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The Case for Modernizing IT Now

Six Steps Governments Can Take Now

1. **Support and expand remote workforce collaboration**

2. **Ensure the security of distance work technology**

3. **Improve digital presence and offerings**

4. **Invest in digital service delivery tools**

5. **Modernize citizen support operations**

6. **Plan and prepare for future disruptions**

The ongoing coronavirus pandemic makes clear like no event before it the centrality of technology to how governments operate and achieve their missions in the face of adversity. Millions of public sector workers—from federal and state agency heads to local service providers—suddenly find themselves using remote devices and the internet in bedroom offices. The critical guidance that policymakers need to share with citizens and constituents is being distributed online, on apps, and even through virtual customer service chats. And the data that will help public health experts craft the response going forward is available to them to be accessed, shared, and analyzed at the push of a button.

Technology is helping federal, state, and local governments accomplish almost every mission related to the pandemic response, but it is also keeping the engines of government at every level operating to a varying degree in almost every agency and office. Today, then, presents governments with a tremendous opportunity to better understand how software investments can help them accomplish even more in their everyday operations and in the face of future challenges.

Consider software's role in:

➲ **Enabling remote work.** In response to the initial outbreak, many government workers were outfitted with the technology needed to work and federal agencies were directed to update their websites, leverage digital tools, and enable productivity in a remote environment. Even as parts of the country begin reopening, the Office of Management and Budget notes that agency heads "maintain the flexibility to develop and continue to use appropriate telework protocols for their operations."

➲ **Helping citizen response.** Faced with a need to quickly test citizens who may have contracted the virus, Tarrant County, Texas, launched a self-screening website. The site helps residents quickly determine their eligibility for testing based on Centers for Disease Control and Prevention (CDC) criteria, manages test scheduling and capacity, and helps leaders identify patterns and insights from the testing results.

➲ **Charting the path forward.** Government researchers and other scientists have teamed with technology experts from IBM, Microsoft, and elsewhere on "the Apollo Program of our time"—the COVID-19 High Performance Computing Consortium. By using government supercomputers to aid drug discovery and simulation, software researchers hope to hasten the path to a cure.

The first step of the pandemic response is underway: Government agencies around the country quickly closed offices and expanded telework options; they've surged capacity to address increased demand for health systems and social assistance; and, they've bolstered IT and cybersecurity to protect their systems. Governments that had adopted cloud-enabled software solutions prior to this emergency were ahead of the curve.

Many offices and agencies that had not invested in technology in recent years, on the other hand, have struggled mightily. In at least a dozen US states, the systems for processing unemployment benefits—a hugely important part of the pandemic response—have gone generations without an upgrade. Several states still rely on software that dates to the 1950s and computers that date to the 1970s. Beyond just the limited technological capabilities of such outdated systems, the coders who can work on such systems have mostly retired.

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Looking forward, smart technology investments will help with the next step of the recovery: replacing ancient computer systems, helping institutions reopen on a gradual basis, addressing any backlogs that have emerged, and taking on new tasks like disbursing and tracking recovery funds. Looking even further ahead, officials can use this moment to truly advance government by adopting solutions for the digital age.

Software Solutions Can Transform Government Operations

In light of the far-reaching consequences of the coronavirus pandemic, it's likely that government officials will be leading public health and economic recovery efforts that will require unprecedented levels of orchestration and communication during a challenging and potentially protracted period.

For many technology leaders, this presents an opportunity to continue to adopt new technologies that are tailored for the future. For others, it will mean adjusting any systems they quickly set up as the pandemic emerged. In either case, the purpose of this paper is to highlight some of the software solutions that governments are using to transform and improve their operations.

This paper highlights the technological adjustments that governments should be making to help them accomplish their work, and it details some of the software solutions that can be tapped to help agencies make needed changes. And, finally, the paper briefly examines steps the federal government has taken to help agencies modernize their related IT solutions.

Examining the Possibilities

This paper highlights the technological adjustments that governments should be making to help them accomplish their work.

