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Journey to Digital Government

Transforming to a Digital Enterprise

Massive change is coming to the government sector, enabled by new technologies and the demand for empowered citizens and employees. Instead of delivering services through traditional channels, agencies are expected to deliver new services that inspire public trust by holistically delivering outcomes that meet the rapidly changing needs of citizens and requirements of government policies. These services must be simple and flexible enough for citizens to evaluate, tailor and consume through multiple channels, even if the services are composed of several discrete services that come from different agencies or groups.

To deliver on these growing expectations, government agencies can make substantive progress in three key areas: modern collaborative workplaces, hybrid cloud platforms and integrated digital service management. To do this, government agencies are developing an ecosystem of partners and value-added service providers, connected through digital platforms. They are also overhauling processes through digital transformation and gaining control over their vast IT estate to become more effective and efficient in supporting programs.

The U.S. public sector is in the throes of an unprecedented era of transformation.[1] Evolving missions, policy reforms, emerging national threats, changing workforce demographics, the move to mobility and budgeting austerity all demand that public sector IT solutions be nimble, efficient, integrable and cost effective.

The same advances in technology that reinvented commercial industries such as music, publishing and travel are now exerting a similar effect on government. In response, modern government is taking an outside-in approach[2] to capabilities and assets, augmenting them with people, information, ideas and IT resources that are outside its own boundaries. This enables modern government to anticipate and make use of digital trends.

Citizens who have become accustomed to a highly personalized, self-directed shopping experience, followed by instant fulfillment, are looking for the same service experience from government. For its part, government is borrowing best practices from many different industries — tailored customer journeys from the financial sector, seamless omnichannel experiences from retail, voice and social media interactions from automotive, and disruptive business models from transportation and hospitality, to name a few.

Legislation, regulation and budgetary pressure have caused government to adjust slowly, but each new administration introduces new priorities, policies and personalities that ultimately influence the IT space.

The shifts that are now taking place affect every aspect of the mission value chain, and the government of the future will look nothing like the one of the past. This paper examines these shifts, the drivers of change and what government organizations can do to accelerate their journey to a more efficient and effective digital future.

1. While this paper emphasizes dynamics in the U.S. government, modern government is a global phenomenon. DXC Technology supports not only government across multiple jurisdictions and borders but also the commercial sector, allowing us to offer a distinctively broad viewpoint.

2. "Winning in the 21st Century: A User's Guide," Leading Edge Forum, January 2017. One of the six key areas for digital transformation is having an outside-in approach to assets and capabilities. https://leadingedgeforum.com/publication/winning-in-the-21st-century-a-users-guide-report/

The changing face of government

Consumers of all demographic profiles have grown comfortable with electronic transactions, and they expect ease and immediacy in everything they do online or on the move. Not surprisingly, they're bringing those expectations to government services, looking for the same level of productivity, collaboration and convenience.

Government change tends to move more slowly than consumer change, requiring government to start changing sooner than it is accustomed to. Modern governments recognize that if they can anticipate citizens' needs, they can be prepared for them and can integrate service delivery closer to the source of need.

At the same time, advances in cloud computing and storage, elastic networks, and sophisticated development and analytics platforms are making inexpensive, massively scalable computing resources available to virtually any government organization. Powered by automated provisioning and advanced service management platforms, the as-a-service economy is maturing, with more and more of today's enterprise IT capacity consumed from outside partners.

These tools of the digital economy — largely based on open source software and commodity hardware — give government organizations the ability to rapidly try new services, instantly scale those that deliver mission outcomes, and quickly eliminate those that don't. Modern governments are deploying techniques such as multichannel citizen engagement, digital government platforms and citizen e-ID — treating identity as the new security perimeter. (Two good examples of e-ID are the identity cards in Belgium and Estonia.) Yet much work remains to be done to simplify and streamline government interactions with citizens and businesses. Despite widespread use of websites (see Figure 1), many governments still require citizens to fill out forms and stand in line for common services.

The need for change is apparent — and government recognizes it must change. With teams such as U.S. Digital Service and 18F, government is increasingly rising to the challenge of reaching citizens and other customers with a more personalized, digital experience and a broader, more flexible range of services that can be tailored to meet their needs.

To match the speed of commercial industry in deploying innovations from Silicon Valley, the U.S. Department of Defense's Defense Innovation Unit (Experimental), DIUx, invests in startup solutions in a variety of areas — from autonomy and artificial intelligence (AI) to human systems, IT and space — to solve a host of defense problems.

