Tackling the Nation’s Biggest Challenges by Investing in Information Technology Solutions

ACT-IAC Institute for Innovation

Quadrennial Government Technology Review

2012
American Council for Technology—Industry Advisory Council:

The American Council for Technology (ACT) is a non-profit educational organization established by government leaders in 1979 to improve government through the efficient and innovative application of information technology. ACT was created to provide an objective and trusted forum for collaboration and education. In 1989, ACT established the Industry Advisory Council (IAC) to bring industry and government executives together to collaborate on IT issues of interest to the government.

ACT-IAC is a unique, public-private partnership dedicated to helping government use technology to serve the public. The organization provides programs that facilitate communication, education and collaboration. Recognized as the premier collaborative forum in the government IT community, ACT-IAC has been called “a model of how government and industry can work together” and “the Switzerland of the government IT community.”

ACT-IAC welcomes the participation of all public and private organizations committed to improving the delivery of public services through the effective and efficient use of information technology.

Institute for Innovation’s 2012 Quadrennial Government Technology Review:

The Quadrennial Government Technology Review (QGTR) is an initiative through ACT-IAC’s Institute for Innovation to provide senior government leaders with a discussion of some of the nation’s most pressing challenges. Over 100 volunteers from government and industry provided input to the seven papers that comprise the QGTR. Recommendations are offered to provide ways that information technology can make a positive impact on these challenges. Information technology underpins virtually every federal program and agency mission. Increased efficiency and effectiveness is especially critical to mission support, especially at times of budget shortages. This paper provides background information and recommendations developed by a cross-section of ACT-IAC members and represents a non-vendor specific, non-partisan perspective. The QGTR papers may be found at www.actgov.org/quadrennial.

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For further information or collaborative discussions regarding these recommendations, contact the American Council for Technology and Industry Advisory Council at (703) 208-4800 or www.actgov.org.
Current Government Challenges are Unprecedented in Scale

According to the U.S. Census, the American population stands at approximately 314 million. The federal government touches the lives of all citizens daily in various capacities. For example, DoD processes 110 million invoices each year. The Centers for Medicare & Medicaid Services processes 1 trillion transactions each year. In 2011, the Department of Veterans Affairs paid more than 5 million veterans $48 billion dollars in patient benefits. The size and scale is enormous.

At the end of FY2011, the Government Accountability Office (GAO) estimated the U.S. debt to be more than $14 trillion. This rising debt has put a shining light on the federal government’s fiscal responsibilities and the challenges it faces in maintaining quality services to a growing population.

The deficit/budget challenge is paramount; however, government also faces challenges around declining job growth and education scores, national security threats, rising health care costs, and a host of others. A lack of cohesive solutions to these challenges erodes public confidence in parts of the federal government.

This paper provides an overview of themes and recommendations found in six separate topic papers addressing government challenges prepared as part of the Quadrennial Government Technology Review project. Exhibit 1 depicts the national challenges and the technology solutions available to federal government leaders to apply to these challenges. Greater detail may be found in the six supporting papers found at [www.actgov.org/quadrennial](http://www.actgov.org/quadrennial).

**Exhibit 1 – Technology Solutions and Their Potential to Significantly Impact National Challenges**
Key Actions to Help Meet the Challenges

Some of these challenges are not new. The interesting dynamic is that we think it is much harder today than it was fifty, one hundred, or one hundred and fifty years ago. Our ability to outmaneuver our enemies and out-innovate our competitors has been a source of both great challenge and opportunity since the dawn of our democracy. What has changed is scale, rate of change and global competition. The research that supports the recommendations put forward shows that there are many agencies and private industry partners attacking these issues. We have to find a way to meet the challenges of government at today’s increased scale. Strong leadership, armed with the right tools, can begin to provide solutions.

Government agencies can better leverage technology to provide services in new and innovative ways to benefit government through:

- Improved government performance.
- Improved communication across government and with citizens.
- Improved use of service as a catalyst for change in areas of crisis.

In the sections that follow, we describe the key messages from each of the topic papers organized by these three benefits.