As many government officials have noted, many opportunities exist to expand the use of modern commercial technologies that are effective, economical, and secure; reduce cybersecurity risks by safeguarding IT systems, sensitive data, and networks; and leverage common solutions and innovative practices to improve efficiency, increase security, and meet citizens' needs. They include:

Supporting and Expanding Workforce Collaboration in a Remote Environment

Enabling and supporting the government workforce, particularly those unaccustomed to remote work, poses steep challenges, but adopting smart solutions presents a huge opportunity for accelerating a digitized workplace. In many cases, the future of work arrived in a matter of days with little warning. This brought urgency to the need for technology leaders to ensure that their workforces were equipped and trained to handle the new virtual environment and enabled with effective collaboration tools.

Collaboration Tools

In an increasingly digital world, software solutions such as Microsoft Office 365, Atlassian's Jira issue tracking software, and Slack's channel-based communication platform allow users across the globe to quickly work together on projects instantaneously. Especially in a crisis situation like the COVID-19 pandemic, virtual meeting software such as Microsoft Teams facilitates remote work from anywhere with an internet connection and allows organizations to maintain internal and external business continuity.

Ensuring the Security of Technology Used in Distance Work

The sudden and steep spike in deploying public workers across a huge range of remote locations put government systems' security under real stress. The surge in traffic overwhelmed virtual private networks (VPNs) and choked access control. At many organizations, remote work also exposed many unpatched systems that left privileged access unprotected by firewalls.[1] In

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[1]   Liam Tung, "Coronavirus: Microsoft Directly Warns Hospitals, 'Fix Your Vulnerable VPN Appliances,'" ZDNet (April 1, 2020), https://www.zdnet.com/article/coronavirus-microsoft-directly-warns-hospitals-fix-your-vulnerable-vpn-appliances/.

just a few weeks, phishing emails spiked 667 percent.[2] And there were other issues: Groups using collaboration products were hit with disruptive intrusions like racist videos, obscene language, and pornography. Schools and other organizations were forced to restrict the use of certain tools. To address these concerns, technology leaders can test solutions for stability and security in a variety of operating environments and offer reliable, scalable tools that provide consistent service. This may mean switching providers, offering alternatives, and creating appropriate policies. Ultimately, agencies must determine how to both manage risk and ensure resilience.

Identity Management

To bolster organizational security, identity management providers offer technologies such as Single Sign-On (SSO) and Multi-Factor Authentication (MFA) to harden potential threat vectors and protect employees from cyber threats. Solutions such as Okta's SSO and MFA integrations can ensure government employees have secure access to databases and critical work applications from nearly any device or location—a must for agencies shifting to remote work.

Cybersecurity Protections

Government agencies of all sizes must constantly keep up with the evolving cyber threat landscape. Security information and event management (SIEM) offerings from cybersecurity firms like Splunk leverage cutting-edge data analytics tools to help agencies monitor and respond to suspicious activity with speed and confidence.

Improve Their Digital Presence and Offerings

For many agencies, citizen requests changed dramatically amid lockdown and isolation mandates. The best prepared offices were able to innovate and scale alternative digital channels to remain engaged with citizens. Consider telehealth, which has become mainstream with the emergence of telemedicine platforms in certain parts of the health care sector. Some public health offices used that model to establish or redirect chatbots to help citizens seeking personal information and answers to their own health questions. Looking ahead, technology can be used creatively to prepare for future citizen needs and to support them through associated technology capabilities.

Invest in Digital Service Delivery Tools

Given the need for reduced personal interactions, agencies should update their websites and digital platforms to provide citizen service. Agencies should assess the usability of their digital environments and improve user-centered design and customer service features on websites, web applications, and other citizen-facing interfaces. Many government agencies still leverage paper-based

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2   Esther Shein, "667% Spike in Email Phishing Attacks due to Coronavirus Fears," TechRepublic (March 26, 2020), https://www.techrepublic.com/article/667-spike-in-email-phishing-attacks-due-to-coronavirus-fears/.

processes for internal and external operations. Agencies should look to convert paper-based processes by leveraging digital, mobile response forms and electronic signatures.

