

Seven Drivers Transforming Government



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Executive Summary

In 2018, the IBM Center for The Business of Government marks its twentieth year of connecting research to practice in helping to improve government. The IBM Center continues to execute on its ultimate mission: to assist public sector executives and managers in addressing real world problems with practical ideas and original thinking to improve government.

The Center supports leading researchers to identify trends, new ideas, and best practices—crafting actionable approaches that support government decision-makers in addressing mission delivery and management challenges, through strategies and actions that promote efficiency and effectiveness.

Based on our recent research and perspectives shared by current and former government leaders, this special report identifies seven drivers for transforming government in the years to come:

- **Driver One: Insight** – Using data, evidence and analytics to create insight that influences decision making, actions and results
- **Driver Two: Agility** – Adopting new ways for government to operate, using agile principles and putting user experiences and program results at the forefront
- **Driver Three: Effectiveness** – Applying enterprise approaches to achieve better outcomes, operational efficiency and a leaner government
- **Driver Four: Risk** – Mitigating risk, managing cybersecurity and building resiliency to meet the mission of government
- **Driver Five: People** – Cultivating people; reforming processes for hiring, developing, and retaining workers; and leveraging data and technologies to build the workforce of the future
- **Driver Six: Engagement** – Fostering a citizen-driven government through real-time, interactive feedback to engage, co-create, and co-produce services and programs
- **Driver Seven: Digital** – Optimizing new technology and infrastructure models, focusing on the user experience and incentivizing innovators to modernize how government does business

These seven drivers draw on significant insights shared from a research roundtable in Spring 2017 that brought together government, academic, and nonprofit leaders to identify public sector trends that would be key drivers for transforming government in coming years.

Governments in the U.S. and across the world will continue to focus on controlling costs while improving their operational performance. A key challenge facing government executives will be to transform the people, processes, and cultures that comprise their organizations to drive results in an environment of constrained resources. Driving meaningful and sustained change in government requires innovative, effective and efficient decision making and implementation for positive, significant and lasting impacts. To achieve this objective, this special report provides a resource from which government can draw practical, actionable recommendations on how best to address such issues. The IBM Center will continue to help communicate what leading experts know about effective practices and lessons learned to government leaders and stakeholders.

Driver One: Insight

Using data, evidence, and analytics to create insight that influences decision making, actions, and results

Policy makers, agency leaders, and frontline staff regularly find themselves having to make sense out of data and information, drawing out insights to inform decisions. The language around performance-related data in government decision making has evolved over the last quarter century. Today there are constant references to “evidence-based” decisions, “strategic analytics,” and “data-driven” reviews of progress. In addition, policy makers in recent years have promoted more use of “open data”—both within and outside government. At the same time, evolving technologies have reduced the cost of collecting and reporting such data. Yet the original challenge remains: how can government make sense of vast and growing amounts of data to develop new understandings that inform decisions?

Transforming Data into Actionable Insight

Decision makers’ use of data and analytics goes beyond just collecting and reporting evidence of program outcomes. New technologies, such as cognitive computing, are helping decision makers identify meaningful and actionable information that can transform data into insight leading to effective action.

“Insight” offers the power to gain understanding from data, people, or a situation not immediately evident on the surface. Insight enables leaders to uncover a solution and act based on keen and clear observation. Observation, however, does not lead immediately to insight. Government leaders must make interpretations shaped by context, knowledge, and the experience of decision makers—implicit knowledge, often built up after years of experience.

Increasingly, real-world experience in the public and private sectors shows the potential to open the “black box” of making decisions and choices based on a more sophisticated and nuanced approach for converting data to insight based on advanced analytics. For example, local police now use multiple historical data sets—past burglaries, weather, time of day—to predict future crime patterns, leading to strategic re-deployments of officers on a beat and sharp reductions in crime.

Today, new technologies allow for the collection and analysis of nearly real-time data, though this data is often in a format not useful for decision makers—thus, agencies face the challenge of making data relevant and meaningful to decision makers, not just to analysts.

Innovative leaders across government are taking up this challenge and driving progress in this area. For example, air traffic control centers use real-time data to redirect flight patterns to reduce delays; Social Security customer service call centers leverage data to



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manage call loads; passport offices assess customer satisfaction to redeploy staff; and transportation security offices can assess the quality of airport security operations. Moreover, real-time data increasingly informs complex operational decisions, such as determining disability benefits for injured workers or offering cancer diagnoses in a Veterans hospital. These more complex scenarios rely on sophisticated analytics and cognitive computing approaches that help augment and extend human intelligence.

Taking such examples to scale by integrating data and analytics into day-to-day operational decisions helps reinforce an evidence-based culture in government. It also contributes to savings. For example, the U.S. Postal Service's Inspector General noted in *Cover Workers' Compensation Compound Drug Costs. Management Advisory Report* that an analysis of the patterns of prescription drug costs under its health plan over a two-year period showed unusual spikes in selected areas. This led to investigations that uncovered fraudulent overbilling, and ended with convictions. This analytic effort resulted in an estimated long-term savings of more than \$1.2 billion.

Increasing the Availability of Data

The Government Performance and Results Act of 1993 (GPRA) and subsequent legislation have contributed over the past two decades to the development of a more robust supply of useful data and performance information that serve as the foundation for evidence-based insights and decisions. Examples of this trend follow:

- Government policy over the past few years has led to greater range of availability of open data, which has contributed to a growing supply of useful information. This has occurred via administrative and legal channels, including presidential Open Data commitments, the adoption of the Digital Accountability and Transparency Act, and an administrative commitment to making routine administrative data more widely available. For example, the federal one-stop website, data.gov, makes nearly 200,000 data sets available to other agencies, the public, and entrepreneurs.
- Technology innovations in recent years have made it possible to collect, organize, share, and interpret data on a much grander scale than ever before, with greater immediacy. For example, after the 2008 financial crisis, the public could track spending of the \$831 billion Recovery Act by ZIP Code. More government data will be available on the horizon with the growth of micro-data via the “internet of things” (IOT), such as real-time monitoring of pollutants in waterways.
- Agencies can access “big data” from multiple sources, from inside the government as well as external platforms including social media. This rich variety allows the compilation of information from existing sources, including administrative data sets, instead of developing unique and costly data sets as typically done by evaluators in the past. The recent creation of USAFacts.org, which provides a snapshot of key indicators of national progress based on data from more than 60 public and private sources, serves as a model of this approach. And recent recommendations from the Commission on Evidence-Based Policymaking, discussed below, could increase access to existing external data sets.
- Increased sharing of raw data is also on the upswing, in part because of the greater use of data standards and schema—especially at the state and local levels. Sharing Medicaid data across states, for example, has led to a reduction in fraudulent claims.

- Several of these data availability trends are possible not only because of technology but also because of a broad cultural move within government agencies from a “need to know” to a “need to share” basis. New leaders are facilitating this trend as a younger workforce has proven to be more open to sharing data, and public leaders see economic and public value in greater sharing.

Even given this increase in data availability, governments must continue to address data quality and reliability—especially with data from multiple sources, where users lack a deep view of how data were collected or interpreted. In addition, statutory barriers impede the collection and sharing of certain kinds of data, such as limits imposed by the Paperwork Reduction Act.

Pursuing Evidence-Based Policy Initiatives

Governments are now working to improve analytical capacities to develop evidence-based insights that can inform decision making. Building on the foundation of data and evidence developed during the early 2000s and the analytic capacity developed in federal agencies, the federal government undertook a series of initiatives beginning in 2009 to use these data and capabilities to improve government policy and funding decisions. A host of external foundations and nonprofits championed these efforts, including Results for America, the Pew Charitable Trusts, and the Arnold Foundation.

New policy tools that rely on evidence to inform resource allocation include social impact bonds and tiered evidence grants. Additionally, new laws require some agencies to set aside funding to conduct program evaluations or to earmark a portion of grants for programs that could demonstrate effectiveness. Many of these initiatives have benefited from bipartisan support. For example, a statute creating an Evidence-Based Policymaking Commission—co-sponsored by Speaker Paul Ryan and Senator Patty Murray—has identified ways to lower barriers to collecting and sharing data and to better use evidence in government decision making.

Furthermore, several of the fiscal year 2018 appropriation bills contain language advocating the use of evidence in decision making. One bill directs the Office of Management and Budget (OMB) to “develop strategies to accelerate learning about what works through rigorous evaluations and to create connections between researchers and policy makers that ensure the best evidence is brought to bear in decision making.” In addition, OMB budget-preparation guidance to agencies for fiscal year 2019 states, “The Administration is committed to building evidence and better integrating evidence into policy, planning, budget, operational, and management decision making,” and encourages agencies to propose investments that would strengthen their capacity to use evidence in their decision-making processes.