Source: Defense Innovation Unit Experimental, https://www.diux.mil/

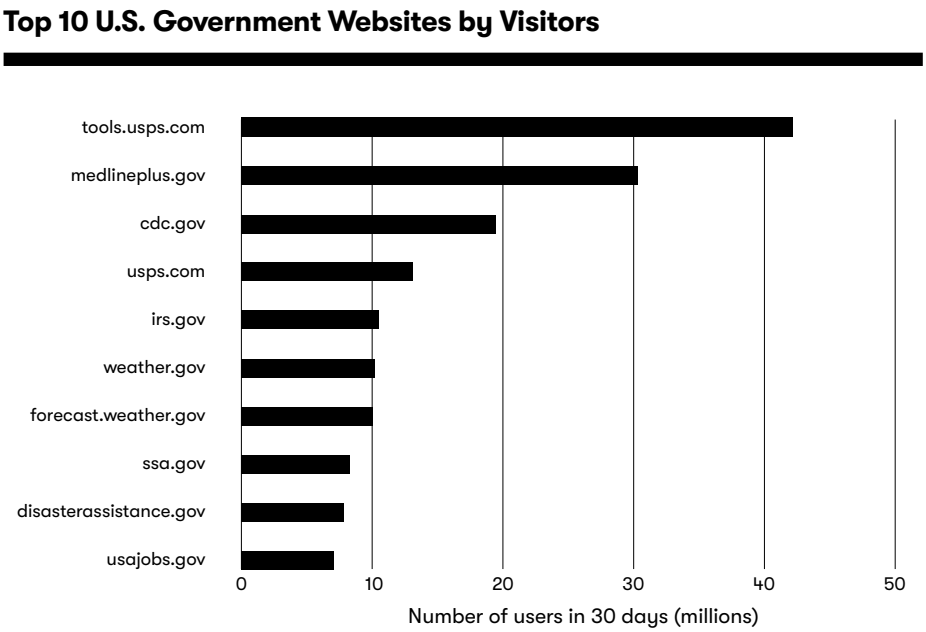

Figure 1. Number of users measured between August 28, 2017, and September 27, 2017. The U.S. government manages more than 2,500 websites. Notes: Tools.usps.com is the USPS package tracking site.

Source: https://analytics.usa.gov/

Security is another area that government is rethinking. While government cyber experts want to defend against all vulnerabilities, they simply don't have the budget. Further, expanding enterprise boundaries, building ecosystems with third parties and making information available to many more stakeholders, both inside and outside government, are all necessary to create and deliver the services citizens want — yet they pose new security challenges.

In this environment, a fortress mentality doesn't work. Government must strike a balance between enablement and protection, drawing on cyber security fundamentals but implementing them using new and emerging technological approaches.

McKinsey research has estimated that digitization could deliver productivity improvements worth at least $1 trillion across the global public sector.

Source: McKinsey Center for Government: Government Productivity, Unlocking the $3.5 Trillion Opportunity, April 2017, p. 25. http://www.mckinsey.com/industries/public-sector/our-insights/the-opportunity-in-government-productivity

Transforming Risk Management

U.S. public sector organizations have deep experience in managing risk and using a structured framework to prioritize risks. As digital dependencies increase through digital transformation, further use of a comprehensive risk management framework is needed to strike a new balance between enablement and protection.

The challenge with risk management is that more devices are connected to the internet, more information is being consumed and created, and more applications are needed to operate an organization. All told, this increases the threat surface 10-fold at a time when organizations are experiencing more sophisticated attacks. The approach to protecting the mission needs to adapt to these dynamics.

Cyber situational awareness

Monitoring and integrating information across this larger threat surface requires solutions that can rapidly correlate, fuse and analyze data in the context of the organization's activities. Cyber security and cyber situational awareness (CSA) mean building frameworks to understand mission dependencies and cyber threat landscapes, integrating complex data feeds, evaluating training and systems operator qualifications, and enhancing network tools.

CSA solutions can extend risk management capabilities and improve the efficiency of detection capabilities, including incident response, investigation of incidents, corrective actions and impact analysis. The key innovation underlying these functions is relating cyber incidents and affected assets to specific missions and mission assets, such as soldiers and equipment in the field. In a sample scenario, when an advanced persistent threat actor is detected, a security incident is raised. Investigation teams are provided visibility into adjacent activities and logging information while adjustments are made to mission activities to isolate and compartmentalize access to protect people and equipment.