Electronic Signatures

Electronic signatures replace paper-and-ink signature processes with fully automated workflows. Users can send, sign, track, and manage signatures using a browser or mobile device. Government agencies such as the State of Hawaii's eSign Services and the State of Utah eSign program have leveraged Adobe's e-signature technology to move past paper-based processes.

Website Modernization

Governments can create, manage, and optimize modern digital citizen and employee experiences by leveraging web analytics, content management, and multichannel communication tools.

Modernizing Citizen Support Operations

With government offices closed, citizens often had no other choice but to use the phone to seek help from agencies like state unemployment offices. States spent millions to hire more operators, but increased call volumes during the coronavirus response extended wait times for hours.[3] Digital solutions can help address such bottlenecks. While the traditional communications channels such as phone or email support are clogged, organizations are taking innovative approaches to rethink customer support and finding new ways to reach their customers. Intuitive artificial intelligence, AI-enabled moderation of online platforms, and other communication channels can be used together to ensure agents are able to offer fast access to urgently needed information. Software providers are creating new capabilities and tools to support government offices. Technology leaders need to evaluate the additional steps they can take to support, enable, and empower citizens to better respond and recover.

Analytics/Visualizations

Advanced data analytics and artificial intelligence allow applications like Splunk Enterprise to evaluate organizational data and quickly present it in visualizations that are easy to understand, providing new insight into unstructured datasets and allowing for more informed decision-making.

Content Creation

Leading design software—such as the Adobe Creative, Document, and Experience Clouds and Autodesk's computer-aided design (CAD) offerings— provide governments access to cloud-based tools to reimagine constituent communications through interactive content and web design.

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[3]   Christine Stapleton, "Unemployment Florida: Hours on Hold Persist Despite $79 Million for Call Center Help," *The Palm Beach Post* (April 28, 2020), https://www.palmbeachpost.com/news/20200428/unemployment-florida-hours-on-hold-persist-despite-79-million-for-call-center-help.

Customer Relationship Management

Businesses traditionally use integrated customer relationship management (CRM) platforms like Salesforce to track and report on sales data, close business deals, improve service through integrated customer support, and much more. Many of these CRM concepts can be applied to the public sector realm, with government agencies increasingly leveraging CRM platforms to aid with constituent services and make informed, data-driven policy decisions.

Planning and Preparing for Future Disruptions

> Technology leaders today can help prepare for a potential second wave of this pandemic. That process should include scenario planning to address potential new risks and to consider how technology can help run operations in new ways.

This is not the first crisis that the world has faced, and it won't be the last. Technology leaders today can help prepare for a potential second wave of this pandemic. That process should include scenario planning to address potential new risks and to consider how technology can help run operations in new ways. When changes must be made, officials should have a system for identifying alternative actions. In addition, this effort should examine and propose a best alternative path forward and make recommendations to key stakeholders. This will improve business continuity planning and help identify critical concerns such as the emerging awareness in many states of their reliance on a scarce talent base skilled in decades-old coding languages. These skills are now urgently needed to reprogram systems that are trying to speed benefits to citizens under the CARES Act.[4]

Cloud Storage/Compute Power

Onsite data storage and computing hardware have finite storage limits and processing capacity and can prove costly for organizations to manage over time. By moving computing and storage to cloud services like Microsoft Azure and Box Cloud Content Management, governments can improve system performance, reduce operating costs, and dynamically scale resources as needed.

Human Capital Management Solutions

Cloud-based human capital management (HCM) software, such as Oracle HCM Cloud and Workday HCM, helps HR departments manage their employees and streamline administrative functions including payroll, performance management, training, and employee recruitment.

Database Management

IT departments use database management products such as Oracle Database, IBM Db2, and Microsoft SQL Server to store and manage an organization's data in a database. Today, many database management offerings are available in the cloud, using artificial intelligence and automation to improve performance, reduce costs, and strengthen database security.

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4   Ian King, "An Ancient Computer Language Is Slowing America's Gian Stimulus," Bloomberg (April 13, 2020), https://www.bloomberg.com/news/articles/2020-04-13/an-ancient-computer-language-is-slowing-america-s-giant-stimulus.