Building Analytic Capacity to Act on Evidence

Federal agencies’ capacity to act on the data they collect and the analyses they conduct based on data has grown steadily in the past decade. Multiple factors influence this growth:

- the availability of timely data, based on technology that makes data easier to collect, analyze, and display, and the growth of cognitive tools to help interpret data;

- an evolving organizational infrastructure that supports the use of evidence—several agencies have designated chief data officers and a number of agencies have created positions to drive the use of program evaluation and real-time analytics;
- Congress has provided funding to support analyses, leading to increased experience in the design and conduct of evaluations;
- agencies have begun to conduct regular reviews of the progress of their key priorities, which in turn rely on data and evaluations; and
- policies that have increased the availability of administrative data, leading to the creation of “What Works Clearinghouses” through which researchers and governments increasingly share completed program evaluations and studies.

Finally, the availability of new technical capabilities—such as sentiment analysis of real-time social media data, tools that speed social network analyses, and the increased application of behavioral science insights—have all contributed to more sophisticated capacities that bolster government decision makers’ confidence in relying on comprehensive and robust evidence when making tradeoffs.

Continuing the Shift to Insight

Even with this wide range of progress in recent years, significant opportunities remain to move from “creating a supply of data” to “creating a demand for insight” that informs decision making.

- Agency leaders need to ensure the usefulness of program-level data and analytics and make them readily available to front-line employees and managers who are then incentivized to use the data and confirm its quality. For example, the U.S. Office of Personnel Management (OPM) has granted federal managers access to a website with annual survey data on employee engagement with their work so they can develop strategies to improve.
- According to University of Maryland professor Donald Kettl, analytics tools are developing faster than the strategy (and theory) about how to use them. This is, in part, a cultural divide between “data people” who understand the “how to collect and analyze data” and leaders who are only beginning to figure out “why should I use data versus instinct.”
- Multidisciplinary approaches—such as the use of strategic foresight, risk management, and creating institutional resilience—can increase the use of data analytic tools. For example, developing strategic foresight frequently relies on analyses of macro-trends in economic, environmental, demographic, and social data.
- New models and institutional mechanisms can foster actionable insight in organizational units below the departmental level, cascading down to frontline offices—as evidenced by the Federal PerformanceStat initiative, and state and local examples such as Virginia Performs and the Mayor’s Operational Reports in New York City.

Conclusion

Multiple opportunities exist to address issues of turning data into actionable insight over the next few years. Agencies can embed these approaches in their upcoming Agency Reform Plans and their budget requests. The Commission on Evidence-Based

Policymaking final report, *The Promise of Evidence-based Policymaking* provides additional direction and impetus. Encouragement from nonprofits, such as Results for America's nine-point legislative agenda advocating the integration of evidence into decision making, also helps create momentum in Congress.

To achieve the goal of a government that uses data to extract insights for better decisions, researchers can help public leaders and stakeholders better understand and adopt promising practices. Such studies can drive data and analyses that help support policy or program decisions that measurably improve government operations and results.

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Driver Two: Agility

Adopting new ways for government to operate, using agile principles and putting user experiences and program results at the forefront

Government must keep abreast of inevitable changes in the economy, advances in technology, and increases in citizen expectations.

Given the increased pace of change across all facets of society, government must keep abreast of inevitable changes in the economy, advances in technology, and increases in citizen expectations. Government often appears slow to adapt, while citizens expect services and results more quickly in ways that mirror their experiences with the private sector. Agencies can accelerate change by adapting “agile” methods from the field of software development. Agility across public-sector operations provides a promising approach to improve program management and achieve mission outcomes. Approaches that demonstrate how to increase agility in the way government works will add value to citizens in the future.

Adopting New Ways to Operate

Agility refers to the ability to act quickly and easily. This often runs counter to traditional government approaches of detailed planning premised on a stable and predictable environment. Managers today cannot fully anticipate future external forces that will affect the success of a program or initiative, and instead must adopt a more flexible approach. Managing with agility involves a series of attributes, strategies and tools, including:

- Start with a clear vision, expectations or intent, not a set of detailed requirements.
- Shift from a linear to an interactive approach in program design and implementation.
- Insist on rapid, iterative, and continuous development of functionality of a program or service.
- Use “design thinking” techniques that focus on the needs of customers—sometimes called customer-centered design—and that result in value to the public.
- Empower employees to act in ways that bring the visions/expectations to reality.
- Engage in ongoing collaboration with stakeholders, where the end client participates in the development process. This is an approach linked to greater transparency and open data and networks for implementing programs and deliver services.

Governments cannot use these approaches in isolation or attempts to become more agile will fail. Rather, agencies must adapt how mission support functions traditionally operate. Methods for hiring, buying, and auditing should change as well. For example, the U.S. Digital Service (USDS) began using agile approaches when it was launched in 2014, but quickly found that traditional government contracting approaches stymied their ability to be agile. It worked with acquisition officials to develop new contracting vehicles that incorporated agile principles.

The IBM Center for The Business of Government has addressed critical success factors for becoming a more agile enterprise in *A Guide to Critical Success Factors in Agile Delivery*. The guide sketches out success factors for implementing an agile delivery approach, such as “using existing knowledge and not reinventing the wheel” and “including the right product owner and mission subject matter experts.”

An earlier IBM Center report, *Fast Government: Accelerating Service Quality While Reducing Cost and Time*, finds that addressing the specific metric of time provides a key lever for improving service quality and reducing costs. The report notes that setting a goal of reducing time taken to deliver a service “almost invariably results in higher service levels and lower cost points.” As the report also suggests, focusing on time as a key performance metric is premised on having the agility in an organization to “automate repetitive tasks... accelerate the delivery of goods and services through process innovation... create interactive services... [and] use predictive analytics to reduce or eliminate entire processes (e.g., preventing improper payments).”

The Value of Agility

Agility involves a set of values and principles that incorporate the use of customer experience and design thinking when developing and delivering programs and services. These attributes are increasingly being reflected in U.S. federal government priorities. A number of examples follow.

- The USDS, General Services Administration’s (GSA) 18F program, and digital service teams within federal agencies have become leading proponents of agile development approaches. In a 2017 report for the IBM Center, *Digital Service Teams: Challenges and Recommendations for Government*, Ines Mergel highlights the value of digital service teams in government and describes the institutional challenges that these teams face in adopting the use of agile approaches in a public sector environment.
- The tenets of increased agility are increasingly reflected in federal program management. For example, when the U.S. Department of the Treasury and the OMB used agile processes to implement the Digital Accountability and Transparency Act (DATA Act), the implementation program manager remarked that implementing the Act by the statutory deadline was possible due to agile methods. The undersecretary leading the effort commented, “We were able to do something in six months that took us four years using a traditional design process—at a fraction of the cost.” Expanding the use of agile approaches in statutory implementation may become more likely, given that Congress recently passed the Program Management Improvement and Accountability Act which requires OMB to develop guidance to agencies on improving program management approaches that could include the use of agile methods.
- OMB released a brief four-part Management Agenda in March 2017 that includes strategies reflecting the tenets of agility. For example, the agenda commits to increasing the use of waiver authority by 2020 to grant agencies more administrative flexibility, increase delegations of authority to lower levels in organizations, and increase government responsiveness to the public.
- OMB’s April 2017 guidance on the preparation of presidentially-mandated Agency Reform Plans directs agencies to include strategies and investments that would improve customer service and identify opportunities for greater efficiency and effectiveness. The guidance specifically directs agency plans to “provide managers

greater freedom to manage administrative tasks efficiently.” This is a key strategy in moving agencies to rely more heavily on the tenets of agility.

- Finally, the White House Office of American Innovation (OAI) incorporated the tenets of agility into its agenda, with a focus on improving customer experiences in their interactions with government. For example, it highlights the value of the U.S. Department of Education’s College Scorecard, which compiles information from various sources to help college applicants select a school best suited to their needs. And OAI promotes the development of strategies to make government-delivered services more “intuitive, stable, secure, and efficient”—all attributes related to agility.

Embedding Agility into Government Culture

Recent government actions have set the stage for the greater use of agility in its approach to developing and delivering programs and services. Thus, agencies can take a number of steps to embed greater agility in their operations and, ultimately, their organizational culture. Potential options for this might involve the following actions:

- Set new expectations among agency senior executives on how work gets done, by encouraging them to focus on agile principles such as user experience, program results, transparency, and collaboration. This might also include the incorporation of tools such as crowdsourcing, contests, and gaming.
- Revise and streamline existing administrative processes by rolling back low-value activities and requirements. OMB has begun this process by cutting back some of its own requirements of agencies, noting that “Government-wide policies often tie agencies’ hands and keep managers from making commonsense decisions.” OMB seeks to reduce the burden of low-value activities and create alternative approaches to holding agencies accountable. One alternative, for example, might be the use of incentives such as a phased approach in reducing required reports for agencies and programs based on “earned autonomy” for those agencies or programs that meet defined criteria.
- Revisit common mission support systems used in government—such as project management approaches and accountability systems—to make them more flexible in accommodating new requirements that respond to user needs quickly and effectively.
- Make procurement processes more rapid and flexible. OMB and the GSA have worked across agencies to streamline acquisitions in a way that provides agencies timely access to commercial services and products. These steps have seen the most progress in the digital area, sparked by initiatives like the Digital IT Acquisition Program to train agency teams on how to work together quickly and effectively and the increasing use of agile procurement vehicles by digital service teams. Other functions of government can adapt these lessons to accelerate acquisition as noted by Dan Chenok and Joiwind Ronen in their blog, *Government Gone Agile: How “Agile Management” Can Enhance Agency Success*, for the IBM Center.
- Adopt “Time” as a key metric for assessing the efficiency and effectiveness of program performance. As noted above, setting a goal of reducing the time needed to deliver a service often leads to more efficient and less costly results, but requires agility to achieve such outcomes.
- Integrate the principles and approaches of agility into pending OMB guidance for

implementing the Program Management Improvement Accountability Act, to institutionalize professional program management skills across the government.

