly across the traditional boundaries of governmental agencies, and between the public and private sectors—has proven to be an effective strategy for implementing policy initiatives over the past two decades in an increasingly interdependent environment.
- The increased demand for collaborative governance stems from a changing policy environment, which has become more dynamic and demanding. A wide range of tools, techniques, and legal authorities have evolved in recent years in response to the increased demand.
- As the use of networked collaborative governance models goes to scale, we will likely see a shift to a greater use of “platform-based networks”—a business model inspired by the digital world.

PART II: Visions of Government in 2040



The second part of this Forum focuses on the latter half of the IBM Center book, *Government for the Future: Reflection and Vision for Tomorrow's Leaders*, which looks 20 years ahead. The next three contributions to this Forum envision a government that is platform-based, citizen-driven, network-based, and totally engaged. It also discusses new management and technology initiatives and how they might affect the future of how work is done in government.

Engaged Government: Five Predictions for 2040

This article is adapted from Chapter Nine, "Engaged Government: Five Predictions for 2040," by Lora Frecks, Government for the Future (Roman & Littlefield Publishers, Inc. 2018).

By 2040, we will be nearing the end of the Internet Revolution. As the Industrial Revolution altered how we organized labor at the start of the 20th century, the Internet Revolution changed how we share information and work. Looking to the Post-Internet-Revolution Era, we can make some predictions based on identifiable trends. What will an engaged government look like in 2040? To answer that question, this chapter presents five predictions:

- A more agile government
- An increased reliance on artificial and augmented intelligence (AI)

- The ubiquitous need for collaborative skills
- The rise of volunteerism
- Increased citizen trust in government



Prediction One: A More Agile Government

Aided by the quality and quantity of data available from artificial and augmented intelligence (Prediction Two) and the support of a more trusting public (Prediction Five), government organizations large and small will embrace an agile approach to problem solving. Government will experiment with small trials of multiple innovative solutions derived from a wide variety of sources. Government will alter its plans in response to evolving data and feedback. Nearly all problems addressed by government will benefit from a more agile approach. Innovation will become the norm. For example, in its efforts to provide potable water to the public, an agile 2040 government will run dozens of small trials in multiple locations, testing different types of water quality sensors and systems that automatically measure and report water quality. These mini-trials will provide valuable data for deciding which sensors and systems are best used under specific circumstances.

What is Agility?

This prediction on agility is derived from agile software development to describe an iterative process where, instead of coding a program completely from start to finish, the process stops at several points to reevaluate the goals and progress of the program. In other words, agile approaches don't have to stick to the original plan. Instead, plans change and adapt as the original plan is implemented. In 2040, the operations of government will follow a more agile approach and have the ability to swiftly change course when needed.

Prediction Two: An Increased Reliance on Artificial and Augmented Intelligence (AI)

AI will increase the volume and sources of data collected and decrease the amount of “drudge work” that currently requires lots of human attention, time, and energy. AI will generate two giant leaps forward for government. First, it will provide government with the information necessary to make informed decisions in ways never possible before. Second, it will free employees to focus on data quality and using data to make better decisions. The rise of AI will be a radical change for government. Executives will have more time to consider and evaluate the work to be done rather than spending all their time overseeing the day-to-day operations of government. Every field will be impacted. Remote sensors will collect and report information from many sources. Such augmented intelligence will enable government to quickly detect disease outbreaks and protect vulnerable populations. Government will be able to better predict when weather conditions and road usages will require extra work to maintain roads. AI will enable the government of 2040 to be more predictive than reactive. Government employees will spend their time in different ways. Thinking through and discussing decisions takes time. After much testing, routine decisions will benefit greatly when AI supports human decisions.

Prediction Three: The Ubiquitous Need for Collaborative Skills

With the extra time provided by artificial and augmented intelligence, government employees will be able to invest time in new ways to work with each other and to work with the public.

Collaboration will be necessary, because problems will become more complex. This rise in complexity will derive from our ability to perceive new levels of intricacy in the problems we face. In 2040, it will be impossible for one person or organization to have all the skills, knowledge, and resources needed to understand or solve a particular problem. This will involve collaboration across government departments as well as with the private sector and the public. The expertise of all parties will be valued and used in 2040 for making decisions. Collaboration will require mastery of a diverse skill set, including communication, negotiation, storytelling and project management skills, and competence with the ever-evolving technologies supporting collaborative efforts. Many of these soft skills have seldom been taught in schools. Universities will add collaboration to their curriculums.