Supply Chain Management

Delivering a product or service today requires tracking the flow of related goods, data, and finances, from the procurement of raw materials to the delivery of the finished good. Supply chain management (SCM) software systems span procurement, product life cycle management, supply chain planning (including inventory planning and the maintenance of enterprise assets and production lines), logistics (including transportation and fleet management), and order management.

> Recent national emergencies such as the COVID-19 pandemic have exposed devastating vulnerabilities in agency workflows dependent on decades-old technology to perform basic functions.

Steps the Federal Government Has Taken to Modernize IT

The federal government currently spends upwards of $90 billion annually on IT infrastructure—75 percent of which goes toward the operation and maintenance of "legacy" systems.[5] By directing scarce taxpayer dollars toward the operation of antiquated IT systems instead of procuring modern cloud-based solutions, organizational efficiency suffers, constituent services are hindered, and the security risks associated with maintaining the status quo are accumulating. Recent national emergencies such as the COVID-19 pandemic have exposed devastating vulnerabilities in agency workflows dependent on decades-old technology to perform basic functions.

In the past decade, Congress and the Executive Branch have taken initial steps toward the transformation of federal IT, though much work remains to be done across all levels of government to alleviate today's security, efficiency, and cost concerns.

21st Century Integrated Digital Experience Act (21st Century IDEA)

This bicameral, bipartisan bill, which was signed into law in December 2018, takes the government's technology modernization to the next level, focusing on digitizing the delivery of citizen and internal government services, as well as improving customer experience. The 21st Century IDEA directs federal agencies to do four things: (1) update websites and intranets to ensure they are data-driven, secure, and personalized and provide a mobile-friendly experience; (2) digitize all paper-based forms; (3) digitize manual processes and accelerate the usage of electronic signatures; and, (4) empower executive agency officials to budget for and use existing funding allocations to quickly optimize digital efforts to meet citizen expectations.

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[5]   BSA | The Software Alliance, "BSA Applauds House Passage of the Modernizing Government Technology Act" (May 17, 2017), https://www.bsa.org/news-events/news/bsa-applauds-house-passage-of-the-modernizing-government-technology-act.

Modernizing Government Technology (MGT) Act

Signed into law in 2017, the MGT Act was designed to incentivize agencies to install modern IT solutions instead of maintaining clunky legacy systems—some of which are decades old, depend on obsolete hardware no longer supported by the manufacturer, and often require expertise in outmoded programming languages like COBOL. To encourage change, the MGT Act gave federal agencies the authority to establish working capital funds dedicated to IT modernization and allowed agencies to reinvest any cost savings into additional modernization projects.[6] This law also established a centralized Technology Modernization Fund (TMF) designed to fund large IT modernization projects across the government.[7] However, according to the nonpartisan Congressional Research Service,[8] only eight agencies have set up or planned to set up an MGT working capital fund by the end of FY2020, and although Congress authorized $500 million for the TMF, the fund has only been appropriated a total of $125 million since enactment.[9]

Federal Risk and Authorization Management Program (FedRAMP)

FedRAMP, launched by the Office of Management and Budget (OMB) in 2011 and administered by the General Services Administration (GSA), aims to streamline the process for agencies to procure cloud-based IT systems. The program standardizes the process for agency migration to cloud services by ensuring that cloud service offerings have adequate safeguards in place, eliminating duplicative assessment of services by government officials, and enabling "rapid and cost-effective procurement" of IT systems.[10]

The FedRAMP program has enabled government adoption of commercial software products using contemporary service delivery models, such as software-as-a-service (SaaS), platform-as-a-service (PaaS), and infrastructure-as-a-service (IaaS). As of May 2020, 183 cloud products and services—such as Microsoft Office 365 and Azure Government, IBM Cloud for Government, Salesforce Government Cloud, Oracle Service Cloud, and Adobe Creative Cloud—have been authorized through FedRAMP and are currently adopted by agencies such as the CDC, Treasury Department, Federal Aviation Administration (FAA), and even the White House Executive Office of the President (EOP).[11]

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6   U.S. Government Accountability Office, "Information Technology: Agencies Need to Develop Modernization Plans for Critical Legacy Systems" (June 2019), p. 11, https://www.gao.gov/assets/700/699616.pdf.