- Identify and reduce barriers that inhibit the use of agile approaches to improve program outcomes, which can stem from existing mission support compliance requirements set long ago by legal, acquisition, risk management, and audit offices.

Conclusion

To achieve the goal of an agile and fast government, research can help leaders and stakeholders understand promising strategies and practices. A shift from a linear to a more interactive approach to develop and deliver programs represents a significant shift in policy, culture, roles and responsibilities, and program oversight. By understanding agile techniques, and identifying and overcoming potential obstacles, agencies can embed and expand agility in how government works on behalf of the public.

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Driver Three: Effectiveness

Applying enterprise approaches to achieve better outcomes, operational efficiency, and a leaner government

The future of government performance relies not simply on greater efficiency, but also on increasing capacity to work effectively.

The goal of making government more effective, both in terms of its operations and results, has had bipartisan support across multiple administrations. This support is reflected in many initiatives to improve government operations such as the adoption of enterprise approaches to delivering mission-support services seamlessly across program and organizational boundaries. This effort has evolved over the past four presidential administrations. In addition, bipartisan initiatives to expand the use of data and evidence, such as those explored by the Commission on Evidence-Based Policymaking, have led to more rational resource allocation decisions.

As Professor Jane Fountain acknowledges in her special report for the IBM Center and the Partnership for Public Service, *Building an Enterprise Government*, the future of government performance relies not simply on greater efficiency, but also on increasing capacity to work effectively.

Advancing Government Effectiveness

Many approaches advance greater government effectiveness with different aspects being championed by different stakeholders. For example:

- The **Government Accountability Office (GAO)** fosters efforts to rationalize government operations by reducing duplication, overlap, and fragmentation among federal programs, along with reducing legacy IT systems.
- The **OMB** works with other White House offices to promote greater effectiveness through innovation, analytics to assess programs, reform of agency operations, and reduction of improper payments—from two primary perspectives:
 - an enterprise perspective, emphasizing mission-support functions such as personnel, financial management, and contracting and
 - an operational unit perspective, on the front line where services are delivered, emphasizing the reduction of red tape and empowering managers to systematically use data for better management.
- **Congress** promotes large-scale mission-support system reforms, in areas including IT acquisition reform as outlined in the Federal Information Technology Acquisition Reform Act (FITARA) and data standards transparency as required in the Digital Accountability and Transparency Act of 2014 (DATA Act).

Driving meaningful and sustainable effectiveness in the federal government will require more than new policies or the adoption of innovative technologies. To achieve positive, significant, and lasting change, government leaders must focus on sound implementation. The focus on implementation involves the meaningful integration of operations

across agencies via an enterprise approach. Multiple U.S. administrations have made progress in this area, pursuing shared services initiatives in mission support functions such as financial management and human resources. Moving forward, framing budget and strategy plans from an enterprise perspective will ultimately support innovation, improve processes, and enhance decision making.

In parallel to the top-down enterprise perspective, a bottom-up operational unit perspective can empower managers with analytic tools and best practices to enhance effectiveness and improve mission results. Operating units in agencies lead implementations that impact citizens and business every day—where services are delivered, inspections are conducted, grants are administered, and borders are secured. Accountability for performance happens at the unit level. That said, operations leaders rarely engage in top-down enterprise initiatives. Engaging front-line managers can help to ensure the effectiveness of enterprise government programs as well.

Finally, both top-down and bottom-up strategies for improving government effectiveness rely on solid mission support functions that leverage advances in data analytics, technology and acquisition systems. Integrating these enterprise functions in ways that support mission-level strategy will provide a key foundation needed for more effective operations.

Building an Enterprise Perspective

Dr. Fountain observes two enterprise perspectives in government. The first form focuses on the mission, encompassing cross-agency collaboration to tackle complex policy problems that cross-agency boundaries. For mission-focused enterprise government, fragmentation and lack of coordination and communication across jurisdictions present the primary challenge, rather than redundancy and duplication.

The second form of enterprise government focuses on mission support and emphasizes streamlining and integration of administrative services, as well as processes and functions that share common elements. Examples include shared financial, human capital and IT services, and management of grants and loans. Shared services—through government-wide or more modest department-wide systems—standardize and rationalize service production and delivery, aligning enterprise approaches with problem solving.

Constraints in the size of the federal workforce and continuing funding limitations demand that government efficiency keep pace with current business practices. Beyond efficiency gains, streamlining promises to increase service quality internally for agencies and externally for citizens and clients. Moreover, the use of shared services for mission-support functions provides a strong foundation to execute mission-focused enterprise goals.

After recognizing government as an enterprise with both mission and mission-support functions, the next step in fostering greater effectiveness comes from identifying top-down and bottom-up strategies for applying enterprise perspective to achieve better outcomes, operational efficiency, and a leaner government.

Enterprise Effectiveness: The Top-down Approach

By taking an enterprise-wide perspective, government decision makers can establish an integrated operational picture, identifying both opportunities and risks not evident from a siloed perspective of a single agency or operational area. Pursuing a top-down perspective can promote coordination and enable more strategic decision making and investment. Effective coordination can also improve resilience by establishing clear lines of accountability and authority, which can remain sustainable through transitions in leadership across agencies and functions.

An enterprise approach to government operations supports cost-effective structures and strategies, such as the current move to expand the use of shared services. In this case, the GSA's Unified Shared Services Management (USSM) office has established a governance framework and migration strategy for agencies to move common administrative support services, such as financial management and human resources management, to a common provider. This approach stems from a service-based model to create a dynamic, competitive marketplace for common administrative services, based on standards, interoperability, and the ability for agencies to change providers if services fall short of agreed-upon performance levels. Other enterprise approaches being pursued include the use of "category management," a government-wide approach to making more informed decisions for categories of common purchases across the government, such as travel, office supplies, and mobile phone services. These kinds of top-down enterprise strategies can improve services, reduce costs, and contribute to lean government operations.

Empowering Line Managers with Data: A Bottom-up Approach

In tandem with top-down strategies for improving operational effectiveness, strategies that empower front-line managers can drive more effectiveness in delivering services to their customers.

Traditionally, top-down guidance results in "one size fits all" approaches often viewed as a compliance burden by front-line managers, since many top-down approaches do not readily adapt to local conditions. For example, a requirement to minimize attendance at professional conferences may affect a U.S. Department of Energy research laboratory scientist differently than a U.S. Department of Labor mine safety inspector or a State Department diplomat posted in a foreign country.

In implementing government-wide policies on issues ranging from international trade to the treatment of disabled employees, providing discretion for front-line managers can improve operational and mission effectiveness. However, informed decisions by line managers must be supported with appropriate data and analytics to enable the best path for decisions and ensure accountability for actions.

Top-level leaders look to line managers who can work effectively in achieving agency missions. With this assurance, they often delegate to lower-level units who manage with a greater degree of autonomy. This can lead to more efficient operations, since lower-level managers will have the incentive to operate efficiently and retain their greater autonomy. This approach has been used in federal human resources, where the OPM delegated specific pay authorities to agencies in exchange for achievement of specific policy goals—if goals are not met, OPM withdraws the delegations and makes decisions centrally.

Creating a Foundation for More Effective Operations

To support both top-down and bottom-up strategies for creating effective operations, government leaders need to access capabilities and tools that help drive sound decisions and successful actions. Three specific areas for potential leverage include the use of advanced analytics, the modernization of legacy IT systems in agencies, and the optimization of supply chain and acquisition practices.

- **Applying Advanced Analytics to Inform Management Decisions.** Better integration of data across agencies leads to better insights. Advanced analytical capabilities can now predict and identify fraudulent claims and prevent improper payments from being made. According to the House Budget Committee and GAO, improper payments and the tax gap represent more than \$500 billion annually in lost revenue. An enterprise solution to financial operations and processes will open the way to wider analysis and problem solving. Following models successfully demonstrated at the state level and by the Internal Revenue Service (IRS), federal agencies could work together to invest in, implement, and improve fraud detection services. Furthermore, an agile approach to developing these services, leveraging rapid experimentation, could lead to less costly and more efficient ways to produce meaningful results.

In recent years, OMB has encouraged agencies to invest in program evaluation and other analytic approaches to enable evidence-based decisions. These approaches can make operational units more effective in both internal operations and mission delivery. For example, annual federal employee survey data, available for 28,000 operating units across the government via [UnlockTalent.gov](https://www.unlocktalent.gov), can help managers to improve staff morale and agency performance, often within existing resources.