Recent events forewarn the depth of offensive capabilities in the cyber environment. Protecting missions, operations and people is going to require more comprehensive protection, detection and response solutions. Cyber threats are evolving with a coordinated and motivated adversary that creates a real threat to governments. Most defense departments recognize that conflicts today already involve cyber warfare, and that the sophistication of their defensive and offensive capabilities needs to evolve rapidly. Many are employing active simulation exercises and response readiness training to be better prepared.

For example, the as-a-service platforms provide improved security postures through a variety of techniques including the use of enclaves/compartmentalization, information protection through API access, and a refocusing of identity management including fine-grained authorization down to the cell (field) level.

Moving to a truly digital experience

A truly digital citizen experience starts with services that are easy to comprehend and simple enough to enable e-applications and consumer-style tracking for approval-based processes — all of which help deliver the type of instant gratification and transparency citizens expect from a digital government. This shift is requiring government decision makers to reconsider how they design and build new services and how they interact with their intermediaries and constituents.

The dual agenda of tackling legacy mission and IT issues while innovating and building new capabilities will be difficult to address in isolation. Government organizations are re-evaluating their partnering strategy, as they won't be able to keep up on their own with the massive investments being made by today's technology leaders.

Neither can they amass all the skills and experience necessary to drive transformational change at the speed needed. Government IT organizations will shift from being builders and stewards of capital-intensive IT to being integrators and aggregators of internal and external capabilities, drawing from the emerging as-a-service and API economies.

Information is at the core of digital transformation in government. Leveraging information with the goal of "putting people first" provides a completely different approach to how technology services are delivered and consumed by government and citizens. Citizens expect consumer-oriented service from their government.

Information is now democratized through the use of modern tools that have become more user-centric. With open, modern data platforms, government can enable an integrated information management process and leverage structured as well as unstructured (digital voice, images, text and video) information to power personalized or tailored applications and services, as well as gain insights that enable new levels of citizen engagement, business agility and operational excellence.

Ohio used agile development to integrate 27 legacy tax systems into a single platform, called the Ohio State Taxation Accounting and Revenue System (OH STARS), and add a front end that allows citizens to file taxes electronically.

Source: "How Ohio Used Agile Development to Overhaul Its Tax System," Government Technology, April 4, 2016. http://www.govtech.com/budget-finance/How-Ohio-Used-Agile-Development-to-Overhaul-its-Tax-System.html

We have a (digital talent) problem

A recent survey conducted by DXC Technology's Leading Edge Forum (LEF) found that of the digital leadership surveyed, 49 percent knew they had significant talent gaps but had insufficient plans to address them.

In researching this further, the LEF discovered various ways that successful organizations attract and unlock top talent in their organizations. Traditional job factors such as pay scale are less important than working in organizations that have an exciting purpose or that are ethically aligned with the individual's own morals. The LEF's research shows us the focus the digerati put on factors such as talent, culture and purpose to ensure a happy workforce.

That's bad news for government. When it comes to competing with the commercial sector in the war for talent, government has always had purpose as its secret weapon. People are drawn to government service because of the impact they can have. But now the commercial sector has caught on! The talent war intensifies.

New ways to attract and unleash talent

Awesome people doing awesome things is a great way to attract more great talent. Top organizations make time for their best people to talk publicly about their work. This is the organization's best advertisement for new talent.

Moving from managing talent stocks (those inside the organization) to managing talent flows (talent outside the business) is just as important. Identifying these external pools of capability and using new and novel means to augment your workforce with their capabilities is a low risk, high-impact way of quickly injecting talent into your business. Modern government has learned to leverage this approach through regular hackathons and cyber hacking challenges.

Finally, don't forget to keep experimenting. Through its research, the LEF learned that no one has all the answers to the talent problem. The most successful companies are being bold, experimenting with new ways to get the talent they need. That's why this is an issue whose responsibility sits with the executives of the organization; talent management cannot be delegated to a human resources team. U.S. Digital Service and 18F are great examples of the government experimenting with new ways to attract top talent from Silicon Valley. It will be exciting to see the next set of experiments.

Extracting mission value from big data is a clear priority for modern governments. Barriers include legacy IT environments; new sources of data including sensors, video footage and social media; security and regulatory standards; and a variety of business and technology options. To readily leverage big data, government needs:

- A clear path to business insights and value from different data sources (internal and external) and from different types of data (structured and unstructured)
- Rapid exploration and deployment of business use-case scenarios with predictable investments
- A low-risk, secure data and analytics environment that won't disrupt existing information and business processes

Analytics discovery can help define and align resources, strategy and mission opportunities when organizations are struggling to achieve greater customer insights with social media, are unclear on a big data strategy, or are attempting to incorporate unstructured data with more data sources. Positive outcomes can be accelerated with the use of modern composable processes — like the ones in the service-delivered platforms mentioned earlier — that innately produce usage information to both inform policy-driven changes and support continuous process improvement.

