

A Roadmap for IT Modernization in Government -- Keys to Successful Modernizations

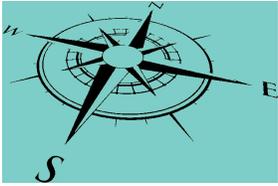
Recent U.S. federal legislation and focus at the highest levels of government has fueled activity across agencies, who spend on average 75–80 percent of their IT budget on operations and maintenance (O&M). This activity can significantly improve a public sector environment where new systems development lags behind the private sector, the federal government has excessive costs and significant vulnerability to cyberattacks, and agencies often trail industry in their ability to implement advanced technologies that could dramatically reshape government operations. This report examines the status of IT modernization in the public sector, and identifies eight key lessons from private industry, state government, and exemplary government agencies [documented as goals in this StratML rendition]

Major points from the roadmap include: • Modernization must be an on-going process rather than a single standalone event, to allow for continuous improvement rather than costlier sporadic “catch ups.” • Feedback occurs throughout the process to capture lessons learned and act accordingly. • Ensure a focus on how technology is supporting mission goals. • Key and supporting players should be identified for each step, making leadership and operational staff both aware of their requirements and empowering them to act. • Check-ins with agency leadership, functional leadership, technical leadership, and key users must take place throughout the process. • Blend a strong acquisition strategy, technical approach and the right team. • 360-degree communications will foster knowledge and buy-in. • Measurement identification, and tracking and communication of those measures, should take place both inside and outside the organization.

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Vision

Successful IT modernizations

Mission

To identify key lessons for IT modernization in the public sector

Key 1. Organizational Drivers

Understand the organizational drivers for modernization

Stakeholder(s)

Union Bank :

For example, the modernization driver for Union Bank was the need to more innovatively address consumer demands.

Lufthansa :

Similarly, at Lufthansa, the driver was to be able to utilize analytics to gain a competitive advantage.

NASA :

As Wynn, CIO of NASA, points out, “The federal government is so widely varied in the services that each agency provides that numerous use cases for modernization exist. The key to successful modernization is being appreciative of

these differences and not [glossing] over them.” Moreover, as the newly issued guidance on the implementation of the MGT Act points out, the TMF is expected to focus funding on projects that address cybersecurity issues, financial and other organizational priority and risk areas. Additionally, it appears that greater weight will be given to projects that have “a demonstrable and visible impact to the public, in alignment with the agency’s mission...and clearly show-cases how expected outcomes will enhance the delivery of services that reduces burden, improves performance, or has the potential to produce positive long term benefits.” Thus it is important that the agency mission linkage is made clear.

The previous section discussed potential impacts if modernization is not addressed in the federal space, including cost, security and privacy concerns, and lack of access to new technologies. Numerous other drivers may exist within any organization. For example, older technology may make the need for skilled staff either inside or outside the agency the most pressing issue. Regardless, CIOs should understand the drivers for modernization within the organization and then tailor a strategy to fit those drivers. All modernization is not equal, and some aspects or strategies better suit some drivers than others. By taking the time to understand the drivers, a more cogent modernization strategy can be developed.

Key 2. Planning

Plan at the enterprise level

Stakeholder(s)

Todd Kimbriel :

This orientation requires the organization to take advantage of centralized approaches. Texas, as noted by CIO Todd Kimbriel, has been able to switch from departmental thinking to enterprise-level thinking by creating an “office supply store” mentality. The state centralized technology purchasing, leveraging state-wide demand volumes and thus driving down costs for all customers. Similarly, through centralized shared services, Texas was able to drive efficiencies, increase agility, and reduce costs and risks. However, the shared services program required customers to relinquish control over those elements, which spawned a natural customer resistance to change. To address this, the state adopted a strategy that requires customers to be involved with every major decision. According to Kimbriel, the state

accomplished this governance with three groups: a solutions group (focused on technology), an IT council leadership group (focused on strategic technology conversations), and a business executive leadership group (focused on high-level business issues).