7   *Ibid.*

8   Congressional Research Service, "The Current State of Federal Information Technology Acquisition Reform and Management" (February 23, 2020), p. 4, https://crsreports.congress.gov/product/pdf/R/R44843.

9   Technology Modernization Fund, https://tmf.cio.gov/.

10 U.S. Government Accountability Office, "Cloud Computing Security: Agencies Increased Their Use of the Federal Authorization Program, but Improved Oversight and Implementation Are Needed," p. 10, https://www.gao.gov/assets/710/703193.pdf.

11 "FedRAMP at a Glance," https://marketplace.fedramp.gov/.

For a cloud offering to become FedRAMP certified, a service provider must undergo an authorization process with individual agencies or across the government through FedRAMP's Joint Authorization Board (JAB).[12] Providers must then demonstrate adherence to FedRAMP's baseline security standards and complete an assessment by a FedRAMP-accredited third-party assessment organization. Once certified, providers are obligated to complete monthly continuous monitoring deliverables and undergo an annual security audit from a third-party assessment organization.[13]

Federal Information Technology Acquisition Reform Act (FITARA)

Enacted in 2014, this law reformed several aspects of the agency IT procurement process by enhancing the role and authority of agency chief information officers (CIOs), optimizing government data centers through the Federal Data Center Consolidation Initiative, allowing a government-wide software purchasing program via the GSA, and codifying existing Executive Branch initiatives to modernize federal IT.[14]

FITARA also improves the transparency of IT investments through the semi-annual publication of a "FITARA scorecard." In conjunction with the Government Accountability Office (GAO), the House Committee on Oversight and Reform reports on agencies' progress implementing FITARA reforms in eight categories: incremental development, risk reporting, portfolio management, data center consolidation, software licensing, modernizing government technology, information security management, and CIO reporting structure.[15] More than five years into implementation, agency CIOs are acclimating to the cadence of FITARA reporting and many CIOs appreciate their enhanced roles in the procurement and IT budgeting processes.[16]

In the most recent "FITARA Scorecard 9.0" published in December 2019, the average overall agency grade was above a "C," with the Department of Education, the General Services Administration (GSA), and the U.S. Agency for International Development (USAID) earning "A" grades.[17]

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12   "Get Authorized: Joint Authorization Board," https://www.fedramp.gov/jab-authorization/.

13   "Get Authorized: Agency Authorization," https://www.fedramp.gov/agency-authorization/.

14   Congressional Research Service, "The Current State of Federal Information Technology Acquisition Reform and Management," (February 23, 2020), p. 2, https://crsreports.congress.gov/product/pdf/R/R44843.

15   U.S. House Committee on Oversight and Reform, "FITARA 9.0" (December 11, 2019), https://oversight.house.gov/legislation/hearings/fitara-90.

16   Tajha Chappellet-Lanier, "CIOs Weigh in on What FITARA Has Meant for Them," fedscoop (August 1, 2019), https://www.fedscoop.com/cios-talk-fitara-maria-roat-gary-washington/.

17   U.S. House Committee on Oversight and Reform.

Conclusion

> Governments can seize this moment to shore up their response, get ahead of the recovery, and prepare for future challenges. Software solutions can help with all three.

The past few weeks have revealed the differences in how agencies and offices have used technology to prepare and plan for difficult situations, and they've dramatically exposed how underused some basic technologies are that could have helped resolve some of the most immediate challenges. Video conferencing and remote working technologies, for example, have both been available for years, but many organizations are only now scrambling to figure them out.

The reluctance to adopt new solutions until faced with an urgent need is a challenge that almost every office confronts. But with that urgent need at hand, today's situation presents an unprecedented—but fleeting—learning opportunity. Governments can seize this moment to shore up their response, get ahead of the recovery, and prepare for future challenges. Software solutions can help with all three.

Think Deeply

Give Back

Look Forward

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