IT Modernization:

Insights and Strategies
for State and Local Governments

Introduction

In King County, Wash., more than a half billion dollars has been invested in technology upgrades across virtually every department and function to "be a more responsive government," as CIO Tanya Hannah puts it. Home to Seattle and many of the world's most recognizable companies, in King County "responsive government and technology go hand in hand," she says.

So, when the coronavirus pandemic began in early 2020, Hannah's department quickly stood up a chatbot to help the public health department respond to common COVID-19 questions. Along with serving the public, the chatbot highlighted the value of modernizing government IT systems and making them as easy to use as Amazon in its home city — and around the nation.

"What the pandemic has shown is that of all the things governments are doing, utilizing technology and its capabilities are extremely important. The technology implemented over the last few months could have been in place beforehand," Hannah says. "It's been an opportunity for IT to showcase all the things technology can do."

To better understand the challenges and opportunities around IT modernization, the Center for Digital Government (CDG) surveyed 165 government IT leaders (see survey results at www.govtech.com/ITmodernization). This paper reflects key insights from the research, along with reflections from CIOs on how to manage transformation during rapidly changing times.

The State of Modernization

Modernization efforts vary dramatically across state and local governments, but efforts to upgrade systems are well underway almost everywhere. In San Diego, for example, about 14 percent of the city's applications are deemed legacy systems — though in many cases, that means they are one version beyond the current one, says CIO Jonathan Behnke.

According to the CDG survey, more than two-thirds of respondents (67 percent) said that fewer than half of their IT systems and solutions remained legacy systems by early

Is your business process efficiency negatively impacted by a lack of IT modernization?

Yes 69%

No 22%

Do not know 9%
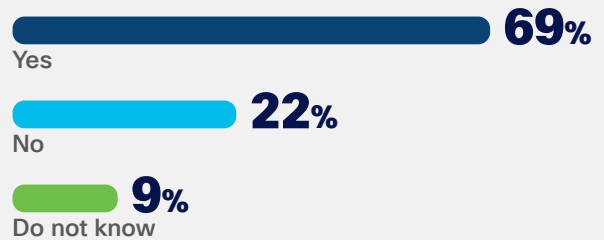
2020. Even more — 69 percent — recognized the importance of further modernization, acknowledging the impact of aging legacy systems on business process efficiency.

Then the pandemic hit.

"COVID-19 has been the chief innovation officer for those of us in the public sector," says Washington State CIO Jim Weaver.
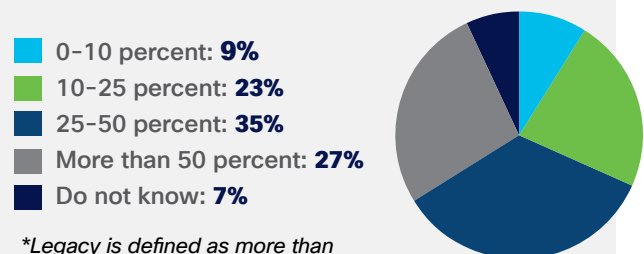
"Technology has been afforded a higher value proposition because of the pandemic," agrees CDG Co-Director Phil Bertolini, former deputy county executive and CIO for Oakland County, Mich. "They're going to have the money; they're going to have the impetus to get it done; and they'll have the opportunity. If they don't, they'll have a huge problem."

In many states and localities, IT has taken a central role as governments have responded to the crisis.

"It has opened doors for us to help deliver services to our business partners," Weaver says. "We have played a critical role in decision-making."

The response accelerated many ongoing trends in modernization, including the transition to remote work and delivery of services, and efforts to upgrade the underlying

This paper is based on a nationwide CDG survey of 165 state officials responsible for enterprise or large agency IT, conducted in early 2020. Respondents represent a range of agency and department functions. A plurality (37 percent) represent central IT and telecommunication agencies or departments.

Percentage of legacy systems in state and local government

- 0-10 percent: **9%**
- 10-25 percent: **23%**
- 25-50 percent: **35%**
- More than 50 percent: **27%**
- Do not know: **7%**

Legacy is defined as more than five years since refresh/upgrade

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infrastructure required to make these services possible. Among the key trends:

Acceleration of Digital Services

Even before the pandemic, there was a high demand for digital services, particularly as consumer expectations of responsive service are shaped by giants in the consumer technology space. More than seven in 10 survey respondents (72 percent) said the public has expressed greater expectations for website portals to access government services in the past 12 to 18 months — and that was before the pandemic made online the only option for many services.