Prediction Four: A Rise in Volunteerism

By 2040, government employees will regularly produce public services side-by-side with volunteers. Community members will be active volunteer participants in the work of government. Volunteers will provide both labor and input in the form of ideas, feedback, and opinions. Today, there is an ebb and flow of employees between government and the private sector. By 2040, government will have a similar ebb and flow between volunteer and paid employees. This influx of volunteers will be driven by several forces. First, as the nation's population ages, more people will retire and seek ways to remain actively involved in their communities. Second, the increased use of artificial intelligence and augmented intelligence for routine tasks will give citizens more time to engage with the community on higher-level activities. Third, people will want to contribute to society and help solve the problems facing their communities and the nation. The



“nonemployee” status of volunteers will require management and operational adaptations to avoid problems for both the government and the volunteer. Governments will develop guidelines for identifying the line between volunteer work and paid employment.



Prediction Five: Increased Citizen Trust in Government

Government has been coping with a loss of public trust since the 1960s. In 2040, trust will be perceived as a valuable resource. Trust is also the means by which government will obtain the ability to risk the mistakes that happen when solving problems. Additionally, trust will enable governments to make long-term investments. In terms of management and operations, trust buys governments time and goodwill, with the public being well served.

Three changes in government operations will lead to large increases in public trust in government by 2040:

First, government will include volunteers in its work. Government organizations that invite citizens into the work of government will be more open and trusted by the communities they serve. In 2040, most government operations will routinely include both public engagement and participation. Second, governments will devote more time and effort toward making operations and decisions transparent. This transparency will be manifested in communications between government and the public. In 2040, it will be unacceptable for anyone to not be able to easily and quickly find answers to their questions about government. Third, frequent, well-organized, productive, and thoughtful interactions between government and the public will generate trust.

In 2040, there will be new, regular, and visible acts of trust in government. In 2040, the above three changes will take place via multiple platforms, locations, and times. Governments that listen to and talk with community members and organizations are governments that can be trusted.

Networked Government: Managing Data, Knowledge, and Services

This article is adapted from Chapter Ten, “Networked Government: Managing Data, Knowledge and Services,” by Lori Gordon, Government for the Future (Roman & Littlefield Publishers, Inc. 2018).

By 2040, given rapid advances in technology, the federal government will radically improve its ability to engage

and involve more of the American public in its policy and administrative processes. Through a new organizational structure less focused on the institution and more focused on communities of interest, the re-engineered government will be more accountable to, and reflective of, its constituency—and more nimble and able to shift priorities, policies, and programs in strategic directions. These successes result from resolving challenges posed in earlier decades by some of the very technologies that the government was betting on to carry it into the future. As a result, by 2040, the federal government will disband its traditional agency structure and will establish networked teams to perform government work.

Establishing a New Managerial Class in Government

To organize this new redistribution of decision making and responsibilities, by 2040 the government will establish a new managerial class that redesigns how data, knowledge, and services flow across digital pathways and provide an evolving variety of service offerings that reflect society’s changing needs and requirements.

Data Managers will oversee a virtual government workforce comprised of teams that aggregate data in digital workspaces and process it almost instantaneously via the eighth-generation wireless network. Volumes of local data on transportation, energy, and municipal services that were once only used by insular Smart City ecosystems to increase their efficiency and reduce costs will be fed across state, regional, and even international networks to public and private organizations, to enhance processes and systems at global scale.

Knowledge Integration Managers will bridge knowledge, methods, data, and investigative communities. They will serve as catalysts and conveners, bringing together disciplines and experts from different domains to pursue shared research challenges. They will proactively recruit underrepresented or nontraditional thought networks into government operations. They will train employees on how to interface with their non-human counterparts, determining when artificial intelligence will lead or augment the human.

Customized Services Managers will use the data aggregated by data teams and analyzed by knowledge teams to provide tailored resources and services to constituents at the community level, which includes everything from prescribing medicine to veterans to providing emergency kits to disaster victims. The customized services teams will create learning tools in virtual reality and an “in-a-box” so that generalists will be able to do this work—specialists no longer need apply.