1. **Improved government performance.**

   One of the greatest challenges the next administration faces is to control the federal debt while not jeopardizing the essential mission of government to protect, defend and serve the U.S. citizens. Only through technology-enabled innovation information technology can any organization hope to tackle this challenge. Tools can distill large amounts of data and proactively demonstrate where productivity gains can be achieved. Data analytics can also identify the non-obvious side effects of fiscal changes. Both approaches are essential to quickly and confidently tackle the large questions around federal budgets and spending.

   Federal financial data is an example of one data set that is underutilized in government. Proactive application of analytical tools and exposure of anomalies increases government’s opportunities to better understand where it is spending money, compare how agencies are investing against performance goals, and identify overlapping programs. For example, data can be analyzed on travel locations - not just to look for waste, but also to proactively negotiate better rates in certain areas where travel is necessary. Finally, through data analytics, government can identify patterns of fraud, waste and abuse and prevent future improper payments. This proactive activity reduces the cost of recovery to retroactively collect government funds from those abusing the system.

2. **Improved communication and collaboration across government and with citizens**

   After the September 2001 terrorist attack, President George W. Bush created the Department of Homeland Security (DHS). One of the primary reasons was to help improve communications and
information sharing among the agencies defending and protecting our country.

In the information era, the United States security depends on collaboration among government organizations and with the private sector. Digital information and technology is a catalyst for improving communication and information sharing. While there has been a lot of progress, continued focus is needed. National security is an obligation of many government entities at all levels of government. It is especially challenging because the vast majority of critical infrastructure in our country is owned and operated by the private sector. More progress is required in defining mission ownership, dependent responsibilities, and effective approaches to collaboration. A common strategy that uses technology to automate access and authenticate valuable information that needs to be shared will help keep our nation safe.

Some people advocate reorganizing the government as a means to improve performance. A comprehensive strategy for information and technology management could make reorganization of government agencies unnecessary in the future by enabling information and services to cross administrative boundaries. In fact, virtual organizations could exist to reduce costs in redundant activities, personnel and facilities.

We see similar opportunities to improve interactions with citizens. Throughout American history, citizen engagement has been a powerful mechanism for impacting change. This includes everything from the Boston Tea Party to the suffrage movement to the civil rights marches. With the explosion of the Internet, citizens have embraced a new medium where they can engage in politics and government, regardless of their location. The power of citizen engagement through various digital media was demonstrated with the Obama campaign in the 2008 Presidential election and later in the emergence of the Tea Party.

Citizen-government collaboration, powered by technology, allows services to be designed and deployed around constituent’s needs. With the increased availability and transparency of government data, citizens can contribute cost-free ideas to improve government service that may be of great benefit to the Nation’s leaders. These types of citizen engagement efforts should continue and be measured for effectiveness and impact.

The digital world has altered how Americans interact in their personal and business capacities. For example, they can search for gifts online, pay online and ship a gift to a friend for next day delivery. Citizens no longer have to go to their own bank’s ATM machine to withdraw money; they can go to nearly any other bank in the world and receive the same service. These types of experiences have changed the public’s expectations around their user experience with government services. Citizens are interacting at a new level with all forms of organizations. The federal government must continue to evolve its methods of citizen interaction using mobile and social platforms.

Increasingly, agencies are automating government services. There are great examples like online visa applications or electronic income tax filing. But citizen experiences differ due to our current stovepipe approach -- sometimes even within the same department. Imagine a day when a citizen is delivered a single window view of their federal government transactions and can confirm their tax
status, change their filing status, check their social security benefits, and confirm a balance on a student loan. A single window to an individual’s government data and available services would vastly improve the citizen’s experience working with government. Today, the technology exists -- continued leadership and commitment will make it happen. Some services are emerging, such as pilot programs like BusinessUSA.gov. When citizens see significant changes to services, their confidence in and perceived value of government improves.

3. Serve as a catalyst for change in areas in crisis: Healthcare and Education

Technology can improve performance and interactions within government and with citizens, and be a catalyst for change in areas of crisis. The uncontrolled growth in medical costs, the aging baby boomer population and a medical system aimed at treating symptoms rather than causes, has created a healthcare crisis. There is widespread belief that healthcare costs are unsustainable, especially in the current fiscal environment.

