IT Transformation—Getting the foundation right for better mission outcomes

Information technology is at the core of how commercial enterprises will do business differently over the next 15 years, versus its supporting role in the past 15.

The same is true for enterprise operations at federal agencies. Agencies may be more mission-driven than commercial enterprises that focus on the bottom line; but agencies face the same imperative to transform and modernize their IT operations and infrastructure.

Though the primary IT decision-maker has generally been the CIO, today’s IT transformation demands the attention and the commitment of the entire C-suite as IT becomes integral to how organizations operate and interact with their customers. To get buy-in from leadership across the board, CIOs and their IT teams have to demonstrate the value of IT modernization and an agile infrastructure—and drive home the idea that without digital transformation, they will be left behind.

The digital pathways ahead

Several factors will distinguish the role of enterprise IT and how it will empower digital transformation in government over the next 15 years.

Enterprise IT will need to:

- Shift to becoming business-centric vs. IT-centric;
- Provide systems of engagement and insight vs. systems of record;
- Rely more on cloud-native apps than traditional applications;
- Process streams of data and analytics vs. transactional data and reporting; and
- Expand beyond the traditional Internet to include the Internet of Everything.

These shifts reflect more than changes in strategic focus; they represent a fundamental reorientation of enterprise IT toward emerging sources of enterprise value. They also require realigning the role of enterprise IT, from supporting agency operations to serving on the front lines, helping agency leaders meet mission needs faster and more effectively.

There’s no question, however, that budgetary, policy, and cultural obstacles continue to hamstring agencies from making the IT investments they’d prefer. Budgetary and regulatory constraints leave agencies with less than 25 percent of their annual IT budgets to dedicate to IT modernization, and that percentage has been declining since 2010, according to a 2016 U.S. Government Accountability Office report.

Many agencies face dual vulnerabilities of sorts; relying on decades-old technology while having to deal with modern threats. Legacy systems were simply not designed to withstand today’s sophisticated cyberattacks.

However, a variety of converging factors are giving agencies unparalleled opportunities to overcome many of the IT challenges they have traditionally faced.

There are multiple ways for agencies to lay the groundwork to move data and applications off their legacy systems onto more modern and efficient IT platforms: The advent of cloud computing and software defined networks; advances in mobile technology and data storage systems; and the widening adoption of open data standards and agile development.

Why IT infrastructure lies at the core of transformation

The importance of IT infrastructure and its role in fostering digital transformation were made clear in a January 2017
A report prepared by the Federal CIO Council for the incoming administration. The CIO Council’s 155-page “State of Federal Information Technology” report offers a detailed look at why improvements in management, procurement and IT development over the last two decades had not gone far enough to modernize their systems, noting:

“Agencies may have modernized the technological components of systems, but rarely did these efforts accompany a larger scale business process re-alignment. This resulted in inefficiencies and an inability for agencies to take full advantage of advancements in technology. By replacing these legacy systems with a modern technological solution and a digital-focused business process, we can harness true transformational change and fully leverage the benefits of these improvements.”

The advent of cloud computing, software-defined systems and other, more agile and cost-effective technologies has fueled all kinds of innovation in the commercial market. However, federal agencies have struggled to take advantage of them, in part because of the complexity and interdependence of their IT systems.

Many agencies “repeatedly cited aging infrastructure as a significant roadblock to innovation,” the CIO Council report concluded, based on interviews with 45 agency CIOs and federal IT leaders.

The size and scope of the issue aren’t insignificant. Annual spending on federal IT infrastructure currently accounts for 43 percent, or approximately $34.7 billion of the $88.7 billion in total federal IT spending planned for fiscal year 2016, and those costs have been rising steadily, according to government figures.

Steps to accelerate IT modernization and agile infrastructure

Much of the federal government’s IT infrastructure is spread across thousands of agency data centers. Maintaining those data centers—and the networks that support them—continues to consume a substantial portion of agency IT funds that could be invested elsewhere.

As a result, Congress and the Office of Management and Budget have pushed agencies to modernize their data centers, most notably through OMB’s Data Center Optimization Initiative and an agency directive, issued by OMB in August 2016.