The Data Management Function: Crowdsourcing Citizen Input

After setting up a management system and distributed workforce that bridges disciplines and domains, in 2040 government will focus on data management. It will be clear that new models in societal-government engagement are needed, and that these new collaborations could be based on the handling of these data vaults. The data network will reimagine and reorganize data sensing and feedback loops so that the government can gain rich insights from citizens to inform knowledge-driven decisions. Without needing to procure costly studies or to requisition surveys, government will have instantaneous citizen input on issues that range from early childhood services to flood management to space security.

Data managers will set up two types of crowdsourcing initiatives.

- In active crowdsourcing, government will establish a social media app that tees up issues prior to a congressional vote so that constituents can pass their opinion to their congressperson.
- In passive crowdsourcing, government will establish thousands of Internet-of-things sensors across a city to pulse instantaneous citizen-level input on transportation, healthcare, municipal services, and the environment. Through 'adaptive optics' the government will be able to remove distortion and data noise from high-tech sensing mechanisms and communication tools. These will include gesture-controlled devices, iris recognition systems, and sensor swarms that will enable coordination of their activities and decisions about what to measure—and

where—through a self-learning system directing their movements and data collection.

Just as people in the 2020s had become increasingly addicted to their personal devices, by 2040 this will translate to them becoming consciously attuned to continuous civic engagement, connecting to their city as they move around town, and owning their rights as a citizen to participate in civic processes.

The Knowledge Integration Management Function: Taking a Cross-Discipline Approach to Analyzing Data

These large governmental data sets will be observed by knowledge integration teams that bridge talent and research in a cross-discipline approach to investigate ever-evolving citizen needs. Using crowdsourced data, they will build heat maps of high-priority issues. A net assessment will result in local, regional, national, and global issues that affect citizens—from rising cyber dependency, to increasing income and wealth disparity, to the shifting landscape of geopolitical power and international governance. This will trigger government processes to move resources and develop responsive solutions. To do this well will require entirely new actors—from volunteer groups to nascent organizations which are both passionate about mission—to bring rich ideas and analytical techniques into the process. The government will tap the gig economy, giving it an open door to a global market of specialized communities to obtain sought-after knowledge.

The Customized Services Management Function: Tailoring Programs to Individual Needs

Similar to how design thinking helps to enhance user experience and elicit values and ethics, customized service teams will seek tech-enabled feedback mechanisms as an opportunity to better understand constituents' changing values and ethics that are embedded in their digital fingerprint. They will see it as an opportunity to tailor programs to an individual's needs, getting them the services and products that matter to them. Alongside the knowledge integration teams, they will recommend policies and controls that embed stakeholder values, and they will design out those that are at odds. Operationally, these teams will set a standard for how the rest of government begins to operate. The process will work like this: as customized service teams solve challenges, they will be rewarded with more complex, challenging issues. Once they resolve these challenges, they will become eligible for bonus pay. This will incentivize them to prioritize tackling and resolving the toughest challenges, and to encourage constituent feedback and response. A new era in government-constituent engagement will begin.





2040: A More Accountable Government

By 2040, government will realize that technology is the best lens through which it can understand its constituency. Advances in technology will enable it to not only better aggregate data, but to analyze that data and lay out a compelling picture of everything from what risks society is willing to take to what it chooses to buy. Society's allegiance to bytes will be the means through which government can connect to its constituency. Government will reshape its structure, distribution of responsibilities, and technology investment to engage the American public more directly. The newly re-engineered, networked government will be more accountable to and reflective of citizens, and much better able to shift priorities, policies, and programs in strategic directions.

The Future of Work

This article is adapted from Chapter Thirteen, "The Future of Work" by Darrell West, Government for the Future (Roman & Littlefield Publishers, Inc. 2018).

In recent years, there have been numerous efforts to innovate in the public sector. Some government agencies have used Challenge.gov contests to encourage innovation. Others have suggested crowdsourcing as a means to test proposals. While these ideas have created some successes, they pale in comparison to the management and technical innovations likely to happen in the next two decades. Taking advantage of initiatives in both the public and private sectors, the U.S. federal government workforce is likely to evolve in several ways that follow best practices for improving performance.

New management and technology initiatives—and how they might affect the future of the federal workforce—are broken down into three periods: the near-term future (2020-2025), the medium-term future (2025-2030), and the long-term future (2030-2040). In each, key developments will have the potential to transform the public sector.

