A Roadmap for Digital Transformation in State and Local Government:

How to Meet the Ever-Changing Demands of Today and Tomorrow

CENTER FOR DIGITAL GOVERNMENT

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The stakes are higher than ever in state and local government as the realities of the pandemic demand that organizations operate in previously inconceivable ways. For many, things will never go back to the way they were, especially in agencies that are planning to have large numbers of employees work remotely — or in a hybrid work scenario — on a permanent basis. If digital transformation was once a distant goal, it is now front and center for organizations that need to accommodate new modes of working and delivering citizen services. Even those who are already on the path of digital transformation are taking stock and correcting course as needed.

"Most CIOs have just gone through the largest stress tests in their career. They got to test dev ops. They got to test bandwidth and their networks. Were they able to support remote work? Were they able to process thousands of forms a day versus hundreds of forms previously? Now, IT leaders will have to decide how they are going to act on the results of this test," says Erin Holloway, Director, Strategic Solutions Public Sector at Lumen. "This is an unprecedented opportunity to shape and refine their digital transformation strategies based on what they've learned."

While these insights and a heightened sense of urgency now inform digital transformation initiatives, the underlying driver remains the same: Organizations must modernize to effectively meet the ever-changing — and often unpredictable — demands of today and tomorrow. Now more than ever, they will need a proven roadmap and the support of trusted advisors to do so.

New Urgencies and Ongoing Challenges

The pandemic has exacerbated existing IT challenges within government organizations and heightened the need for digital transformation.

Increased demand for digital citizen services. Once a convenience, digital citizen services are now a necessity. With in-person interactions interrupted and unprecedented demand for unemployment insurance and other services, government call centers and websites are overwhelmed. The Information Technology and Innovation Foundation (ITIF) found that at least 26 U.S. state government unemployment websites had crashed in April due to the flood of applicants.[1] State and local agencies are pressed to launch secure, robust digital workflows that can rapidly scale. In addition, government employees need to interact with each other and citizens via collaboration tools and other novel ways to keep people informed and allow participation in news briefings, city council meetings and other public forums.

The move to telework/hybrid work. The Center for State and Local Government Excellence (SLGE) reports a steady increase in the percentage of state and local government employees who have access to telework and suggests the pandemic has shifted perceptions of what types of work are possible to do

Cloud-Based Communications Network Enables Teleworkers to Carry On

A Midwestern state had been operating a communications network using five disparate voice platforms across 39 executive and legislative branch offices. It was continually running into compatibility and software issues, and maintenance costs were growing out of control as the platforms started nearing end of life.

To address these and other issues, the state adopted a managed services solution that upgraded VoIP and interactive voice response (IVR) platforms. The solution includes network-based security; allows the state to deploy network services farther into the state (by retaining local phone numbers) and thereby capture additional revenue; and provides a predictable, fixed cost model that allows it to offset technology and capital risk. By reducing expenses, the solution has already saved the state approximately 20 percent over 8,000 seats. The pandemic has further proven the solution's success. Because voice services are in the cloud, the state could easily make changes to accommodate telework. Employees can continue to use the same tools and provide the same level of service from wherever they are and using any device.

remotely.[2] To accommodate more flexible ways of working, organizations are deploying virtual private networks to home offices. Doing so increases the number of users, devices, applications and processes that operate beyond the traditional network perimeter and expands risks. Organizations are also providing voice, video conferencing and other state-of-the-art communication tools for team collaboration, employee recruitment and onboarding, and training. Providing these capabilities requires on-demand performance, bandwidth and security controls so teams can function flexibly and securely wherever they are.

Increased complexity of security and compliance. As organizations deliver new services to a more significant number of citizens and expand the network perimeter to remote workers, they must continue to apply security and compliance protocols to massive amounts of data, regardless of where it exists.

"In state and local government, we traditionally see more of the network edge and endpoints living inside a fenced-off perimeter," says Dan Nicholson, Director, Business Development, Lumen. "With the pandemic and this mobilization of 80 to 100 percent of the workforce outside the four walls, the edge is now everywhere."