It is well documented that technology can play a huge role in improving US healthcare. There are multiple studies on this topic and, while there is more work to be done, using technology to establish electronic health records seems to be well on its way as a course of business. According to an October 2007, Milken Institute Report, chronic diseases (e.g., cancer, diabetes, heart disease) account for 80% of healthcare costs. If we can prevent these chronic diseases and focus on wellness, there are tremendous healthcare savings to be reaped.

Technology is one of the keys to attaining these cost savings. Arming healthcare professionals with data analytics and tools to support health research is one key. Equipping individuals with access to their own health records through technology can promote wellness by enabling people to be more responsible for their own health. Increased access to health information can help people become better informed consumers of healthcare services, increase treatment effectiveness through competition, and reduce costs and waste on unnecessary treatments. Technology advances include mobile applications to track individual’s exercise achievements, web services that promote wellness education, and the utilization of personalized health monitors. Social media can be utilized to share information on successful wellness programs.

The federal government, the nation’s largest employer, is well positioned to continue to provide leadership and increased awareness of these technology tools to promote wellness, improve healthcare, and drive down healthcare costs in the federal workforce.

We see another crisis brewing with science and technology education. According to the National Science Foundation, science and engineering innovation has produced approximately half of the U.S. economic growth in the last 50 years. The fields of science, technology, engineering and mathematics (STEM) are critical to innovation and the growth in the US economy. The U.S. is lagging

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in math and science proficiency. Teacher training in these fields is deficient, especially in the elementary school years. Jobs in STEM fields are increasing three times faster than jobs in the rest of the economy; yet, American students are not entering these fields of study in sufficient numbers to meet the demand. A lack of focus in this area leaves the U.S. highly vulnerable and increasingly reliant on overseas scientists and engineers to fill future jobs. A crisis is looming that can negatively impact U.S. world standing.

There needs to be an immediate course correction on the importance of STEM education in the U.S. Increased visibility and leadership is required to drive STEM education. A comprehensive, coordinated campaign is needed so all citizens understand this issue’s criticality. Making STEM attractive to students through more focused teacher training requires unparalleled culture change. Cracking the code on the STEM crisis requires the creation of measurable training and repeatable education methodologies to leverage best practices on a national level. Finally, the availability of technology itself plays a huge role. Universal access to broadband digital infrastructure, applications and devices are requirements for future educational competitiveness. A digital infrastructure can provide teachers with tools that may allow students to learn more quickly and provide access to new applications and content that may galvanize interest in science and technology.

What can government leaders do?

**Align the business with technology.** Technology is now a significant underpinning of government’s mission. Satellite technology supports troop deployments, provides minute-to-minute predictions on potential natural disasters such as hurricanes or tomatoes, and supports commercial aviation. Automated federal systems process huge volumes of transactions and distribute billions of dollars in annual benefits to various groups, including veterans, social security recipients, and others.

The federal government invests in technology – but often in a way that is not strategic or designed to realize optimal fiscal benefits to advance its mission. One reason for this shortfall is that business/mission and information technology are not closely aligned and the role of the Chief Information Officer (CIO) is underutilized. Through a closer alignment, the opportunity exists to transform government and significantly increase its effectiveness, efficiency and security. The role of the department/agency level CIO has evolved into a critical strategic position. Secretaries and Administrators need to select a CIO who has understanding of the mission as well as technology. CIOs should be empowered as part of the executive leadership team rather than pushing them down in the organization to only focus on the technology itself. When the CIO does not have the authority to satisfy business units’ IT requirements at the enterprise level, it is common to see governance processes circumvented to meet individual business unit needs resulting in inefficiencies. Empowering the CIO, and holding the CIO accountable for results, promotes a collaborative and transparent environment at a senior leadership level that advances an agency’s mission.

