



I D C A N A L Y S T C O N N E C T I O N



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Understanding the Digital Transformation of Government

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The world is being transformed by technology. From the ability to purchase a pair of shoes through a home automation hub using voice commands to using data gathered from sensors and drones to analyze farming and increase crop yields to using a smartphone and an application to find the shortest driving route that takes traffic and weather into account, almost everything we see, touch, and do is being transformed by technology. Government isn't immune from technologically driven change. From intelligent street lights to traffic data gathered through Internet of Things (IoT) devices to using big data and analytics to develop and deploy social services, government is being transformed. Beyond the technology, how government operates and engages with citizens, constituents, businesses, and other government organizations is being changed. It is important to note that unlike commercial businesses and organizations, government faces two constraints with regard to digital transformation. First, government lacks a profit bottom line to motivate organizational change. Second, government doesn't get to select its customers — anyone who wants the service and is eligible for it receives it. These two unique aspects will affect what digital transformation looks like in a government organization.

To better understand the digital transformation of government, Cisco posed the following questions to Alan Webber, research director for IDC Government Insights, on behalf of Cisco's customers.

Q. What is digital government?

A. Digital government is composed of governmental agencies, programs, and operating principles that leverage digital technologies to become more efficient and more effective. This is along the same path as but different from previous efforts to merge technology and government, such as eGovernment and Government 2.0.

The difference is that now there is more pressure on government not just to adopt the technology but also to change how government fundamentally goes about its business. At the individual level, smartphones, computers, and the internet provide citizens with access to a wealth of knowledge that lets them interact more easily with business and each other. At the organizational level, data coming from individuals, being captured by IoT devices, or being created through business processes is being collected by agencies. The ability to manage and drive value from this data will require significant shifts in government business models and processes. At the global level, how we interact and engage through culture is being disrupted. Trends such as WikiLeaks, immigration issues, and the shift to digital currencies are all monumental disruptions. These shifts will push government to adopt new technologies and change how it operates to remain competitive and relevant.

These changes will occur across five dimensions — leadership, engagement channel, workforce, operating model, and information/data usage. The two most important areas for government are the operating model and the engagement channel. These can be distilled as follows:

- **Changes in how government operates.** Government provides a specific set of services to citizens and businesses. How these services are provided is based upon the best available technology, processes, and organizational design at the time of implementation. Digital government employs evolving technologies to improve business processes and service delivery. Often, to do that, government needs to change how it operates, including engagement channels, service delivery channels, and corresponding systems. For example, collecting tolls using an electronic toll collection system requires different organization and business processes. In this case, staffing models, skills, business processes, and applications required would be significantly different.
- **Changes in how government engages with citizens, businesses, and other government organizations.** Going digital changes how government engages with citizens and businesses. Previously, interactions happened via a written letter, via a telephone call, or in person, but with a digital service delivery model, interactions shift to websites and web-enabled forms. Examples include applying for a student loan online, paying for parking via an app, and telephone systems that employ interactive voice response (IVR) to answer questions and route requests. The result is that the citizen receives a better level of service in a more efficient and effective manner.

Q. What does digital transformation mean for citizens?

A. The focus of digital transformation of government is driven by higher expectations of citizens and constituents. For citizens, digital transformation means better services and better engagement on the front end. For government, digital transformation means focusing on leveraging technology to increase efficiency. Together, these attributes can be broken down into being:

- **Useful.** For citizens, better engagement through digital transformation comes down to the interaction and the experience being useful. By being useful, the interaction delivers value to all citizens — they have the ability to pay a bill, get a permit, request a service, or apply for a program across multiple devices and touchpoints. Digital transformation efforts allow any citizen to engage with government programs across multiple devices, channels, and touchpoints while receiving the same level of services.
- **Usable.** Digital transformation means being usable for citizens so that they can easily find and access the value of government. For example, if a government agency provides citizens with the ability to pay a utility bill online or through an app, but the process requires setting up a new account and approval from the agency, then it isn't as usable as a process without those impediments. A government agency can remove those impediments by using a single digital access point and sign-on that confirms the appropriate identity and links the citizen with relevant services. This allows accessing appropriate information already held by other agencies in a cloud environment to fulfill the informational requirements of the new account, streamlining approval using analytics to identify potential problems, and separating problems from other cases that can be easily approved.
- **Efficient.** Critical to government is leveraging technology for improved operational efficiency. This is accomplished through the digital transformation of processes and services, including reducing the number of people interacting with a process, reducing the duplication of data gathered and the storage of that data, using analytics to streamline monitoring, identifying outliers to established parameters, replacing paper records with digital processes, and giving government employees digital tools that allow for immediate interactions.