The directive calls for agencies to leverage technology advancements to optimize infrastructure in part by “increasing the use of virtualization to enable pooling of storage, network and computer resources, and dynamic allocation on-demand,” then-U.S. CIO Tony Scott said in the OMB memo.

Agencies must take the foundational step of automating their IT operations. Among other measures, they need to have automated monitoring, inventory, and management tools in place by the end of fiscal 2018 and end the practice of manually collecting and reporting inventory data on existing systems, software and hardware.

In addition, agencies have also been instructed to begin migrating their data center operations to provisioned cloud services or to more optimized data centers within their agencies data center inventory.

Some IT leaders argue that current OMB oversight metrics place too much emphasis on maximizing server utilization and reducing costs, without also examining whether an agency’s IT infrastructure enables more modern services for citizens. However, few disagree that a modernized IT infrastructure is an imperative, not a choice. Cloud computing services and consolidated data centers enable

Total Federal IT Spending by Type (in billions)

Federal IT spending has gone increasingly to maintain existing IT systems at the expense of investments to develop, modernize or enhance agency systems since 2010. (Source: Government Accountability Office)
A more agile organization, which naturally contribute to faster response, increased efficiencies and cost savings. It also sets a stronger foundation for cybersecurity.

Achieving transformative change

Agency CIOs and their C-suite counterparts, however, must also take additional steps to achieve IT transformation.

In particular, CIOs and agency leaders need to update a raft of policies governing how IT is acquired and managed within and across federal agencies, according to a group of federal CIOs who met during a not-for-attribution executive roundtable on federal IT modernization hosted by FedScoop in March 2017.

"We are an interconnected government, both internal and also with our external stakeholders, and those connections aren't always known," one CIO said. Therefore modernizing a system inside one agency comes with connected baggage at other agencies.

Another element that's crucial to achieving transformative change is having the right workforce skills in place and a cultural willingness to support change, the CIOs said. Agencies can't expect legacy systems to modernize themselves; they need people with the right training, they said. That includes not just those in the IT department, but also those in the acquisition, financial and program management offices who play an instrumental role in getting IT to align with their agency's mission.

Agency leaders must also look at IT modernization from a "portfolio view of their IT assets—crossing agency boundaries to look at the entire delivery system of a customer service and making sure that every one of those systems that's in that chain is appropriately modernized as a suite as opposed to these one-offs in an agency," said one federal CIO in the discussion. "We always let ourselves be driven by organization rather than by customer delivery."

The importance of leadership and improved policy-making are among several areas of focus recommended by the Federal CIO Council in its January report if agencies want to successfully move IT from a back-office function to the front lines of mission services.

Among the CIO Council's top recommendations:

1. **Identify the mission**—Describe the desired outcomes and mission objectives that enterprise IT systems need to help deliver instead of mandating prescribed performance requirements.

2. **Get everyone on board**—Develop a process that promotes significant early buy-in and continuous review from stakeholders.

3. **Don't eat the elephant all at once**—Create a roadmap that delivers achievable outcomes within shorter increments. You'll demonstrate value more rapidly and increase buy-in.

4. **Get your ducks in a row**—Ensure sustained senior-level engagement by providing a clearly defined strategic vision and a targeted set of policy actions. Deliver on what you promised.

5. **Know the terrain**—Understand existing policies to minimize potential risks and work more effectively toward identified gaps.

6. **Measure twice**—Place a premium on consistent, business-oriented metrics that yield meaningful decision-making data.

7. **Build up your team**—Accomplishing significant change requires the right individuals to execute the plan. Build a strong team.

IT transformation also requires one other component, according to CIOs and industry executives who spoke at FedScoop's roundtable: IT partners who are positioned to help agencies take a broader, holistic view of available technologies, said Dell EMC federal executive Bob Nicholson, who attended the discussion and agreed to comment afterwards.

While integrators play an important role and can offer specialized solutions, agencies are best served when they work with technology providers who can help them "take a look at all the components" in their IT stacks, he said. If agencies are to succeed in moving to real-time business- and mission-centric decision-making, it's essential they take advantage of readily available, agile IT infrastructure, he said.

**Find out more** about how Dell EMC is helping civilian and defense agencies not only modernize their IT infrastructure, but also make the bigger move toward digital transformation.