- **Modernizing Legacy IT Systems.** In concert with effective policies and procedures, strategic investments in modern technology enable an efficient government. Replacing duplicative and obsolete legacy systems with cloud-enabled and secure infrastructure, applications, and mobility will improve performance, cost-efficiency, and security, while supporting delivery of higher quality and more innovative services. For example, the Federal Communications Commission (FCC) and U.S. Army have begun transitioning away from legacy IT infrastructure. In addition, several cities have deployed mobile and IoT technologies to improve the quality of citizen services significantly.
- **Optimizing Supply Chain and Acquisition Processes.** Optimizing federal supply chain and procurement processes support streamlining of existing resources and the timely delivery of quality goods and services. Today, many procurement activities take place through a range of department and agency processes that do not capitalize on the collective buying power across government. New tools and technologies can enable better and faster analysis of information about suppliers, markets, and prices while aligning insights with complex federal procurement regulations, including the Federal Acquisition Regulations (FAR) and Defense Federal Acquisition Regulations (DFAR). The government's expanded emphasis on category management can enhance the effectiveness and efficiency of about \$250 billion in federal procurement.

In addition to improving the acquisition of goods and services, managing the entire lifecycle of an acquisition can lead to greater effectiveness. For example, a report for the IBM Center by David Wyld on managing the "long tail" of federal procurement suggests that it may be possible to save between \$113 billion and \$226 billion by more aggressively managing acquisition spending outside an organization's core operations. In addition, the recently adopted Program Management

Improvement and Accountability Act provides a framework for more effectively managing large scale federal programs that have a large services acquisition component.

Conclusion

Cross-boundary challenges facing government today rarely fit into neat bureaucratic boxes, and often require cross-boundary responses—compelling government to build such capacity to reduce costs, increase efficiency, and streamline citizen services. Enterprise approaches that leverage modern management and technology systems and practices can enable progress across the public sector. The evolution of enterprise government can give fresh momentum to improving effectiveness and driving transformation in government.

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Driver Four: Risk

Mitigating risk, managing cybersecurity, and building resiliency to meet the mission of government

The safety and security of the nation faces threats from an array of hazards, including acts of terrorism, malicious activity in cyberspace, pandemics, manmade accidents, transnational crime, and natural disasters. Many federal agencies carry out missions to stay ahead of these risks and mitigate their impacts. In addition, government leaders responsible for managing complex and risky missions must also address and mitigate internal risks in a dynamic and uncertain world.

Within this context, government leaders operate in an environment of increasingly intricate and interconnected systems. Devices have become smarter and more interconnected to the external world. Government leaders must build the capability and capacity to identify, understand, and address risks and potential threats. Assessing the inherent risks facing the public sector, and acting to mitigate and respond to those risks, can promote successful management of programs and missions and facilitate the transformation of operations.

With uncertainty facing government widening and deepening, external and internal risks pose threats to achieving an organization's goals and objectives.

Increased Risks and Threats Facing Government

Risk involves the effect of uncertainty on objectives. With uncertainty facing government widening and deepening, external and internal risks pose threats to achieving an organization's goals and objectives. Such risks include, but are not limited to, strategic, market, cyber, legal, reputational, political domains, as well as a broad range of operational risks such as information security, human capital, and business continuity.

- **External Risks.** Environmental factors as diverse as an aging workforce, changing social norms, or increased cyber security threats impact federal agencies in multiple ways. These changes occurring in the external environment produce numerous risks over which the organization has little to no direct control. Having limited control over external risks, however, does not mean ignoring them. Instead, agencies should assess external risks as part of evaluating the achievability of future goals and considering alternative approaches to reaching those goals.
- **Internal Risks.** In addition to mission risks caused by events outside the organization's control, other internal risks can be affected by organizational actions. These actions include internal processes, such as controls, training, values and culture, and are under the direct influence, if not outright control, of the organization.

In parallel to the reactive steps often used in responding to external risks, proactively anticipating future stakeholder needs and external movement requires a more proactive approach to governance and management.

Addressing Risks and Threats

Over the last decade, agencies have begun to take the range of threats more seriously, and have pursued ways to manage and mitigate them. While government cannot eliminate all risks, agencies can put in place strategies to better plan for and manage them. Risk management is such a strategy: it is a series of coordinated activities to direct and control challenges or threats to achieving an organization's goals and objectives.

Dr. Karen Hardy, in her IBM Center report, *Managing Risk in Government: An Introduction to Enterprise Risk Management*, identifies enterprise risk management (ERM) as one tool that can assist federal leaders in anticipating and managing risks, as well as considering how multiple risks in their agency can present even greater challenges and opportunities when examined as a whole. OMB recognizes ERM as an effective agency-wide approach to addressing the full spectrum of an agency's external and internal risks. ERM provides an enterprise-wide, strategically-aligned portfolio view of organizational challenges that offers better insight about how to most effectively prioritize resource allocations to ensure successful mission delivery. While agencies cannot respond to all risks related to achieving strategic objectives and performance goals, they must identify, measure, and assess risks related to mission delivery.

In July 2016, the OMB issued an update to OMB Circular No. A-123 requiring federal agencies to implement ERM to better ensure their managers are effectively managing risks that could affect the achievement of agency strategic objectives. OMB also updated Circular No. A-11, *Preparation, Submission, and Execution of the Budget* in 2016 and refers agencies to Circular No. A-123 for implementation requirements for ERM. The updated requirements in Circulars No. A-123 and A-11, respectively, help modernize existing management efforts by requiring agencies to implement an ERM capability coordinated with the strategic planning and strategic review process established by the GPRA Modernization Act of 2010 (GPRAMA), and with the internal control processes required by the Federal Managers Financial Integrity Act of 1982 and in our *Standards for Internal Control in the Federal Government*. This integrated governance structure can improve mission delivery, reduce costs, and focus corrective actions towards key risks.

Even before OMB required agencies to adopt ERM, some agencies implemented ERM to address risk-based issues and improve their ability to respond to future risks. The IBM Center has published reports highlighting case studies of federal agencies and their ERM efforts, such as the Office of Federal Student Aid (FSA) in the Department of Education, which adopted ERM in 2004, and the Centers for Disease Control Prevention's (CDC) RiskSmart™ credibility risk management and issues management systems. Similarly, the head of the U.S. Troubled Asset Relief Program (TARP) included risk management as a key element in ensuring performance and accountability, and a new agency head at the Defense Logistics Agency began an ERM program as a key driver for change. More recently, former Labor Department CFO Douglas Webster and former President of the Association for Federal Enterprise Risk Management highlighted how to apply ERM broadly across government in their IBM Center report, *Improving Government Decision Making through Enterprise Risk Management*.

Given the recent emphasis on addressing risks seriously, the GAO has identified six good practices that illustrate ERM's essential elements. The selected good practices are not all inclusive, but represent steps that federal agencies can take to initiate and sustain an effective ERM process, as well as practices that can apply to more advanced agencies as their ERM processes mature.

Essential Elements and Associated Good Practices of Federal Government Enterprise Risk Management (ERM)

| Element | Good Practice |
|--|--|
| <p>Align ERM process to goals and objectives</p> <p><i>Ensure the ERM process maximizes the achievement of agency mission and results</i></p> | <p>Leaders Guide and Sustain ERM Strategy</p> <p>Implementing ERM requires the full engagement and commitment of senior leaders, which supports the role of leadership in the agency goal setting process, and demonstrates to agency staff the importance of ERM.</p> |
| <p>Identify Risks</p> <p><i>Assemble a comprehensive list of risks, both threats and opportunities, that could affect the agency from achieving its goals and objectives.</i></p> | <p>Develop a Risk-informed Culture to Ensure All Employees Can Effectively Raise Risks</p> <p>Developing an organizational culture to encourage employees to identify and discuss risks openly is critical to ERM success.</p> |
| <p>Assess Risks</p> <p><i>Examine risks, considering both the likelihood of the risk and the impact of the risk to help prioritize risk response.</i></p> | <p>Integrate ERM Capability to Support Strategic Planning and Organizational Performance Management</p> <p>Integrating the prioritized risk assessment into strategic planning and organizational performance management processes helps improve budgeting, operational, or resource allocation planning.</p> |
| <p>Select Risk Response</p> <p><i>Select risk treatment response (based on risk appetite), including acceptance, avoidance, reduction, sharing, or transfer.</i></p> | <p>Establish a Customized ERM Program Integrated into Existing Agency Processes</p> <p>Customizing ERM helps agency leaders regularly consider risk and select the most appropriate risk response that fits the particular structure and culture of an agency.</p> |
| <p>Monitor Risks</p> <p><i>Monitor how risks are changing and if responses are successful.</i></p> | <p>Continuously Manage Risks</p> <p>Conducting the ERM review cycle on a regular basis and monitoring the selected risk response with performance indicators allows the agency to track results and impact on the mission, and whether the risk response is successful or requires additional actions.</p> |
| <p>Communicate and Report on Risks</p> <p><i>Communicate risks with stakeholders and report on the status of addressing the risk.</i></p> | <p>Share Information with Internal and External Stakeholders to Identify and Communicate Risks</p> <p>Sharing risk information and incorporating feedback from internal and external stakeholders can help organizations identify and better manage risks, as well as increase transparency and accountability to Congress and taxpayers.</p> |

Source: Source: GAO. | GAO-17-63

These good practices mirror many of the recommendations and approaches outlined in several IBM Center reports addressing risk management. Government experience with and insight into ERM will evolve and approaches to pursuing ERM will advance over time.