On top of this, digital documents must be properly managed and protected, with many requiring digital credential capabilities to meet statutory or operational requirements. Organizations also need to update controls to reflect changes in HIPAA and other laws as regulatory compliance evolves to accommodate telework, telemedicine and online learning.

Advanced analytics and machine learning/automation. These emerging technologies are now on the frontlines of helping organizations defend against the pandemic. Agencies are using models based on machine learning and artificial intelligence to manage pandemic-related fluctuations in utility demand, flexibly allocate public health resources such as hospital beds and test kits, and adjust public transit routes to enable social distancing and reflect new usage patterns. Used in IVR systems, artificial intelligence can free overburdened staff to focus on more complex calls. The Jacksonville Transportation Authority in Florida is using AI-driven autonomous vehicles to transport COVID-19 tests collected at a Mayo Clinic drive-through testing location to the clinic's lab.[3] The challenge is to agilely supply the network resources and connectivity required to power these tools and opportunities.

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IT workforce challenges. Work furloughs, mass retirement and a highly competitive market for skilled IT talent are forcing IT teams to do more with less. With older workers retiring, government organizations are bereft of programmers in COBOL and other legacy code used in unemployment applications and other services running on mainframes. In addition, artificial intelligence, data analysis and other tools require advanced skill sets that many organizations lack. Cybersecurity talent is especially hard to come by — the Center for Cyber Safety and Education predicts that by 2022, 1.8 million cybersecurity jobs will go unfilled in the United States.[4]

Creating an Unshakable Foundation for Digital Government

To meet their mission and solve their most critical business issues — whether it's responding to a pandemic, providing personalized citizen services, managing infrastructure assets more effectively, enabling mobile applications or improving employee productivity — organizations need the capability to respond quickly, flexibly and securely to changing needs. With a proven methodology, digital transformation helps organizations establish a future-proof foundation that supports agility,

Digital Transformation Makes Roads Safer for Colorado Drivers

The Colorado Department of Transportation (CDOT) is bringing digital transformation to its roads to reduce rush-hour congestion, help drivers contend with heavy snow and wind, respond faster when vehicles go off the road and more. To enable these and other critical functions, CDOT transformed its network to support the connectivity and massive real-time data volumes that intelligent transportation systems (ITS) require.

"Drivers expect the roads and transportation systems to be efficient, quick and safe," says Bob Fifer, CDOT Acting Branch Manager for Intelligent Transportation Systems. "This expectation means our department needs the ability to collect data that helps drivers make decisions. We also need data to help us detect an incident as soon as it happens so we can dispatch the right people and resources to take care of it and restore traffic quickly."

Supported by adaptive networking, ITS technologies are using automated analysis of data from video camera streams to alert authorities when a vehicle appears to have gone off the road and detect congestion and issues related to weather, accidents or high traffic volumes. Using this data, response teams can determine how to respond in the safest, most effective and most cost-efficient way. In addition, smart traffic cone technology in construction zones uses the CDOT network to send alerts to roadside digital signage and in-vehicle displays so drivers can adjust their speed and course accordingly.

These technology implementations are guided by CDOT's 10-year Smart Mobility Plan, which was developed in cooperation with local and regional transportation planning boards, local government consortia and regional transportation engineers. As a result, "the plan also helps local and regional agencies make better technology decisions for their own needs and challenges," says Fifer.[5]

growth and change, whether that change is gradual and planned for or urgent and disruptive. Three essential pillars create this foundation: adaptive networking, cloud management and connected security.

Adaptive networking. Adaptive networking unifies and optimizes disparate infrastructure under a common, software-defined umbrella so organizations can leverage data wherever it exists in the enterprise, deliver innovative services, and incorporate new technologies and ways of working. Using this approach, organizations responding to the pandemic can scale bandwidth and other resources as needs evolve. They can quickly set up temporary health care facilities with state-of-the-art connectivity to data, medical imaging and advanced analytics. They can expedite the rollout of new websites for driver's license renewal and other traditionally in-person citizen services — without worrying that sites will respond too slowly or crash due to high-volume demand. They can muster additional processing power for AI and other applications that require high-performance computing capabilities. The programmable infrastructure enables staff to flexibly provision bandwidth, performance and related network functions on demand. Automation optimizes routine actions based on prioritization of resources, security, costs and other variables and frees staff from performing these tasks. Analytics and intelligence allow organizations to predict, plan and adapt network services based on data-driven insights. The result is greater insight, resilience and control.