Near-Term Future (2020-2025)

The near-term future includes several options to change the federal workforce: the increased use of artificial intelligence and data analytics, greater deployment of personal digital assistants, and new employee performance rating systems. These tools would enable greater labor productivity and enhanced accountability.

- **Increased Use of Artificial Intelligence and Data Analytics.** Artificial intelligence algorithms are designed to improve decision making, often by using real-time data. Using sensors, digital data, or remote inputs, AI systems can combine information from a variety of different sources, analyze the material instantly, and act on the insights derived from those data. AI systems have the ability to learn and adapt as they make decisions. There are many ways that AI and data analytics systems can improve government decision making. They can help supervisors track performance, manage resources, and deploy agency assets. These systems can assist in federal efforts to drive energy efficiencies, promote national defense, and improve healthcare. In addition, AI has the potential to augment the work of civil servants by assisting the review of client eligibility determinations in agencies, such as the Veterans Benefit Administration and the Social Security Administration. Anti-fraud software can scan financial transactions and service delivery across large organizations and identify unusual patterns or clear outliers in terms of normal procedures and decisions. Transactions that seem out of the ordinary can be flagged for more intensive personal analysis, and this can help managers do a better job of keeping employees directed towards appropriate ends and performing at a high level of activity.
- **Increased Use of Personal Digital Assistants.** Digital assistants are becoming more common in the consumer market. Examples include Apple Siri, Amazon Alexa, Google Assistant, Microsoft Cortana, and Samsung Bixby

to help people find information, answer basic questions, and perform common tasks. These digital assistants also can be used in the public sector to help federal employees complete various activities. For example, they can help workers keep track of leave time, file reimbursement requests, request time off, and undertake routine tasks that used to take employees hours. One of the stultifying aspects of modern bureaucracy is outdated administrative processes. Having digital assistants that administer routine tasks represents a way to overcome these deficiencies and achieve better results in the process.

Medium-Term Future (2025-2030)

Between 2025 and 2030, there likely will be movements toward a flattening of agency organizations and greater use of biometric security systems. These shifts are designed to improve agency operations and protect public information systems.

- Use of Flattened, More Collaborative Organizations.** The sharing economy represents an example of an idea that has revolutionized the private-sector workforce. Through firms such as Uber, Airbnb, and WeWork, companies have flattened their organizations, introduced digital technology, improved collaboration, and moved to temporary workers or outside contractors to fulfill key parts of the business mission. Over the next 20 years, this collaborative concept likely will be deployed extensively within the federal workforce. Flatter, more open, and more collaborative organizations reduce the number of mid-level managers, empower front-line workers, and give upper echelons the tools to hold service providers accountable for their actions. This approach makes it possible to operate a lean team that still delivers on key objectives. Long-term employees may no longer form the bulk of the workforce. One of the hallmarks of the contemporary period is “megachange,” whereby local, national, or international circumstances can alter quickly and require very different responses from the federal government. Reliance upon short-term workers will produce greater agility in responding to public needs, reduce the cost of government, promote efficiency in the public sector, and speed up government responses.
- Use of Biometric-Based Security.** Security is currently handled poorly in most federal agencies. A number of organizations rely upon outmoded password systems that are hard to remember and susceptible to external hacking. A better way to handle security is through biometrics and facial recognition software. Employees no longer need alphanumeric passwords that have to be changed every few months. Their mobile devices scan their faces, fingerprints, and irises, and thereby provide

safe access to digital files and collaboration tools. Under this kind of system, security is improved dramatically and external adversaries have a much tougher time stealing personnel records, financial data, or email correspondence.

Long-Term Future (2030-2040)

For 2030 and beyond, there are “farther out” ideas for altering the government workforce. By this time, automation will be fully advancing and workforce disruptions quite substantial. Regardless of whether the disruption is high, medium, or low, the fact that all the major studies report significant workforce disruptions should be taken seriously. Relatively small workforce impacts can have outsized political consequences. One way to deal with a situation where there are more workers than jobs is to reduce the mandatory hours for full-time positions for everyone, and therefore free up additional jobs for other people. That would enable more people to be able to gain employment and help society cope with a scenario where fewer workers are needed.



Forum Conclusion

This Forum concludes with an overview of the key lessons learned from the major management trends—three of which were explored in the earlier part of this Forum—over the past 20 years. Several common themes emerge from the analysis of these management trends.

Lesson One: Management Reform Is Not for the Faint-Hearted.