Bo Reese :

Oklahoma CIO Reese had a different strategy to promote thinking on an enterprise organizational level: a legislative mandate. As noted above, the mandate, directed Reese to consolidate all systems and resources for 78 state agencies under the newly authorized Office of Management and Enterprise Services. Once announced, 32 additional agencies voluntarily joined the consolidation and Reese was able to advance thinking on an organizational level.

One of the outcomes of decentralization within the public sector has been a change in thinking from an organizational perspective to a program perspective. This makes sense: most people hired into an organization develop programmatic expertise and affiliation. Given the size and expanse of federal agencies, identification with programs is a natural consequence. Yet enterprise-level thinking opens up doors that simply are not possible at the program level. For example, the use of shared-services is a natural solution that follows a shift to an enterprise view... This key is also seen in the newly issued guidance for implementing the MGT Act, in which the development of common solutions is considered to be a relevant consideration for TMF funding. Such common solutions may involve commercial products and services, and also apply throughout the enterprise.

Key 3. Value

Deliver incremental value at the departmental level

Stakeholder(s)

David Bray :

This is the strategy that CIO Bray of the FCC employed. His first major modernization initiative was relatively simple: shift the consumer help desk to a cloud-based solution and, by doing so, reduce the cost by approximately half. Bray had a fortunate set of circumstances that allowed him to move

forward on the help desk and built momentum for further modernizations. This allowed him to both show small wins at the local level and take advantage of low-hanging fruit for modernization at the organizational level. With planning is at the enterprise level, small modernization efforts can build momentum and confidence for larger projects.

While planning benefits at an enterprise level, delivery of benefits occurs most tangibly at the departmental level. The fastest way to lose momentum is to try to implement a “big bang” at the enterprise organizational level. Implementation progress is much easier at the departmental level, and focusing attention on delivering incremental improvements can pave the way for greater cooperation at the organizational level. Delivery of benefits that shows value to individual efforts can build support for organizationwide transformation.

Key 4. Communication

Communicate value to citizens and shareholders

Stakeholder(s)

Dickie Howze :

Dickie Howze, CIO for the state of Louisiana, described the need to communicate both up and down within the organization. In his case, a new administration was elected partway through a modernization effort in October of 2015, and Howze was approached by agency staff who argued that the

consolidation was not working and needed to stop. By that time, however, Howze had been able to develop a strong business case for the modernization that highlighted the savings from consolidating. Because of this data, the modernization continued and brought substantial additional benefits to the state.

Even the best-planned and managed modernization effort can drain major stakeholders—and “modernization fatigue” is a real danger. Communicating the value of the modernization to stakeholders can minimize the risk... To be most persuasive, the value communicated to stakeholders needs to address more than just IT benefits or cost savings, but should also tie to larger mission objectives. This is consistent with the goals of the MGT.

Key 5. Status & Direction

Understand what you have and where you need to go

Stakeholder(s)

John MacMillan :

John MacMillan, CIO for the state of Pennsylvania, sent out a survey to ask agencies about the types of database software that they used to underpin their applications. According to MacMillan, the most common answer was “I don’t know” or “I’m not sure,” making it a challenge to

build the path forward. But without spending the time to assess the current inventory, agencies can fail to leverage existing technologies or can be unaware of more pressing issues. Either result is suboptimal, whereas assessing the current inventory facilitates taking action to reduce redundant and duplicate systems and applications.

Modernization is not a one-size-fits-all strategy, and an early step in modernization requires a thorough inventory of an organization’s assets. This has proven surprisingly difficult to do in government, and often the results shock even the most experienced CIO.

Key 6. People, Processes & Technology

People then processes and only then technology

Stakeholder(s)

Renee Wynn :

As NASA's Wynn points out, agencies need to focus on the bell curve of human behaviors— some embrace change, some resist change, and those in the middle wait to see where they should follow—and recognize where people stand, to develop an effective change strategy. Wynn focuses on the top of the bell curve (the fence sitters) based on a belief that innovators will always be in favor of modernization and laggards never will. According to Wynn, the fence sitters should be the focus of persuasion... Once people are identified and suitably empowered to help drive change, agencies need to look at applicable processes. As Wynn of NASA pointed out, while there are numerous advantages of moving to the cloud, simply moving the technology ("lift-and-shift") will likely "kick the can" down the road. While some immediate short-term modernization occurs, without identifying the underlying people and process issues, a lift-and-shift will shortly encounter similar modernization challenges in the future. By solving the current and future people and process issues along with the technology issues, modernization problems can be solved rather than delayed. Further, a lift-and-shift often does not involve a major technology refresh or a significant modernization of the current system, and thus rarely solves underlying problems.