Tackling the “Internet of Threats”

From the OPM breach to the latest network penetration and hack of a private sector corporation, one of the most pressing hazards facing government agencies and governments involves cyber threats. The growing complexity and danger of the current threat environment—“Internet of Threats”—describes risks faced in moving more physical applications online, a trend magnified by the web-enablement of a broad range of applications commonly referred to as the IoT. The interconnectedness of devices today introduces technologies that connect cyber systems to physical systems. This means that potential disruptions to a system can have large and unanticipated cascading effects. Indeed, these innovations are a double-edged sword. These new technologies can also help government and industry in identifying and addressing risks and threats; in the online world, cloud-based approaches can enable instantaneous transmission of patches across a network. And artificial intelligence can automate detection of malware and mitigate risk at scale, automating routine decisions and fostering a focus on highest priorities (such as open source vulnerabilities).

At the other end of the technology scale, government continues to rely on archaic systems that retain vulnerabilities—more fundamental modernization strategies, including shared services for secure computing platforms and new technology approaches ranging from identity and access management to encryption, can reduce risk significantly. Accompanied by sound governance, agencies can adapt new technologies to support overstretched security staff who focus on results while still ensuring compliance. These experts can then address high-priority risk items even as constrained budgets remain the norm.

Given the constant threats and compliance issues that face government teams 24x7 and a world where adversaries only have to succeed once, addressing threat vectors in a risk management framework is critical. Agencies can then focus on controlling basic risks among the general population, prioritizing risks for special attention based on severity of potential threats, responding quickly to threats as they rise, and promoting resiliency in recovering from incidents that inevitably occur. A risk management framework can also enable security teams to work with mission colleagues in balancing protection relative to program impacts. This expands the focus beyond simply security, IT and systems to the people, processes, and data essential to carrying out agency goals and objectives.

Conclusion

Federal executives must understand the spectrum of risks, develop actions to mitigate risks in compliance with law and policy, and communicate risk response strategies to appropriate target populations. More importantly, assessing the inherent risks facing the public sector, and acting accordingly can drive change in government and promote successful management of government programs and missions. They need to understand and apply a set of tools and techniques and adapt them to their specific operating environment, based on best practices and lessons learned in addressing common as well as unusual risks. Risk management is not simply a compliance exercise but goes to the core of agency mission delivery.

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Driver Five: People

Cultivating people; reforming processes for hiring, developing, and retaining workers; and leveraging data and technologies to build the workforce of the future

“There is no time to wait. The nation’s problems are too urgent. We need to build a human capital system that meets the needs of the nation’s 21st century government and we need to start now.”

Many disruptive forces and trends changing the way government does business impact those charged with executing the business of government—the workforce. It is critically important to emphasize the role government workers play in the success of any government to meet mission and achieve outcomes. Yet across the public and private sectors, rapid change affects the workplace, workers, and work itself. As management guru Tom Peters points out, any change in any direction also impacts the way people spend time. As such, government leaders must spend significant time establishing new ways to organize, recruit, develop, manage and engage their people to build the process and culture that will characterize a government of the future. As such, governments around the world must reform their human capital processes to meet the new demands of the digital age.

Similarly, a recent white paper from the National Academy of Public Administration (NAPA), *No Time to Wait: Building a Public Service for the 21st Century*, finds that, “There is no time to wait. The nation’s problems are too urgent. We need to build a human capital system that meets the needs of the nation’s 21st century government and we need to start now.” The report posits that the current federal human capital system—from recruiting, training and retention to retirement—must be modernized, refreshed, and reinvigorated to meet today’s public-sector needs.

Challenges Building the “Government of the Future” Today

An engaged workforce drives productivity, quality, and performance. The government of the future requires the best skilled leaders and front-line staff to drive effective decision making and execution mission priorities. As the needs of government change, talent acquisition must step up to meet those changing needs. The digital revolution, as described in this report, is disrupting governments worldwide and transforming how they work, engage, and ultimately serve citizens. In addition, an aging workforce and changing demographics require leaders to identify new and innovative processes to engage and replenish the federal agencies’ talent pool.

With this potential demographic shift as a backdrop, the recently proposed U.S. federal budget calls for significant savings that will require agency leaders to manage their workforces in a constrained resource environment. These leaders will also need to identify effective ways to manage and lead a blended workforce where civil servants are joined by contractors, grantees, and others in developing and delivering programs and services.

In addition, the rising interest in and possibilities of artificial intelligence (AI) have the potential to transform future workplace environments defined by collaborative teams in which employees wield cross-functional skills and work in tandem with smart machines. Bill Eggers and Peter Viechnicki, in *What the Future of Artificial Intelligence in Government Could Look Like*, identify the potential promise of AI in reducing or even eliminating time-intensive, administrative work across in government. Staff resources can use newly available time to perform more meaningful work, focusing on creative projects and work directly with citizens. However, they acknowledge that truly achieving the benefits of AI augmentation in government will require some reskilling of current government employees to prepare them for work that complements cognitive technologies: skills like data analytics or designing human-to-machine interfaces.

Advances in technology, changes in workforce demographics, and the resulting opportunities for new management approaches combine to shift the culture and landscape in which agencies operate in fundamental ways. In the IBM Center report, *Growing Leaders for Public Service*, Ray Blunt finds that growing the next generation of public service leaders stands as the most critical responsibility of senior public service leaders today—while also among the most uneven and least understood efforts carried out across federal agencies. This goal of managing talent for tomorrow’s needs goes to the heart of building the government workforce of the future.

Why Talent Management Matters in Government

Skilled leaders determine organizational success. Doug Brook and Maureen Hartney in the IBM Center report *Managing the Government’s Executive Talent*, place an even finer point on this tenet. The report notes that investing time and resources in talent management has improved mission, managerial, political, and economic outcomes in both the public and private sectors. Effective leaders can set direction though providing vision, allocating resources and building a culture of ethics and trust. This frame enables leaders to guide results across the talent “value chain”—in which organizations improve processes to recruit, hire, compensate, onboard, train, manage, evaluate, develop and separate/retire a productive workforce. In addition, a well-implemented performance management cycle that includes strategy, resources, operations, execution and evaluation can foster talent at all levels of the workforce.

Public sector leadership talent spans a broad array of executives whose collaboration—or lack thereof—sets the tone for agency and program success or failure. These executives include political appointees and career Senior Executive Service officials in program areas and functional areas (human resources, information technology, finance, acquisition, etc.), who guide civil servants and contractors and connect with state and local government, Congress, and even the judiciary to deliver on agency missions. Given this ecosystem, change management serves as a critical element for leaders to manage between and across organizations.

Building and Acquiring Talent

Agency leaders must build and manage a workforce that moves at the speed of change. The American people expect and deserve the best service from their federal government, which in turn requires a talented, highly-skilled federal workforce drawn from a competitive pool. Gaps in digitally savvy and young talent highlight a critical need for governments to attract new skills and experiences from outside their organizations.

However, implementation challenges and issues related to the hiring process too often constrain bringing in top talent and advancing skilled employees.

Government leaders can use the very technology that drives change to identify the right people with the right talent to do the most effective job. Using talent acquisition analytics can help government leaders more effectively allocate resources, form effective teams, and redefine how best to work. That said, the federal hiring process can impede leveraging these innovative ways to connect and engage the workforce of the future today. To acquire needed talent, federal agencies need a hiring process that is applicant-friendly, flexible, and meets policy requirements, such as hiring based on merit.

In recent years, the OPM has launched several initiatives and provided agencies with tools to address federal hiring challenges. Since 2014, OPM has led the People and Culture Cross-Agency Priority Goal intended to deploy a world-class workforce, by creating a culture of excellence and enabling agencies to hire the best talent. As part of this goal OPM, with the assistance of the OMB, kicked off a new initiative in early 2016—the Hiring Excellence Campaign—to improve the federal hiring process. OPM established the campaign to raise awareness and effective use of hiring authorities by managers and human resource professionals and to address administrative and other obstacles that may impede recruiting and hiring. OPM has also been helping agencies in other specific ways, including:

- revitalizing USAJOBS.gov,
- improving the effectiveness of the Pathways Program,
- expanding the use of social media tools for strategic recruitment,
- providing innovative recruitment and hiring tools and services, and
- expanding partnerships with stakeholders, including colleges and universities.

Building on these steps, government leaders can focus more seriously on taking workforce improvement efforts to the next level. Learning from previous experiences and using those insights to chart a path forward will help government to build and manage a high-performing workforce.