Cloud management/IT agility. The pandemic highlights the importance of IT agility for responding quickly to urgent needs. Cloud and as-a-service solutions enhance agility by providing already-proven applications, platforms and infrastructure components that would take months or years — and many thousands of dollars — to deploy in house. School districts and other education institutions have quickly pivoted to cloud-based services to teach millions of students. Hospitals have used the cloud to facilitate 3D printing of respiratory equipment. State and local governments have quickly connected thousands of teleworkers to cloud-based collaboration and communication tools so they can continue to perform their jobs and serve the public. These use cases highlight the need for infrastructure that can support rapid expansion and connectivity to multiple resources. The key to a smooth transition to online learning, collaboration, video conferencing and other cloud-based services is cloud management. The right cloud management solution enables organizations to simply, flexibly — and often automatically — provision connectivity, processing power, storage, security controls and other essential components across disparate hybrid cloud environments. Doing so accelerates application delivery, delivers a more consistent user experience for citizens and employees, strengthens security and reduces costs. State and local governments can start their cloud journey by creating a separate group within the organization that can be considered the agency's "Cloud Center of Excellence" dedicated to public cloud innovation and adoption.

Connected security. Connected security reduces risk and helps address cybersecurity staffing shortages by making it easier to visualize, monitor, contextualize and manage network threats from both within and outside the organization. In doing so, it allows state and local governments to more quickly and easily add new services without fear of compromising data or the network. Connected security protects the network and the data traversing it by providing network visibility, consistently applied policies, identity and access management tools, and automated data and infrastructure protection tools that mitigate threats earlier in the attack process. When consumed as part of a global threat intelligence service, connected security enables organizations to understand threats within the context of their own business requirements and prioritize responses accordingly. Using identity and access management tools along with consistently applied policies, health and human services providers can share confidential pandemic-related client data across multiple agencies to create a holistic picture of the client's needs and quickly deliver the appropriate services at the lowest cost. Using global threat intelligence, public health departments can thwart phishing attacks and other attempts to disrupt virus tracking or compromise citizen privacy. And unemployment offices can quickly section off parts of their network to more securely manage claims and protect social security numbers and other personal information.

Delivering on the Vision

While a smart technology foundation is essential, organizations also need a sound methodology to integrate each technology pillar into the depth and breadth of the enterprise IT portfolio. Using this methodology, organizations can deliver an effective transformation solution that truly meets business objectives while mitigating risks and maximizing value.

Involving Key Stakeholders in Decision-Making

To ensure the organizational culture supports the vision for digital transformation, it's essential to obtain stakeholder buy-in from the top down. Stakeholders include the executive cabinet, business enablement groups (e.g., marketing, supply chain, infrastructure, application development and security) and end users.

The CIO and digital transformation team need to create a business case or idea that stakeholders at every level understand in terms of where the organization wants to go and why it will benefit stakeholders and constituents. This involves getting people together to discuss needs, challenges, objectives and what the best solutions would be.

"The CIO has an opportunity to really drive the technology forward, but it requires a tight relationship with the budget director, the procurement agency and also those agencies that got hit hardest by COVID, because that's where the spend is going to happen," says Teri Takai, Executive Director, Center for Digital Government and former CIO for Michigan, California and the Department of Defense. "Good CIOs will leverage that to make improvements across their enterprise, as opposed to fixing one or two agencies."

The following overview breaks down the main steps of such an approach. In practice, these steps are highly complex. To fully achieve their vision, most organizations will need to work with a partner that has deep expertise in the technologies, processes and cultural changes underpinning digital transformation.

Phase 1

Goals and Strategy Development

CIOs and other state and local government leaders typically understand what their constituency needs and what will have the most impact at the highest business level. This phase helps them clarify goals and challenges, and solidify plans for where they're going.