Management reform requires major commitment and staying power. In short, it is not for the timid or those with short time horizons. It takes a well-executed implementation plan and sustained commitment from the top.

Lesson Two: In Launching Management Initiatives, Government Leaders Should Target Key Goals and Not Overload the “System” with Too Much Reform Concurrently.

Some management initiatives in our survey were rated as having low impact. We believe that these ratings were most likely based on either poor implementation of the initiative or lack of “staying power” on the part of government leaders. One survey respondent noted, “Many innovations seem to be mostly a ‘flavor of the day’ effort.” Another respondent summed up this phenomenon well, “There have been many attempts at real reform and improvement, but they always end up with too many at a time.” In contrast, successful change leaders in government are selective about which management initiatives they decide to launch.

Lesson Three: Successful Management Initiatives Require Much Time and Effort, and a Focus on Implementation.

While less successful initiatives launched over the last 20 years may have been sound conceptually, many suffered from poor execution. One survey respondent told us, “There have been lots of good ideas, but they rarely have been implemented effectively.” Another respondent noted, “While government is working better as a result of many management initiatives, much more focus and effort is still needed.” In evaluating the impact of initiatives, government leaders must assess implementation—including training as well as timing.

Lesson Four: Effective Leadership Makes Management Initiatives Succeed.

While it has become a cliché, leadership from the top drives success in launching a management initiative. This comes from an effective combination of career and political leaders. Several survey respondents commented on the turnover of political appointees as a challenge in successfully implementing management reform. In preparing this book, we clearly saw the value of leaders communicating the importance of management reform and devoting a significant portion of their time to overseeing implementation.

Turning to the Future

Based on lessons learned from the past work by the IBM Center, the Challenge Grant essays, and envisioning sessions, an outline of a vision of what government might look like in 2040 came into focus. We see two sets of developments evolving. First, technology will drive the redeployment of resources—people, dollars, and organizational structures. Second, as a consequence of these technology changes, the way people work and interact will change, and this will reframe how government works—including service delivery, citizen involvement, and different business models.



We envision three technology-based agents of change for government in coming years.

- **Artificial and Augmented Intelligence Will Drive New Realities.** Advances in the use of AI will change roles, both within government and between government and citizens.
- **Data Will Drive Progress.** The increased availability and use of data will reframe how government managers use knowledge and insight to analyze performance, make decisions, and deliver services.
- **Government Services Will Become Platform-Based.** By 2040, government may be described as a platform for the production and delivery of a range of services and activities. Services will be based on digital platforms using principles such as agile, modular in nature, and rooted in peer networks of partners or communities of interest.

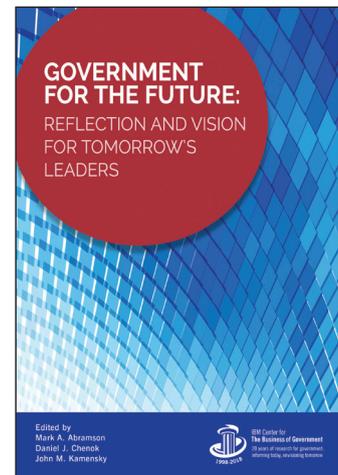
Moreover, the visions of our authors suggest that these technology drivers will have three broader impacts on the government of the future.

- **Government Will Be More Citizen-Driven.** Government in 2040 will be more citizen-focused, with people leveraging technology and data to interact with their government
- **Government Will Become More Network-Based.** By 2040, the federal government will disband its traditional agency structure and will establish networked teams to perform government work.
- **Volunteer Participation with Government Will Increase.** Citizens will have more time to spend on volunteer activities in 2040—either as retirees or as members of a 2040 workforce that benefits from technology reducing the need to work as many hours.

This positive view of a government for the future can be realized by leaders who continue to reflect on lessons from the past. We hope that the perspectives introduced in this Forum and expanded in more detail in the IBM Center book, *Government for the Future: Reflection and Vision for Tomorrow's Leaders*, will help increase the likelihood that this vision can turn into tomorrow's reality.

TO LEARN MORE

Government for the Future: Reflection and Vision for Tomorrow's Leaders Edited by Mark A. Abramson, Daniel J. Chenok, and John M. Kamensky



The book is available at bookstores, online book-sellers, and from the publisher at rowmanlittlefield.com, or by calling (800) 462-6420.