Q. Is digital government different for national organizations compared with cities, states, or provinces?

A. Yes and no. Many misconstrue the differences between national government and local government as a difference in geographical scale when it is more a difference in the level and purposes of engagement between government and citizen. For example, defense is a national-level role but with very little direct interaction between citizen and government. By contrast, emergency medical services have a high level of direct interaction between citizen and government. These are not discrete functions. There is overlap between the different levels of government such as the reserve military units in defense, the public education system in Sri Lanka, or the healthcare services provided in the Nordic countries. Differences are highlighted as follows:

- **National government.** Digital transformation at the national level focuses more on the benefits shifting from legacy back-office systems consuming resources and budget to digital platforms that free up resources for programs and services than direct citizen engagement. There are exceptions, such as Singapore's Smart Nation effort or direct citizen engagement efforts in the United Arab Emirates, but most national changes focus on back-end systems. The digital transformation of supply chains and logistical systems in defense agencies using RFID chips and IoT-based readers shows how implementing just one function for one type of agency could significantly improve that process.
- **State/provincial and local government.** Digital transformation at the state/provincial and local levels focuses more on direct citizen engagement than back-office systems, though both can be present. Local government programs involve significant citizen engagement that can be improved through digital transformation. For example, applying for a building permit online, paying for parking through a mobile device, and submitting a request for trash pickup through Twitter are all examples of standard citizen-to-government interactions that could improve with the adoption of digital tools.
- **Overlap and coordination.** Many programs and services have aspects that require funding and collaboration across national, regional, and local government organizations to achieve the desired outcomes. For example, public housing and housing assistance are programs that have both. In this example, the payment of rent on behalf of low-income families includes both levels of government — money and administration from a national government agency and administration and certification by a local government agency. In these cases, the citizen would benefit by being able to apply for the program online and identify potential housing online and government would benefit by using big data to identify cases of fraud.

Q. What technologies will play a key role in digital government?

A. The foundation for digital transformation is a change in technology and how an organization leverages that technological change, providing engagement platforms, new channels through which to engage, data on performance of programs, and better ways to interact. We have identified six technologies that will take on a primary role in the digital transformation of government:

- **Cloud computing.** Cloud computing provides shared computer processing resources and access to data on demand in private, hybrid, and public models. Cloud will reduce the amount of computing resources government needs to provide digital services and, in the future, will also provide a platform for citizens to access data and services.

- **Big data and analytics.** Extremely large data sets and the capability to effectively process and analyze them will be employed by government agencies to better design services that citizens need, provide for targeted delivery of those services, and tune that delivery to better meet the mission of the program.
- **Internet of Things.** IoT, or the connecting of physical devices and buildings that are embedded with electronics, software, sensors, and network connectivity that can collect and exchange data, will be both a source of information for government and a channel for citizen engagement. IoT devices can collect a variety of types of information that can be fundamental to a program, measure the performance of a program, or be the interaction point with the citizen.
- **Identity/security.** Any exchange of information between the government and a citizen or storage of data that contains personally identifiable or protected information requires an increased level of security to protect the systems and the data. This includes identity and access management controls to ensure that only appropriate government employees can access the information along with the identity of the citizen with whom they are engaging.
- **User experience.** To encourage citizens to adopt new methods and channels of interaction, the government must provide a user experience that is on par with the user experiences provided by private sector businesses. Whether through a mobile application, an RFID device, or even a traditional channel that employs digital technologies such as the phone channel that uses IVR, the user experience should be usable, useful, and enjoyable. In other words, citizens should be able to find the information they need, complete the task they came to fulfill, and do so in a user-friendly manner.
- **Mobility.** Mobile platforms such as smartphones and tablets are replacing traditional channels such as mail, phone, and computer as the primary tool that citizens use to engage with government. On the government side, employees are using more mobile technologies as platforms to collect data, process information, and engage with citizens.

Q. What are the key trends that government professionals need to be thinking about?

A. Government professionals need to consider the other impacts that will come from digital transformation, including:

- **Strengthening and securing the digital backbone.** Digital transformation comes with potential problems and issues. Going digital not only makes it easier for citizens to do business with government but also makes it potentially easier for hackers or cyberthieves to steal information or services. For example, the ability to steal identity information and electronically file a fraudulent tax return to get someone else's tax refund is just one example of how digital transformation exposes citizens and government to new threats. But many of these risks can be mitigated by appropriate security technologies and processes.
- **Digital transformation of the organization.** As government organizations go through digital transformation, the nature of the individual organization may change, but the mission of the organization will remain the same. This may include changes in work processes, staffing levels, skill requirements, technology adoption, citizen engagement channels, workforce, and information/data usage.

- **Digital transformation of government.** As government and society go through digital transformation, the nature of government in the types of services it provides and how it provides them will change, including the establishment of new agencies. The Consumer Financial Protection Bureau (CFPB) in the United States is an example of an agency that was born in digital transformation of how consumers (citizens) interact with banks and other financial firms. Other examples include the Government Digital Service in the United Kingdom and the Digital Transformation Office in Australia supporting agencies as they make this transition.
- **Regulatory and legal.** The digital transformation will require the establishment of new regulatory and legal frameworks, including how private firms interact with citizens, how government interacts with citizens, and what data is collected and privacy protected. However, many of these legal and regulatory changes will lag behind the transformation taking place, requiring government organizations to be flexible and forward thinking in the approaches they take.

ABOUT THIS ANALYST

Alan Webber is research director for IDC Government Insights. In this role, Alan leads IDC's National Security and Intelligence research program as well as IDC's government cybersecurity and cybercrime research efforts. Specific areas of research interest for Alan are the national security and cybersecurity aspects of technology policy, cybercrime, big data and analytics, Internet of things, 3D printing, automation, cognitive computing, encryption, digital risk and security, and privacy.

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