The *Partnership for Public Service's 2016 Annual Report* states, “people are government’s greatest asset, yet government systems and processes hamper their ability to achieve their agencies’ missions. Federal civil servants must contend with broken, antiquated systems that stifle performance, innovation and efficient delivery of services to citizens.” The federal civil service system—the rules and regulations for recruiting, hiring and managing federal employees—was last updated more than 40 years ago and was for a government and workforce that faced vastly different problems than today.

Numerous strategies can help government overcome existing barriers in building and acquiring talent:

- **Reform Antiquated Policies and Processes.** Modernizing antiquated policies and processes to meet the needs and expectations of a changing workforce will enable agencies to compete successfully for talent. An important component in this process is hiring authority—the laws, executive orders, or regulations that allow an agency to hire into the federal civil service. Agencies continue to call for more flexibility within a system traditionally based on a “one-size-fits-all approach,” with uniform rules across the US Federal government set forth in Title 5 of the United States Code (Title

5). This reform can address how federal hiring authorities meet agencies' needs, and can use this information to explore opportunities for refining, eliminating, or expanding authorities. The rapid hiring successes of the U.S. Digital Service and 18F for competitive talent can provide key lessons learned. Longer term, these kinds of reforms can better position the federal government to harness and embrace the "gig" economy, finding even more innovative ways to exploit non-standard work arrangements (NSWA).

- **Collaboration.** Creating the future workforce goes beyond a human resources (HR) issue—it constitutes a key strategic priority for government. To make progress, HR staff must drive a culture that fosters collaboration with supervisor/hiring managers. Agency leadership needs to support this process, linking such collaboration with performance assessments of front-line/hiring staff and executives.
- **Analytics.** The HR world has begun to understand the importance and usefulness of data and analytics. Federal agencies have large volumes of hiring, candidate, and related data that present opportunities for analysis, insight and organizational improvements. Generally, the data sits untapped or in unused reports. Gaining insight on human capital data yields a competitive workforce advantage to hire, develop and retain the best talent possible—which can drive agency mission success. Expanding the use of "People Analytics" to inform workforce strategy, from planning to strategic recruitment to onboarding and retirement, can help to meet agency mission outcomes. For example, the Federal Employee Viewpoints Survey (FEVS) contains vast stores of data that provide insights on how to enhance employee engagement and inform talent acquisition. The annual *Best Places to Work in the Federal Government*[®] rankings produced from FEVS by Partnership for Public Service demonstrates the value of these data, but more could be done to mine its untapped potential.
- **Branding.** Government agencies need to move beyond simply improving the quality of a Job Opportunity Announcement. Agencies need to shift from passive job postings to more strategic, need-driven practice—using new social media platforms and apps to engage, connect, and recruit future government leaders. Government has great advantages as an employer for talented people—a sense of purpose, a mission that matters, serving the public with integrity, interesting work, internal mobility, and job variety. Showcasing this story provides a labor market advantage for government.
- **Selection.** Increasing the use of subject matter experts (SMEs) can assist HR in assessing applicants. Effective assessment of applicants yields the best qualified candidates. Having and using the right tools in evaluating job applicants helps HR teams to avoid costly hires. Managers and HR specialists should collaborate and engage in identifying assessment strategies, designing rating tools, and identifying SMEs who can assist HR at various phases of the application review and assessment process (including determining minimum qualifications, rating and ranking, and selection).

Engaging, Training, and Developing Talent

Building and acquiring the right talent with the right skills represents only half of the effort in building the workforce of the future. Once government agencies hire and place employees, they need to keep them, grow their talent, and develop their skills—a complex task when mixed teams of contractors and grantees work alongside federal employees in support of agencies. Many agencies, such as the U.S. Department of Energy and NASA, have far more contractors than government workers. As noted in the NAPA whitepaper, government increasingly needs a strategy for managing of its stakeholders who contribute to the performance of public sector work.

Nearly all top-performing organizations benefit from a highly-engaged workforce. Employee engagement refers to the connection an employee feels to their organization, its mission, and its customer. Increased levels of engagement lead to better organizational performance. The Merit Systems Protection Board found that high levels of employee engagement correlated with better mission achievement and program outcomes, reduced intent to leave, fewer days of sick leave used, and lower rates of work-related injury or illness. Agency leaders need to make engagement a priority across the organization and foster a culture and processes to communicate that priority in engaging employees—leveraging social media and new modes of communication in responding to employee feedback and concerns. Pulse surveys, town hall meetings, brown-bag sessions with senior leaders, video conferences, and websites soliciting employee ideas all provide potential avenues to communicate with employees. Short-term activities that directly address employee feedback can help agency leaders demonstrate action in addressing employee concerns.

Properly engaging employees also involves investing in innovative training and development opportunities. Training enables agencies to act on how they value employee career growth. Leadership development, technical training, and mentorship opportunities all offer ways for employees to grow, improve their skills, and become more deeply invested in the work of the agency. For example, many young employees use digital technologies more frequently than their older colleagues. Some private sector companies bring together seasoned and younger employees to learn about these tools from each other. Younger employees learn best practices and career development advice, while their colleagues gain insight into new technologies and innovations in the use social media during these sessions. Employee development complements training and can involve formal and informal mentoring, rotational assignments, and apprenticeship.

In difficult budget times, cutbacks in training programs often occur. These decisions impact employee engagement and development. Government leaders need to identify new and less costly ways to offer technical training for their people. Advances in technologies, remote learning platforms, and interactive web-based learning all offer opportunities to provide necessary training that helps agencies and employees to grow in a cost-effective manner.

Conclusion

Building the future workforce represents a strategic priority for all levels of organizational leadership. Recognizing this reality also intuitively suggests a new kind of dynamic, team-centric, and connected government workforce, with leaders and staff keeping pace with technology, adapting to the disruption of the digital economy, and recognizing that a shifting demography calls for new ways of leading.

This new type of government leader needs to position their agency as an employer of choice by telling the positive story of public service. This also involves building and growing talent with a serious focus on talent management, leadership development, and succession planning to prepare for workforce transitions. It builds a needed bench strength and grows future leaders. These leaders will also benefit from revamping antiquated HR practices to meet the needs and expectations of a changing workforce and to compete successfully for talent. Success also rests on creating a culture that values and engages people in meaningful ways while also leveraging technology, data, and new processes to improve government operations and provide employees with the tools for success.

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Driver Six: Engagement

Fostering a citizen-driven government through real-time interactive feedback to engage, co-create, and co-produce services and programs

Digital services, cognitive solutions, and open approaches to technology and data can open channels that bring citizens and governments closer together.

Citizens increasingly look for new opportunities to engage with governments on how to approach problems, develop policies and programs, receive services, and create collaborative online and in-person relationships. Digital services, cognitive solutions, and open approaches to technology and data can open channels that bring citizens and governments closer together. This fosters a “citizen-driven” government based on real-time, multi-party communications to develop programs, as well as personalized transactions in receiving services. As noted in *Using Mobile Apps in Government*, an IBM Center report by Sukumar Ganapat, the growth of mobile devices and apps presents new opportunities in the public sector. The report describes a mind shift in the mobile environment, in which a person expects that “I can get what I want in my immediate context and moments of need.” Expanding this to how government delivers services, George Packer notes, “Government is not a vending machine, with bureaucrats dispensing services, but a platform—like Facebook, Twitter, and the iPhone—where citizens can build their own apps and interact with one another and come up with their own solutions.”

Transforming How Government Engages

In the January 2017 *State of Federal IT* report issued by the U.S. Federal CIO Council, government CIOs acknowledge that the rapid transformation of how Americans interact with businesses, news, entertainment, and other services has radically raised expectations for how they interact with government. Citizens no longer accept lengthy paperwork, cumbersome processes, and organizations centered around procedures and tradition as the norm. Today, they expect the same level of service from government as they receive in the private sector—including increased transparency, new ways to approach problems, and more personalized interactions.

The advent of the internet and more recent social media platforms provides new opportunities for two-way communication between agencies and citizens. Government agencies, looking to harness these same tools to engage in dialogue, co-create, and ultimately improve services, have increased their focus on digital services, innovation, and new technology. Across all levels of government, agencies have sought to establish offices dedicated to exploring and leveraging innovation. For example, since 2010, the U.S. Department of Veterans Affairs Center for Innovation (VACI) has worked to identify, test, and evaluate new approaches to meet the current and future needs of veterans efficiently and effectively through innovations rooted in data, design thinking, and agile development.

The rise of innovation labs in the federal government presents an opportunity for stakeholders across industries and disciplines to collaborate in solving complex challenges. Along with innovation labs, the creation of digital services teams, such as the USDS and the GSA's 18F, have helped federal agencies develop new ways to engage and deliver services to citizens. These new resources apply best practices in digital technology and design to improve the usability and reliability of government's most important services, transforming how government does business and delivers services.

Expanding Citizen Engagement

Collaboration and co-creation can expand citizen engagement. Many examples at various levels of government show citizens engaging with public organizations to improve the front-end experience as well as the governing process. Citizens can help identify important issues via crowdsourcing and co-creation platforms such as SeeClickFix, a mobile application where people report non-emergency issues in their cities which has led to fixing more than 3 million issues. And the website "We the People" allows users to create and/or sign petitions for the White House to act on issues. A petition gaining 100,000 signatures in 30 days went to the White House for consideration, and millions of Americans contributed to the site.