Iowa CIO Annette Dunn says she has a clear understanding of those expectations. "What citizens expect is that they could have a portal for digital services."

While Iowa and many other state and local governments are in differing stages of developing one-stop portals, expectations are evolving as quickly as government offerings. Dunn envisions citizens doing business with one agency, adding a transaction such as a vehicle registration renewal to a shopping cart and then being reminded of a different department or service — say, a fishing license renewal — without switching sites. Doing so requires governments to become proficient at identity management and better coordinate with local governments and resources.

"That's how government can work and should work," Dunn says. "It's completely possible, and it needs the resources to get there."

Securing sufficient resources is key given the complexity of doing so. Reworking KingCounty.gov to become a digital marketplace has required more than a refresh, says Hannah. "We're literally building it from scratch," she says. "We're rebuilding the foundation to work in a modern world in a way that supports our strategic plan, and getting to that one-stop shop means we can't modernize. It's a wholesale reworking."

In Tennessee, ongoing work on the MyTN mobile app and the push for more digital services during the pandemic is driving the need for business process automation.

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> *Ed Winfield, CIO, Maricopa County, Ariz.*

"The biggest focus is working with our agencies for opportunities for automation and expediting that," says state CIO Stephanie Dedmon.

The good news is that the pandemic has laid bare the dated idea that citizens are uncomfortable with conducting government business digitally, says Ed Winfield, CIO of Maricopa County, Ariz.

"We can set aside the perspective that constituents were not ready or willing to perform government interactions online," he says.

How have constituents' expectations of IT staff and capabilities in government increased over the last 12 to 18 months?

72%
More desire for website portals

65%
Greater knowledge of emerging technologies

62%
Greater knowledge of emerging and ongoing cybersecurity threats

58%
Increased desire for single sign-on or simplified access to government services

43%
Increased desire for applications that grant access to constituent-related data

31%
Greater desire for publicly available privacy policies

The challenge is what Bertolini calls "divergent belief sets" and capabilities among the population. While younger citizens expect digital services, there is also a need to accommodate in-person service for older populations — as well as the unbanked or those facing housing insecurity and other challenges. "This creates a push and pull on your systems," he says. "There's a reckoning coming."

Remote Work for the Long Haul

COVID-19 has also reinforced the importance of providing digital services to another vital constituency — government employees. San Diego had been piloting virtual desktops in the cloud for workers when the pandemic hit, which IT staff quickly scaled. The city also added mobile apps for HR functions like time and leave requests for its nearly 12,000 employees, according to Behnke.

"Luck was on our side," he says.

Many state and local governments have embraced remote work in recent years, but the pandemic led to a dramatic shift. In Washington state, for example, about 3,000 employees were remote before the pandemic, a number that has increased nearly ten-fold, according to Weaver. In Tennessee, as much as 30 percent of the state workforce was working from home in some

fashion before the pandemic hit. Now, "remote work is here, and it isn't going away," Weaver says. "We need to modify our thinking about how we provide connectivity, and we need to enable and empower a remote mobile workforce."

Consider Massachusetts, where an ongoing Modern Workplace 2030 initiative sparked conversations about telework and the broader role of physical offices in state government in recent years. The state had just begun delivering a modern single-device deployment for employees before COVID.

"We thought we had an aggressive timeframe, and then COVID hit and everything changed," says CIO Curtis Wood. "We were able to pivot and realized we were better off than we thought."

Today, 20,000 state employees are working remotely "and we're really in a position where we don't want them to come back to a workplace anytime soon," says Wood. "We've started thinking about how to deliver our services to constituents differently."

There is no doubt that remote work is here to stay. According to PwC, less than half (47 percent) of employees are convinced that safety measures will make them comfortable returning to an office environment,[1] and more than half of business leaders (54 percent) say they plan to make remote work a permanent option. Importantly, the pandemic has convinced leaders that remote work is viable. Only 26 percent of those surveyed by PwC are concerned about productivity loss; before the pandemic, nearly two-thirds (63 percent) were skeptical.[2]

"We're going to start seeing that telework is here to stay," Weaver says. "Governments are learning what the private sector has known for many years — that we can still provide constituent services."