Dickie Howze :

Howze of Louisiana used the same philosophy of starting with the people before discussing any technology changes. In his case, he moved 1,100 IT people from agencies into the newly created Division of Administration that housed the

budget, management, and IT functions for the State's executive agencies. Howze faced considerable pushback from both the individuals as well as their former agencies—staff worried about losing their jobs or taking salary cuts. In Howze's case, technology progress needed to follow resolving the people issue.

Ed Toner :

Ed Toner, CIO for the state of Nebraska, echoes this point and suggest that, "if the processes and procedures are bad, the technology will die." Toner describes Nebraska as being "tool agnostic" and suggests that all tools can be either good or bad, but the people and processes have to be right regardless of the tools.

David Bray :

Bray of the FCC discussed this topic at some length and noted the difficulty of organizational change, particularly for those people doing their best in the face of challenges but who have not received training to update their skills. Bray suggests investing considerable time to solicit perspectives on organizational problems, through a Socratic method of asking questions and actively listening to team members, and also asking what they think can help resolve these problems. This approach empowers all team members to be creative problem solvers. It also shifts an organization's culture, from being reluctant to identify problems or solutions to actively working problem-solving into every team member's job description.

Every CIO interviewed had the same advice: start with people and evolve processes prior to addressing technology shortfalls... There is simple pragmatism behind this: failing to solve the people and then the process issues is akin to what one CIO called "paving the cow path," in which inefficient approaches were simply speeded up but the underlying problems remained the same. Financially, simply addressing the technology issue provides short-term gains that are minimal and transitory. The better strategy first involves the people necessary to support change—and develop and rationalize the processes—before addressing technology. This is not to suggest that the CIO should be blind to innovative technologies (as we discuss in Key 8), but rather should put people and process solutions in place before technology solutions. And those who are undertaking modernization need to be prepared for a long process, as highlighted by the experience of the state of Ohio.

Key 7. Leadership

Importance of leadership

Stakeholder(s)

Renee Wynn :

NASA's CIO Wynn emphasizes the need for an effective project/program manager to be involved and empowered. Wynn stresses that the project manager needs to support the proposed change and have the flexibility and empowerment to undertake the modernization. Finally, she emphasizes the need for all levels of leadership to support the project manager in enacting necessary changes.

Bo Reese :

CIO Reese of Oklahoma has a different set of challenges resulting from their consolidated status. When state IT was not yet consolidated, each agency would develop its systems and protocols to address the various audit demands of its federal partners. For example, by mid-2017 Oklahoma had already been audited separately by the FBI, IRS, Social Security, and HHS. As CIO, Reese had developed the state's technology profile to meet the most stringent demands of all the various auditing agencies, but found that the federal auditors tend to view the state as a series of silos and rarely share information with other auditors. In Reese's words, this created a "hairball of a mess" to be addressed—it becomes a challenge for the state to be in compliance without a single set of compliance regulations, when newer versions of software are deemed compliant for some audits while only older versions are compliant for others. As CIO for the consolidated enterprise, Reese works with federal agencies to encourage the development of a single (or at least non-contradictory) set of regulations for audits.

Ed Toner :

Other leadership perspectives can drive modernization as well. CIO Toner of Nebraska was formerly an IT leader at TD Ameritrade and FirstData, and was specifically brought on by the governor (a former leader at TD Ameritrade) for his private-sector modernization and innovation experience. As Toner describes it, the governor tasked him to "leverage technology in innovative ways [so we] can open up government and help it work for the people of Nebraska." Toner recalls a note that he received from an agency director at the end of the modernization effort: "Ed, I gave you a hard time, gave your people a hard time, and I was totally against this. But, I was totally wrong."