Three areas for change

With all this in mind, our extensive experience with government clients reveals three key areas where government organizations can make substantive progress:

1. Modern workplace: communication and collaboration

It's not just citizens who have come to expect a highly personalized, self-directed experience. Employees are also looking for the same style of consumer experience from their government employer. Like their counterparts in the commercial sector, government employees often feel more powerful as consumers than as employees.

> "Managing an on-premises implementation of Exchange or SharePoint is not a core competency for government. Neither is managing an implementation of enterprise applications like SAP, Oracle or Dynamics. Our core competency is delivering the information needed to enable mission outcomes."
>
> *— Steve Rice, deputy CIO of the U.S. Department of Homeland Security, briefing to commercial partners, August 2017*

Improving the lives of citizens through AI

It may be tempting to take a gradual approach to adopting artificial intelligence (AI) since the technology is still emerging. But AI can improve the lives of citizens broadly and significantly. So when AI is summoned for public service, the attitude toward deployment changes: Run if you can, walk if you must, crawl if you have to.

With this perspective, it makes sense to take an industrialized approach to AI — make it highly automated and repeatable, as well as scalable and reliable to meet the needs of many organizations.

Tapping the data deluge

AI manifests itself as a machine performing a task that people find interesting and useful, but repetitive and difficult to do. Your system is artificially intelligent if, for example, machine-learning algorithms predict road wear and adjust maintenance in anticipation.

The potential for AI in the U.S. public sector (and everywhere) is exploding because the amount of data available for training intelligent machines has exploded. According to one account, by 2020 every human being on the planet will create about 1.7 megabytes of new information every second.[3]

And we are far from putting all this data to good use. Research by McKinsey's Global Institute indicates that, as of 2016, 90 percent of all European Union public sector administration data is born digital,[4] but we capture only 10 to 20 percent of data's potential value.[5]

We need $57 trillion in infrastructure investment globally between now and 2030.[6] We could reduce that cost by using AI to predict failure and increase the productivity of our infrastructure. The better we anticipate needs, the better we can serve citizens.

Getting started

Find an area of the government you can make as smart as possible as quickly as possible. Identify the data stories — such as predicting fraud or predicting citizen sentiment — that you think might make a real difference. Use your data stories to bring facts to life by painting a vivid picture of what the future can look like. Help the viewer make sense and order out of a disparate collection of facts. Test your ideas quickly using utilities and small experiments. Learn and adjust as you go.

— Jerry Overton, data scientist, senior principal, DXC Technology

In response, government organizations are rapidly adopting cloud-native software-as-a-service offerings such as Microsoft Office 365, Skype, Teams, Slack and even Facebook, to name just a few. These offerings provide dramatic new options for communication and collaboration, not only within government organizations, but also across government silos and out to partners and citizens.

Government's success is dependent on collaboration across the mission value chain. Historically, email was the most common tool, but email is a poor tool for building and maintaining relationships, much less fostering team collaboration. Modern government is adapting commercial sector initiatives such as open source communities and collaboration platforms to enable the ecosystem to exist and work. It is also embedding social networking in core applications and processes where possible. Using cloud-based collaboration applications makes it possible to achieve continual innovation, and to more easily extend collaboration beyond enterprise boundaries.

2. Modern computing platforms: hybrid cloud

Government migrations to cloud have slowed. After several years of steady work, the easy cloud migrations are complete. The next phase of cloud migration will be far more challenging. Government organizations own thousands of legacy mission and back-office applications that still need to be operated and maintained because of organizational hierarchies and complexities often stipulated in regulation and legislation. And with most obligated funds tied to legacy programs, budgets are another complication. But things are changing.

As government organizations create a new "right mix" of applications and data, they look for a right mix of infrastructure to support it, some of which originates outside the boundaries of the government itself. This leads them to transform to hybrid infrastructure — migrating and managing workloads across on-premises and off-premises data centers as well as private and public clouds — permitting the consumption of evergreen software-as-a-service offerings.

3. Modern service management: integrated

Today, the typical government IT group works with a mix of partners, suppliers, contractors and others. This empowers the organization with knowledge, products and services of experts outside the organization. At the same time, the new workforce also creates management challenges and requires new tools, approaches and techniques.