Changing Workplaces

Providing services in what may become a new normal of remote work will require new technologies and skills. In Maricopa County, the pandemic accelerated efforts to create what Winfield calls a "universal work strategy," which includes online collaboration, digital services and security precautions.

Unified communications will be critical, says Bertolini — applications like WebEx that are universal and have become a part of many workers' lives have helped address challenges.

It is also critical to find new ways to support far-flung workers through centralized help desks and other

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> *Curtis Wood, CIO, Commonwealth of Massachusetts*

strategies. Weaver points to the self-install packages cable companies send new customers as one model for deploying devices. And importantly, it will take new management approaches to handle the hybrid work environments of the future.

"We had a management workforce that didn't know how to manage people remotely," says Wood. In response, Massachusetts created new telework and HR policies, offered guidance and established norms for communication.

Dedmon stresses the importance of creating systems that include technology support, formal HR policies, and procedures and training for managers to "recognize what you need to communicate, what's different when from working home and what the expectations are."

Many observers are predicting that governments will ultimately require less office space – Weaver envisions citizen-facing services offered through "more of a storefront than an entire office."

"You're going to have a large number of people remote, but always a chunk of people on premises," agrees Bertolini. And while the pandemic will likely accelerate the push to allow citizens to conduct far more business with governments online, the reality is that on-premises services will still need to be provided – in a way that's safe for both citizens and employees, he adds.

"The more local you are, the more high-touch you are and the more you're going to have people standing at your counters,"

Bertolini says. "The closer you get to the locality, the harder it's going to be to do everything off premises."

Even so, the transformation of technology and the changes in transportation patterns mean changes in "the nature of what an 'office' is in the future," says Leonardo. "I think we will see more regional work centers where employees can obtain services unavailable to them at home and network and meet with team members and customers."

To accommodate this, government workplaces and the systems that support them will have to become what Marc Moffett, Cisco senior director of systems engineering, calls "hybrid and elastic." Doing so, he says, will help their leaders become more responsive to not just future pandemic-level disruptions, but also ever-changing day-to-day challenges and needs.

The Cloud Transition

IT modernization is the key to ensuring governments can deliver on the promise of hybrid and elastic operations. Newer cloud and software-as-a-service technology "are already positioned so they have the right security and the right capabilities," says Bertolini. "Why would I have to build the doorway in for a VPN when external providers do that every day?"

While cost remains a barrier to modernization, only 18 percent of CDG survey respondents said the cost of hybrid or cloud solutions impede modernization efforts. That may be because it is becoming clear to IT leaders that the total cost of ownership (TCO) justifies most modernization efforts.

"We see higher support costs for legacy systems and a higher cybersecurity risk, so as we look at five-year total cost of ownership (TCO) for legacy systems, we almost every time see reduced cost by modernizing," says Behnke. "It can be difficult from a work standpoint to get there, but in spite of the disruption that modernization can cause in the short term, evaluating TCO and risk is the best guide in evaluating our IT investments."

IT leaders will need help managing hybrid environments as they move more systems to the cloud.

"Governments are used to managing what sits within the four walls of their basement," says CDG Co-Executive Director Teri Takai, former CIO of California, Michigan and the U.S. Department of Defense. "They're going to need tools that help them understand and monitor their usage so they can move where possible to different cloud providers to keep costs down. As we see more movement to the hybrid cloud, we're going to see tools to enable CIOs to manage the environments."

Strategies for Change Management
Earlier resistance to cloud modernization and -as-a-service business models is evaporating, according to Bertolini. "Governments were afraid for years," he says. "Things are going to change for the better."

The Cybersecurity Challenge

The transition to the cloud and remote work represent "a shift in how enterprises have to think about cybersecurity," says Takai.

"It's no longer about their network perimeter but getting much more out to the endpoint regardless of where your data is," she says.

The threats are real. In Fresno, a ransomware attack resulted in one agency losing "most of its historical files," says Leonardo. "Cybersecurity has got to be airtight."

Educating employees is critical. In San Diego, employees receive annual cyber awareness training and are sent messages alerting them to emerging scams and threats, Behnke says. The challenge for government leaders is thinking holistically as they develop an enterprise security infrastructure and protocols, says Wood. "We tend to think about cyber by itself and the network by itself," he says.