Citizens can play a direct role in developing solutions to those issues. As noted in the IBM Center report by Satish and Priya Nambisan, *Engaging Citizens in Co-Creation in Public Services*, a wide range of mechanisms foster citizen co-creation and engagement, including online contests and competitions, mobile apps, e-petitions, innovation jams, virtual design and prototyping tools, open-source databases, participatory design workshops, and online citizen communities. Examples of citizens co-delivering government services include MyTSA, an interactive mobile and web application that allows users to post security line wait times—keeping other travelers and transportation stakeholders informed and prepared, which improves the flow of traffic through security lines. The National Oceanic and Atmospheric Administration's *mPING* mobile application allows people to submit a weather observation directly to the National Severe Storms Laboratory database.

In addition, experts in and out of government can use these mechanisms to work together in solving complex issues. Citizen experts have enhanced hundreds of government services using their own experiences as a baseline from which to improve outcomes. For example, IRS's Volunteer Income Tax Assistance program recruits accounting students, who receive training from the IRS, to assist low-income citizens with preparing their tax returns for free. During the 2015 tax season, more than 90,000 volunteers helped to prepare 3.7 million tax returns. The U.S. Patent and Trademark Office's "Peer to Patent" initiative has engaged outside experts in the patent application examination process to speed patent issuance. And the Library of Congress engages large groups of "citizen archivists" via crowdsourcing to classify and categorize content and facilitate appropriate information retrieval for all users.

Government organizations can create the environment, means, and awareness of how to engage the public. The Nambisan report also offers four strategies to assist government agencies in creating the broader innovation environment that promotes citizen engagement and co-creation:

- Fit the co-creation approach to the problem-solving context.

- Manage citizen expectations regarding their involvement.
- Link or connect the internal organization with the external partners.
- Embed the citizen engagement initiative in the larger context of the agency's core agenda.

Leveraging New Capabilities and Technology

Another IBM Center report, *Beyond Citizen Engagement: Involving the Public in Co-Delivering Government Services* by P.K. Kannan and Ai-Mei Chang, explains that technological innovations have a powerful impact on citizen co-delivery. Even if citizens are motivated only for themselves in providing input, technologies to co-produce and co-deliver services can leverage that input to benefit the whole community.

Today, advances in cognitive computing and blockchain (which is a type of distributed ledger that can be likened to bookkeeping, where transactions are recorded as “blocks” and any modifications or related transactions are also recorded and linked creating a connected “chain”) can drive a new and better citizen experience. These technologies increase citizen interaction on digital channels, providing additional personalization for users while freeing up resources for agencies to tackle more complex problems. For example, a cognitive computing based help desk assistant can help answer questions and improve self-service—as demonstrated by the U.S. Citizenship and Immigration Services’ virtual assistant, Emma, who answers nearly 500,000 visitor inquiries every month. This allows agency staff to focus on more challenging cases and increases customer satisfaction across the board. The more capabilities an agency dedicates to create a personalized and improved user experience, the more citizens will engage with the agency.

Blockchain offers many possibilities, particularly in navigating and protecting the emerging IoT as it touches both government and industry. This technology enables managing data and digital assets in a secure and transparent fashion among users. It also creates an audit trail for reconciling records and transactions that will impact functions and services across government and industry. The potential public-sector applications of blockchain span improving the procurement process, maintenance of healthcare, employment, deeds, immigration records, Treasury Department transactions, and secure digital voting. For example, Estonia incorporates blockchain technology to track records, identify who accesses them, and what changes may have transpired. Blockchain can benefit any data exchange through verification and can also optimize supply chains for both defense and civilian agencies.

Scaling Innovation to Enhance Citizen Engagement

To keep pace with how citizens engage in their daily lives, government must expand the aperture through which it leverages innovation to achieve key missions and improve services. Agencies continue to grow formal processes for innovation, establishing Chief Innovation and Chief Technology Offices and agency labs like the U.S. Department of Health and Human Services’ (HHS) IDEA Lab. Going forward, agencies face the challenge of how to scale innovation across the enterprise and how to leverage new ideas from unexpected sources.

The groundwork laid thus far can provide insight into how government can scale

engagement efforts, by assessing which pilot projects to expand and tackling barriers to scaling head on. For example, Challenge.gov, a central portal for federal prizes and competitions that allows citizens to submit solutions, has scaled to include more than 640 competitions, participants from every state, more than \$220 million in awarded prizes, and participation from more than 80 agencies. However, reaching this level of success involved assessing and overcoming policy and technology barriers.

Part of the effort to scale will also require buy-in from other agencies and lawmakers, helping them understand the value of a citizen-driven, engaged government. The Georgetown University Beeck Center report *The Architecture of Innovation* identifies several areas federal agencies should consider when scaling citizen services, such as personnel, policy, partnerships, and structure. Institutionalizing and scaling innovation to improve the citizen experience can drive mission improvement across government, from front-line employees providing services to policy makers looking to improve overall government performance.

Valuing Data and Metrics

Organizations can leverage massive amounts of available data to better meet citizen needs. Data, in areas such as who stops using a service, which questions get asked most frequently, and when a site's traffic reaches its peak, can help identify opportunities for improvement and inform design to address citizen needs. With that aim, the Commission on Evidence-Based Policymaking introduced recommendations to better use existing data and improve how government programs operate, while still protecting privacy. This effort builds on data driven improvements across government, such as an evidence-based federal grant program that gave \$89 million a year to 81 organizations across the U.S. to help drive record low teenage births. Similarly, the U.S. Department of Justice used data to inform decisions and create more objective techniques in their grant process, allowing them to review grants more frequently and in much less time.

Data can be used to measure results. For example, the U.S. Department of Education, 18F, and USDS launched the new College Scorecard tool to provide reliable data on college costs, graduation rates, debt, and post-college earnings. Within the first year, the College Scorecard had more than 10 times the users relative to a predecessor application. This kind of data helps organizations understand what's working and what's not—especially important for creating transparency with agency leaders, Congress, and end users. The open data movement and Data.gov have been instrumental in increasing transparency and collaboration to engage agencies, individuals, and the private sector.

Conclusion

Organizations in both private and public sectors face challenges in how best to harness the potential of citizen/customer engagement in services in a constantly evolving environment. There is a clear trend in both private firms and public institutions toward increased engagement of customers. With citizens increasingly getting this experience from the private sector, there is a growing gap between what citizens are expecting and getting from government.

To close this gap, agencies must look to transform the design of services, the model for allocation of resources, and measurement and accountability models. Moreover, government leaders must integrate user experience to guide all citizen interactions. Forrester's

latest Customer Experience Index highlights room for growth here, as government still falls at the bottom of the rankings. Mandates around citizen experience can drive improvement.

Engagement comes from more than simply making a mobile app or updating a website. It emerges from meeting the user needs in how they wish to interact with government. The end user must be at the forefront of all program design and execution, both within and across agencies.

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Driver Seven: Digital

Optimizing new technology and infrastructure models, focusing on the user experience, and incentivizing innovators to modernize how government does business


Digital transformation can be defined, as described by Faisal Hoque in *Why Design Thinking Is Critical for a Digital Future*, as a process whereby an organization shifts their business models, processes, and organizational culture with digital technologies to adapt to changing customer behaviors. Governments have followed the private sector in adapting digital technologies and ways of doing business. Today's digital challenges involve more than putting information up on the web and creating secure transactions for citizens and businesses. Digital governments can now leverage the promise of 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 technological advances such as cognitive computing and the IoT, mechanisms exist to collect, distribute, and access vast amounts of data in various formats from a variety of sources that can assist government leaders make better decisions.

Transformative Nature of the Digital Revolution

Digital transformation goes beyond simply advances in technology. It also involves disruption in how problems are tackled, how work is done, and how expectations are met. As described in *Driver Six: Engagement*, the digital revolution also places the user experience front and center.

It has ushered in new ways to improve the experience, leveraging innovative cross-discipline approaches, such as design thinking—a structured, interactive method to facilitate innovation among stakeholders. Digital technologies significantly enhance how government operates. For example, another potential benefit of this revolution involves the application of virtual and augmented reality technology in government. Federal agencies have begun working with VR technology, such as NASA for data visualization and the U.S. Department of Veterans Affairs (VA) to treat post-traumatic stress disorder.

This revolution drives major changes for how government does business. As the U.S. Federal CIO Council's *State of Federal IT* report states, the changes required to move to a digital government will significantly impact every federal agency and its employees. The path to a successful IT future is possible through better internal collaboration, improvements to human resources and procurement operations, a shift away from legacy systems, and a continued push towards transparency and open data. Such a transformation will require changes to both culture and policy.



Today's digital challenges involve more than putting information up on the web and creating secure transactions for citizens and businesses.

Evolving Digital Government Landscape

The transformative opportunities described above build on two decades of progress that reflect advances in how government has leveraged the internet. These phases of change fall into three broad areas, and the functionality that each era brought remains part of the overall digital government landscape.