[3] "Big Data: 20 Mind-Boggling Facts Everyone Must Read," Forbes, September 30, 2015. https://www.forbes.com/sites/bernardmarr/2015/09/30/big-data-20-mind-boggling-facts-everyone-must-read/#d98ea9417b1e

[4] McKinsey Global Institute: Big data: The next frontier for innovation, competition and productivity, June 2011, p. 56. http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/big-data-the-next-frontier-for-innovation

[5] McKinsey Global Institute: The Age of Analytics: Competing in a Data-Drive World, December 2016, p. vii. http://www.mckinsey.com/business-functions/mckinsey-analytics/our-insights/the-age-of-analytics-competing-in-a-data-driven-world

[6] McKinsey Global Institute: Infrastructure productivity: How to save $1 trillion a year, January 2013. http://www.mckinsey.com/industries/capital-projects-and-infrastructure/our-insights/infrastructure-productivity

The vast majority of government services comprise case management, event management or a combination of the two, with detailed requirements for documentation. To develop a true digital government experience for citizens, customers and partners, government organizations are acknowledging what has been understood in the commercial sector for some time: Every organization is a technology organization. There's little value in talking about the mission separate from the IT that enables it, or vice versa. Mission services and IT services are inseparable and must be managed jointly.

Integrated digital service management (IDSM) makes this possible. IDSM takes a holistic view of service integration and management (SIAM), while also focusing through the lenses of DevOps and continuous delivery. It focuses on the processes and responsibilities of parties to respond with shared accountability for requests and remediation. Ultimately, IDSM integrates management with end-to-end services. It uses operational analytics to improve performance and reduce risk, and it focuses on exception and error management to simplify and optimize processes. IDSM is the ultimate enabler for both personalized workplaces and hybrid IT.

Transformation roadmap

Looking across the three areas of change — modern workplaces, hybrid infrastructure and integrated service management — we see a pattern of adoption:

Step 1 – Refactor and move the core onto cloud platforms to substantially reduce costs. Use released capital for utilities such as shared services to free up investment funds.

Step 2 – Attach new innovations to modernized core services to improve experiences and value. Reinvest dollars from Step 1 to drive scale, globalization and operating efficiency.

Step 3 – Use released investment from Steps 1 and 2 to fund additional innovation and enable new levels of mission outcomes through improved performance, especially at the point of service to citizens.

Both the scale and pace of transformation can be challenging. Our experience demonstrates that a transformation roadmap (TxRM) process is a powerful approach

Figure 2. Transformation Roadmap

to transformative strategic planning. The TxRM, depicted in Figure 2, presents a vision of change that prepares stakeholders for an ongoing journey to digital government, with critical waypoints that help government organizations make difficult decisions about modern IT.

A TxRM engagement can help IT departments navigate mission complexities by visualizing the organization's optimal future state and tailoring a plan to get there.

The TxRM helps leaders focus organizational change on the highest priorities and start with the highest-value projects, while balancing costs and risk. In addition, the TxRM identifies related projects and activities that enable organizations to transform from their current state to a future state.

A unique, necessary journey

Public sector IT services operate in a unique and challenging environment characterized by multiple levels of oversight and regulation, growing user expectations, fickle funding sources, and a massive legacy of processes and applications that defy quick solutions and often stymie attempts at innovation. Challenges abound, but so do opportunities to improve.

How DXC and Its Partners Can Help

DXC Technology helps government harness the power of transformation to thrive on change. For more than 60 years, we have built a track record of success guiding organizations of all sizes through successful change cycles. Our broad experience with the world's largest enterprises, combined with our deep mission knowledge, enables us to leverage commercial sector best practices to help government clients predictably navigate the future.

With thousands of certified cloud professionals, DXC Technology Managed Services for Public Cloud enable consumption of Microsoft Azure and Amazon Web Services infrastructure, along with the controls and certifications needed to meet stringent government compliance requirements. Our cyber security solutions meet the high expectations of defense and national security organizations. Our comprehensive solutions, which include data center, network and hosting services, drive down the costs of traditional IT, enabling government organizations to apply those savings toward accelerating their digital transformation.

DXC's offerings are built in a collaborative approach with market-leading partners. Our extensive partner network helps us drive collaboration and leverage technology independence. We have established more than 250 industry-leading global Partner Network relationships, including these strategic partners: Amazon Web Services, AT&T, Dell EMC, HCL, Hitachi, HPE, HP, IBM, Lenovo, Micro Focus, Microsoft, Oracle, PwC, SAP and ServiceNow.

Together, DXC and our partners offer a wide range of solutions at significant scale, enabling us to accelerate innovation and serve government clients more efficiently and effectively worldwide.

Authors

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