One strategy to drive change is focusing on the expectations of workers and citizens. "The consumerization of technology has driven expectations for residents and businesses," says Behnke. "It gives us opportunities to not only modernize legacy applications, but also provide better levels of service. We all benefit from reduced training and costs."

Another is pointing to successful projects in other departments as an opportunity to standardize, as San Diego is doing with its permitting process. And helping redefine how risk management is approached throughout the enterprise is critical.

"From a technologist's perspective, we want to focus on reducing system failures and regulatory compliance," Hannah says. "We should be thinking about how we can be more efficient and effective."

Communication with stakeholders is critical. More than eight in 10 (84 percent) CDG survey respondents reported at least some support for planned upgrades, and only 10 percent said they lacked any stakeholder support for modernization. Even so, the findings are a reminder that CIOs must evangelize at all levels of government.

"It's important to make sure your message is heard to ensure you can provide the right direction, the right guidance and the right interpretation of things so people can add up two and two and come up with four," says Wood, whose role was elevated to a cabinet-level position in Massachusetts in 2015.

A greater challenge is internal. Nearly one in five survey respondents (19 percent) said they do not believe their staff is prepared to modernize. Training is key as IT departments transition to new models. In Washington state, where mainframe computers are moving to a managed services environment, staff is being retrained to serve as supplier managers and desktop support personnel.

"We're trying to leverage our training budget to afford opportunities and developmental assignments, so when it's time to make the transition, existing employees can meet the requirements of new roles," says Weaver.

The pandemic and its economic impact also provide new opportunities for technology leaders to reinforce the need for change.

"I keep going back to the word 'opportunity' — the opportunity to deliver services differently," Wood says.

Doing so involves speaking clearly about how changes in the underlying IT infrastructure help agencies deliver

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on their business objectives. With the goal of operating a mix of third-party data centers and leased facilities to reduce overhead and standardize technology, "we've been evangelizing words that mean things — 'cornerstone' and 'foundation,'" Wood says. "We have the ability to be more resilient, our systems to be more scalable. We can demonstrate to our business leaders that this is something we can do. By moving critical systems into cloud infrastructure, we can provide them options and confidence they won't miss a beat in delivering services."

Looking Ahead

Efforts to modernize systems were accelerating even before the pandemic. According to the CDG survey, two-thirds of survey respondents (66 percent) plan to modernize as many as half of their remaining legacy systems over the next two years.

As the nation moves forward, IT leaders "will need to remain nimble to deal with any situational projects that arise as the crisis continues to unfold," Winfield says.

And the expectations will only become higher, according to Bertolini. "Government got a little bit of a pass during COVID-19 because it happened so quickly," he says. "They're going to have to be better than this. The IT person needs to be thinking about what projects they do now to get ready for what the next normal is going to be."

Growing challenges come at a time when budgets will be tight, even as IT operations are increasingly funded through chargebacks. "The revenue and expense impacts of dealing with the crisis are still developing," Winfield says.

"With flattened funding, I would say we have to use a scalpel to get where we need to go," Dunn agrees. Building relationships with lawmakers will be critical, she adds. "If you establish the relationships ahead of time, you become a trusted resource."

It is also vital to coordinate with departments and agencies to understand how they are shifting their processes to meet citizen demand. "Technology metrics and business metrics — we have to show how the two come together and support agency leaders," Weaver says.

Finally, the pandemic has revealed the importance of extending infrastructure beyond government. For both citizens and employees, universal broadband will be critical to meet the nation's needs going forward, Takai says. It is a challenge beyond government, impacting recruitment and retention for a range of industries.

"We've got to recognize the digital equity and socioeconomic factors that exist," Weaver says. In Seattle, nearly one in five households with incomes under $25,000 lack any internet connectivity, a critical barrier to improving access to education, health care, and other services, according to Hannah. "Social issues are intertwined in how government delivers services and what communities expect," she says.

And serving those communities remains the goal for IT leaders. "Our customers — citizens — are not going to wait for government," says Dunn. "CIOs have to understand that society wants things now, and we have to get it and get it secure."

This piece was written and produced by the Center for Digital Government Content Studio, with information and input from Cisco.

Endnotes:
1.   https://www.pwc.com/us/en/library/covid-19/employees-anxious-about-returning-to-workplace.html
2.   https://www.pwc.com/us/en/library/covid-19/pwc-covid-19-cfo-pulse-survey.html

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