"Conversations about large initiatives like cloud migration and virtualization can be overwhelming. It's important to bring it back to a specific business driver and outcome. For example, 'What will moving to the cloud help us accomplish?' If they focus on a specific outcome, then they can identify what they need to do to get there," says Richard Kidney, Strategic Account Director, Security and IT Solutions, Lumen.

Key outputs for this phase include a collaboration map to depict relationships between key stakeholders, a business alignment document to show how goals and objectives map to planned technology, and a plan of action. During this phase, organizations:

- Identify business drivers and goals as well as specific outcomes, benefits and financial payoffs; for example, the high-level goal could be to ameliorate staffing shortages, accelerate deployment of new services, migrate data center operations to the cloud, or improve support for big data and data analytics
- Identify current or planned IT projects
- Prioritize projects and establish a strategy and action plan for each project

Phase 2

Solution Development and Implementation

Once business objectives have been established, organizations can begin to identify technology solutions that link to those objectives. This phase requires a deep dive into the technical requirements of implementation. Key outputs for this phase include a collaboration map (which may be the same or different from the one from Phase 1), technical recommendations and financial modeling. During this phase, organizations:

- Document functional and non-functional requirements
- Assess their current state, evaluate current IT projects for alignment with goals and identify gaps
- Identify functional blocks to achieving goals and their business impacts
- Develop a technical solution, an operational solution and a migration solution

Getting Started: Making the Most of the Moment

The following best practices will help organizations traverse down the path of digital transformation successfully.

Engage a partner ecosystem. The right partner acts as a trusted advisor and can take a larger, more objective view. Experts within its ecosystem can guide government leaders to craft solutions that align with business goals and catalyze future evolution instead of resulting in patchwork or "rip and replace" solutions.

Aim for agility and sustainability. Instead of purchasing a one-time, in-house solution, consider cloud-based and managed services that alleviate Capex and long-term maintenance burdens; flexibly scale bandwidth, performance and storage as needs evolve; and are regularly updated to stay current with innovation.

Streamline procurement. Instead of going through a lengthy and resource-intensive RFP process, use pre-approved cooperative purchasing vehicles such as those offered through the National Association of State Procurement Officers (NASPO).

Start small, win small. Create a small innovation group that is not encumbered by legacy processes and tools. Allow the group to spin up pilot applications or services that will quickly benefit constituents or other stakeholders and thereby encourage organizational buy-in and adoption of digital transformation.

Make hiring practices more agile. To attract the best and brightest while they are available, implement policies to recruit, hire and onboard new talent on a regular basis versus once or twice a year.

Use digital transformation to recruit and retain. To attract and incent IT talent, be sure recruits understand the organization is digitally focused and has a roadmap for digital transformation. Discuss how they'll be able to create solutions that contribute to the organization's mission and make a difference in citizens' lives.

Talk to peers. Ask technology partners or professional groups to recommend other government organizations that have undertaken similar projects. Build relationships with peers to share best practices, lessons learned and other recommendations.

A New Day

The pandemic has ushered in a new day in digital transformation. State and local government leaders have a strong impetus and opportunity to digitally transform many areas supported by technology. While urgent short-term projects may take priority, it's important to keep an eye on long-term transformation. Keys to success will be a sound methodology and roadmap, a robust technology foundation and a partner that has deep expertise in the public sector.

ENDNOTES:
1. https://itif.org/publications/2020/04/15/most-state-unemployment-websites-fail-mobile-and-accessibility-tests
2. https://www.slge.org/news-posts/new-research-finds-continued-increase-in-telework-for-state-local-government-employees-even-prior-to-covid-19
3. https://www.jacksonville.com/news/20200406/coronavirus-jtas-autonomous-vehicles-transport-covid-19-tests-at-mayo
4. https://www.forbes.com/sites/martenmickos/2019/06/19/the-cybersecurity-skills-gap-wont-be-solved-in-a-classroom/#18dc491b1c30
5. http://lookbook.centurylink.com/c/state-local-case-stu?x=tbZZnU&lx=3eRtbk

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