**Improve and Leverage Quality Data.** Traditionally, the federal government has spent hundreds of millions of dollars collecting data – only to be stored forever and used once. However, over the past several years we have demonstrated that we can use data for new purposes. The private sector has analyzed
and integrated disparate data sources for years. For example, the financial industry applies data analytics to credit card charges that trigger alerts when a “suspected” theft has occurred and bars future customer purchases until the situation is clarified. The retail industry applies data analytics to individual purchasing habits to target marketing campaigns and maximize store locations and interior organization. Both of these efforts have paid huge benefits to these industries by saving money and bringing focus to activities that impact their corporate bottom line.

Data analytics can impact the federal budget in similar ways through: the identification of overlapping or redundant programs across government, the determination or confirmation that benefits are delivered equitably, the cost-benefit analysis of federal spending on strategic programs compared to other high priority programs, an analysis of graduate skills against areas of job growth, an analysis of program outcomes against the policy decisions that shaped them, and others. Making government data publicly available can improve government accountability and enable private sector development of new software tools and services that leverage government data. The taxpayers already paid for the data, we should tap into the potential value of those assets.

Until very recently, using data more effectively was a challenge because data was stuck in applications and could not be accessed for new uses. New technologies are now available to help solve this problem.

**Invest in New Technology.** Over the years, technology has been an important piece of innovation and, therefore, job creation. While the fiscal challenges are difficult, smart investments in technology can be a catalyst for driving cost savings, fostering innovations and establishing new markets. The federal government needs to continue to invest in new technology, such as:

- **Cloud Technology:** The cloud technology is a virtualized environment that allows infrastructure and services to be leveraged and shared at reduced costs. Many agencies are currently starting to migrate a few of their commodity services (e.g., email) to the cloud. Reduction of agency technology costs continues to be a valid reason for migrating infrastructure, software and platforms to a cloud environment. However, migrating more data to a “cloud” or virtualized environment is also a significant step toward accessing data from anywhere and anytime. This technology, coupled with mobile computing, brings data to any secure and authorized endpoint and increases productivity significantly.

- **Mobility:** Mobile computing is in its infancy in government. The private sector sees the benefits of mobile computing. By creating mobile applications, employees have the ability to work almost anywhere and at anytime. Employees benefit because it frees them from long commutes into an office location simply to access a software application specific to their job. Employers benefit from lower facilities costs. More productive workers spend less time commuting and more time working. Mobile computing can offer these same benefits to government employees. But, perhaps equally important, when the federal government offers mobile applications to the public, more citizen engagement is possible.
Cyber security. Protection of the nation’s infrastructure, government applications and data are paramount to a growing economy. In today’s world, this requires that there be a trusted environment in cyberspace. Achievement of this goal demands action on several fronts, such as cyber-ethics education, new technology development and clearer rules of cyber-governance via policy, legislation and enforcement. The establishment of a national identity ecosystem is key to the creation of a trusted environment for e-government and e-commerce to thrive.

Conclusion

America has been and will continue to be a world leader in many of the topic areas addressed. Some of the problems we are facing are not new, but the scale is significantly increased. Maintaining our standing as a technology innovator and leader is important to maintaining and building our leadership position in the global economy.

Our federal executive team must be armed with information to make difficult but effective investment decisions quickly and decisively. As our leaders look to find solutions to challenges around healthcare, national security, fiscal stewardship, information sharing, collaboration, and science and technology education, they need to make technology part of the solution and a catalyst for change to ultimately transform government and restore public confidence.
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Established in 2011, the ACT-IAC Institute for Innovation was chartered to promote innovation in the delivery of government services and operations. It develops and delivers high-quality strategic advice that reflects cross-industry recommendations based on the consensus of experts from ACT-IAC’s member companies and government liaisons. Through ethical collaborative discussion, the Institute recommends approaches to key issues affecting government where information technology can be or is a factor and a broad spectrum of perspectives is required.

The Institute commissioned the 2012 Quadrennial Government Technology Review to develop a series of reports and executive briefings for consideration by the next administration. Each report focuses on the use of information technology to address a national challenge. These papers, and additional information on the Institute, can be found on www.actgov.org/quadrennial.

- Empowering Citizen-Driven Government through Collaboration and Service Delivery
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Thank you to these organizations for their commitment and leadership in government innovation by supporting the ACT-IAC Institute for Innovation. Sara K. DeCarlo, Director.