- **Digital Government 1.0** – In this era of “Basic e-government,” agencies moved paper-based information online without any significant reform of the process that could simplify and streamline the interactions that citizens and businesses have with government. At the infrastructure level, agencies began to review legacy systems and develop initial modernization strategies.
- **Digital Government 2.0** – The “Advanced e-government” stage saw agencies leverage communication technology to enable secure transactions with government. Citizens could apply for and receive benefits and permits and could make payments electronically. However, these services were still delivered in silos where agency applications focused on each user in a “citizen-centric” manner but did not scale across user experiences to improve the quality of transactions. At the same time, government also sought to develop shared services for back-office applications like HR and finance.
- **Digital Government 3.0** – In what characterizes much of the current state of digital government, the advent of social media and other collaborative technologies has created new pathways for citizens and businesses to communicate with governments. New digital technologies, including mobile apps and open networks that relied on cloud computing, led to opportunities to involve benefit recipients, regulated businesses, or even government contractors in government processes. Co-creation and co-production of policies and programs have become more common. Technology platforms now leverage open source and agile development to foster communities of public and private sector practitioners who build new systems based on understanding user experience at scale. Common and shared services delivered through central portals have provided a foundation for accessing multiple programs with a consistent process—enabling a “lean” government that promotes effectiveness and efficiency.

However, as disclosed in the IBM Center report, *Using Mobile Apps in Government*, only 3 percent of people interact with U.S. federal government agencies digitally and only 17 percent of the 438 federal agencies have a digital app. The future of a digital reinvention in government will transform service delivery and citizen interaction.

Moving to the Next Phase of Digital Government

To take full advantage of the transformational changes made possible through the speed and scale of digital technologies, those served by government must help drive how agencies work with them. Citizen-driven government will adapt to the needs and expectations of citizens, businesses, non-profits, and other partners to create interactions that are personalized, interactive, and easy to access and use. Cognitive technologies can enable systems to understand, reason, and learn over time, enabling government to interact with the broad public in real time and with strong security and privacy protections. Agencies can leverage digital approaches to transform how government engages with the public across the full range of mission and mission support activities.

To build the foundation for tomorrow's citizen-driven, digital government, agencies must find ways to invest in modern technologies to support secure and scalable applications. Identifying and prioritizing efforts for investment, integrating these priorities into agency and federal budget planning cycles, and applying appropriate measures to track the success of key efforts will drive solutions based on modern, cloud-enabled IT infrastructure, mobile services, and IT security. Critical to effective investment in digital modernization is understanding the existing barriers to capture savings over time from those investments and identifying means to overcome these barriers. Defining pathways to invest in emerging technologies that can help government will inform where and how private sector entities may most effectively support digital transformation in ways that improve performance and reduce costs.

Characteristics of a Successful Digital Organization

The digitally transformed government organization of the future will make smart technology investments and change culture. It will challenge outdated processes, use fresh insights to make decisions, and apply a user-focused lens to every facet of their missions. For government, the new digital culture is one in which citizens can engage in new ways to help frame policies, shape programs, share information, and receive services. The characteristics of organizations that are harnessing the key breakthroughs of the digital revolution include the following:

- **Persona-Centric:** create differentiated experiences for all users—citizens, employees, and constituents.
- **Strategically Agile:** apply agile, iterative principles across the enterprise, and consistently learn, refresh, and improve.
- **Sustainably Resilient:** focus on safeguarding against current and emerging threats in today's data-driven, highly distributed world.
- **Actionably Insightful:** capture, analyze and employ data effectively to uncover valuable insights, make decisions, and optimize performance to deliver mission outcomes.
- **Responsively Operational:** use digital principles and tools to improve operations, services and processes leveraging real-time feedback, automation, and lean principles.
- **Access-Empowered:** empower end-users by providing multiple channels for anytime, anywhere access to information, transactions and feedback, especially through increased mobility and accessibility.
- **Eco-System Orchestrated:** explore new, innovative partnerships and incorporate new technology solutions that stay nimble and flexible to achieve evolving mission objectives.
- **Dynamically Talent-Driven:** identify and retain top talent who share knowledge and remain challenged and engaged to meet mission needs of the mission.

Implementing tomorrow's digital government will require additional focus on modernization strategies, development of enabling technologies, and governance and funding that promote investing in a digital future.

Modernizing IT and Realizing the Benefits of Digital

A recent IBM Center report, *Digital Service Teams: Challenges and Recommendations for Government* by Ines Mergel finds that an important driver to rethinking government approaches to digital service delivery is the so-called “legacy IT” problem, which stems from the fact that many countries began to digitize their operations decades ago using technologies now “aging in place.” In the U.S., the GAO reported that about 75 percent of record-high spending on government IT in 2016 went to the operation and maintenance (O&M) of legacy systems that are becoming obsolete. The OMB has estimated that \$3 billion worth of federal IT equipment will reach end-of-life status in the next three years.

Private sector experience has demonstrated that strategic investments in technology can produce long-term cost reductions and bring a significant positive return. As noted in the Technology CEO Council (TCC) report *The Government We Need*, duplicative and obsolete legacy systems can be replaced with modern technologies on more cost-efficient platforms. A 2015 report by the Information Technology and Innovation Foundation suggests that every \$1 increase in new IT spending led to as much as a \$3.49 reduction in overall government expenditures. Applied to the scale of the federal government, this invest in new IT systems could yield billions in reduced costs while improving productivity.

Building for the future requires agencies to transform legacy systems using cloud services and shared solutions that will result in substantial cost savings, allowing agencies to optimize spending and reinvest in critical mission needs and leverage modern technologies such as mobile and the IoT.

Leveraging Mobility and IoT

Mobile devices continue to transform the way Americans work, live, and learn and how all enterprises do business. Continued expansion of mobile self-service and supporting infrastructure are essential to meet the needs and expectations of the federal workforce and the American public. In addition, several cities have begun applying mobile technologies not only to provide valuable services to employees and citizens, but also to help governments explore opportunities to reduce transportation spending, improve sustainability, manage infrastructure, and monitor public health and safety. Mobile technologies remain an essential component of the foundation for future government innovations.

Adopting IoT technologies and supporting the interoperability that enables systems to work together, agencies can also drive improvements in operations management, industrial production, and services. Cities around the world are using IoT to deliver services at lower costs, among other benefits.

Implementing Digital Government

Driving change in the federal government requires more than new policies or the infusion of new technology; it requires a sustained focus on implementation to achieve positive and significant results. Mergel explains, “digital transformation is a holistic effort to rethink and change the core processes of government beyond the traditional digitization efforts in government. It evolves along a continuum from the use of agile methods and changes in IT contracting practices to organizational change efforts that involve the whole ecosystem of the organization.”

Changes in IT contracting practices also involve government leaders identifying new approaches to procure commercial technologies and recognize the return on investment (ROI) over time. Current procurement rules limit agencies' ability to buy technology "as a service" and pay for it over a 5–10-year period. With private sector funding, agencies can fully focus on their missions and approach IT modernization as a service they buy over time, not limited to whether they have funds for a multi-year investment in the current year's budget. The government can work with private sector partners and acquire modern technology to provide cost effective services for American taxpayers.

Improving the acquisition of commercial technologies can enhance functional and technical modernization for shared services, in numerous ways:

- Enable investment of budget and private sector funds up front, to be recouped based on measurable financial results—a commercial financing model.
- Use of ROI to determine solutions.
- Move faster: achieve implementation within 24 months.
- Foster innovation and constant improvement.
- Reduce siloes and hidden inefficiencies.
- Move to subscription models that more agencies can join quickly.

Some current models exist for this approach, which create exceptions from current annual budgeting rules and allow for multi-year payback. These include real estate leases, energy usage reductions, and some specific agency IT models (such as the NASA working capital fund). With appropriate incentives and flexibilities, government can bring in and scale offerings far more easily than has been the case to date.

These new ways to procure digital tools and technologies can drive fundamental change in how government serves both its internal and external customers through a 21st century platform.

Conclusion

Digital government enables citizens and an increasingly mobile federal workforce to securely access high-quality digital government information, data and services anywhere, anytime, on any device. As government adjusts to this new digital world, agencies must work together to build the modern infrastructure needed to support digital government efforts and leverage the federal government's buying power to reduce costs.

As the TCC report *The Government We Need* concludes, the world is in the midst of a digital revolution, transforming the way people access and act on information to benefit their lives. The digital government of the future will no longer simply automate previously manual processes. Rather, citizens will help drive agencies to modernize, and agencies will work together to integrate systems and applications across platforms. Digital government can disrupt previously entrenched business models, enhance service quality, and reduce costs. As the 21st century evolves, digital government will drive efficiency, effectiveness, and performance improvements. It is about harnessing the power of technology to help create a twenty-first-century digital government—one that is focused meeting the challenges of today while seizing the opportunities for tomorrow.

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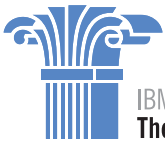
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