Lufthansa :

This was also one of the key success factors for Lufthansa's successful modernization described above. In their case, the CEO set the strategy for the modernization and then spent time communicating its value to the rest of the organization. Because of this, it was easy to see that senior leadership was behind the modernization and, facilitating engagement with the rest of the organization.

Cross-Functional Teams :

The CIO should not take on all of the modernization burden personally. Cross-functional teams can involve multiple leaders in planning and assist with inevitable change management related issues. The guidance on implementing MGT makes this clear, and having executive level support for the proposed modernization is a key part of the Initial Project Proposal Template.

Each IT modernization needs key executives who can drive change.

Key 8. Long Tail

Look at the “long tail” for modernization

Modernization requires the commitment of resources to achieve both near-term and long-term benefits. However, as noted earlier, the public sector has difficulty addressing out-year budgeting needs. In the short term, immediate efficiency gains and cost reductions can occur while additional substantial benefits can accrue in the out-years. This is referred to as the “tail” for efforts, and a long-tailed effort is one that continues to achieve benefits in the future. For example, consider the following possible long-tail benefits of modernization ... Some of these future benefits are difficult to quantify at present, but are consistent with the private sector progress. Modernization is a necessary first step to achieve long-term returns.

Cloud

Facilitate the movement of data and applications to the cloud.

Modernization can facilitate the movement of data and applications to the cloud. The use of cloud architectures and standard cloud services increases portability across cloud solution providers (CSPs), thereby providing increased flexibility and cost control. This can positively affect cost and support cybersecurity preparedness (see below). Finally, scalability within the cloud environment enables computational workloads not imaginable today

Cybersecurity

Identify emerging threats and detect, analyze, and respond accordingly.

Improved Cybersecurity: Given cybersecurity threats that face commercial and government organizations today, agencies need more rapid identification of emerging threats and automated capabilities to detect, analyze, and respond accordingly. Emerging standards, like those in the Federal Risk and Authorization Management Program (FedRAMP), open cloud solutions to new workloads and reduce the risk of inadvertent disclosure of data. New threats that emerge quickly and proliferate rapidly can be addressed using intelligent and automated security threat detection capabilities. Augmented intelligence technology can support cognitive security operations centers (SOCs) with modern approaches to support human decisions, helping security analysts parse thousands of reports that have never before been accessible to modern security tools.

Cognitive Computing

Provide people with insight to make better business decisions through analytics.

Artificial intelligence and machine learning can provide people with insight to make better business decisions through analytics, strengthening decision-making capabilities. These cognitive computing technologies process natural language information to enable systems to seamlessly interact with citizens and deliver customized services. For example, for Student Loan Borrowers, cognitive solutions could develop a system to predict borrowers at a higher risk for default and reach out to these borrowers to reduce their payment or find other innovative ways to avoid default.

Iteration & Evolution

Apply agile iterative principles across the enterprise.

Agile Capabilities improvement: The organization of the future will not blindly follow a strategic plan that was developed years ago and now sits on an office shelf. Successful organizations should apply Agile iterative principles across the enterprise—whether in strategic planning, during the execution of change programs,

developing new products and solutions, or managing day-to-day business operations. They will continually learn, refresh, and improve. Digital and Agile capabilities enable organizations to rapidly adapt to changing environments—quickly setting up new teams, prototyping rapidly, developing strategies and plans in real-time with actionable, traceable results, and delivering new solutions to meet evolving mission needs.

Mobility

Mobile enable business interactions.

Mobile adoption: In state and local government, approximately one percent of citizen and business interactions are fully mobile enabled. Government and Industry are working together to aggressively mobile-enable all efforts across states, and the percentage of interactions that are mobile enabled is expected to increase to 45 percent by the end of 2017 and to 80 percent by the end of 2019. Enhanced apps and capabilities can be used to reach out to citizens and provide just-in-time services; for example, FEMA can notify citizens of an approaching storm, while the State Department can proactively notify citizens of expiring passports. Integration of cognitive technologies into mobile platforms can provide higher levels of automation for customer service interactions through intelligent agents, interacting with citizens through the channel of their choice (text, voice, email), and giving a consistent user experience across these platforms.