



Enabling Digital Transformation in Government

Research Brief





Executive Summary

Digital transformation – the updating of information technology solutions and services – is one of the highest priorities for government today. Given its potential to improve citizen services, cut procurement costs and improve productivity, federal agencies are aggressively pursuing this objective. But while digital transformation is pursued, many agencies have yet to see real outcomes in the way digital tools facilitate mission goals.

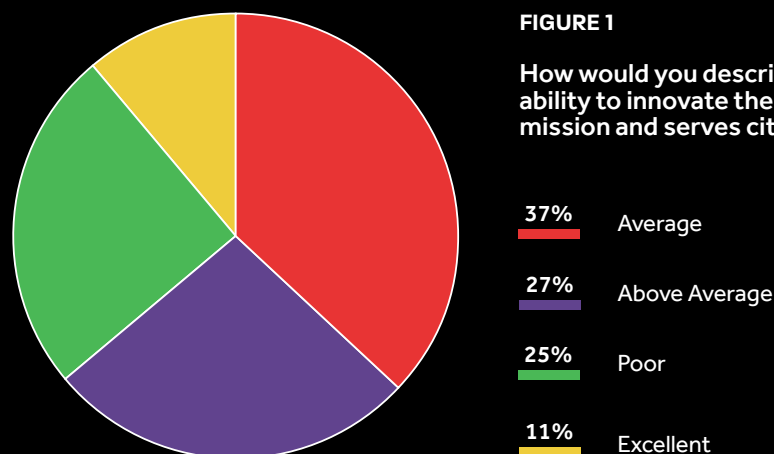
In a recent GovLoop survey of 163 federal government professionals, more than 60 percent of respondents said their agency's ability to innovate the way it meets its mission and service citizens was "average" at best (Figure 1).

The survey, conducted by GovLoop in partnership with Appian, also revealed a number of reasons why this disconnect between priorities and outcomes exists. Specifically, we found

that agencies face multiple roadblocks to achieving digital transformation, including a misunderstanding of the concept, outdated legacy systems and ineffective planning to leverage new tools.

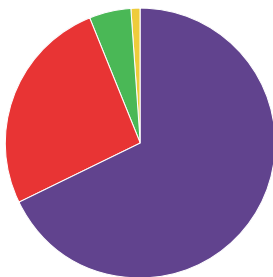
But in an interview with Jason Adolf, Industry Practice Leader for Federal at Appian, we also discovered several tactics for overcoming these challenges to both define and achieve digital transformation. He also explained how development environments called application platforms-as-a-service (aPaaS) can help move agencies forward even as resources dwindle and citizen expectations rise.

This research brief examines the data from our survey to define the obstacles agencies face in pursuit of digital innovation. It also details the tactics and tools organizations can leverage to move forward and meet mission goals.



The Role of Technology in Digital Transformation

FIGURE 2



How important do you believe digital technologies are to supporting government innovation efforts?

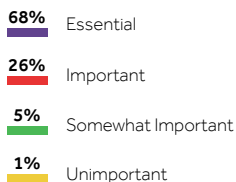
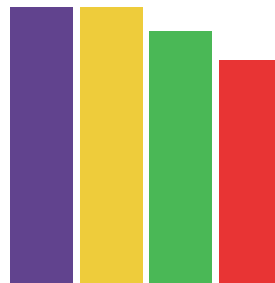


FIGURE 3



Percent of respondents who felt the ability to innovate in the following areas was important to very important (Select all that apply)

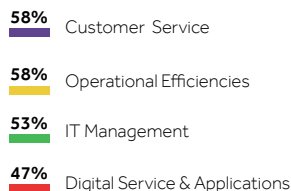
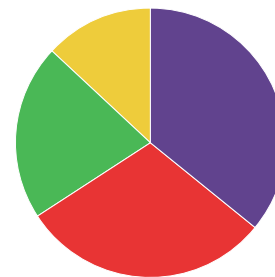
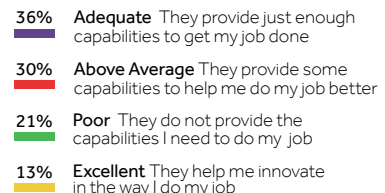


FIGURE 4



How would you describe the efficacy of your agency's current IT solutions and systems in helping you do your job as a public servant?

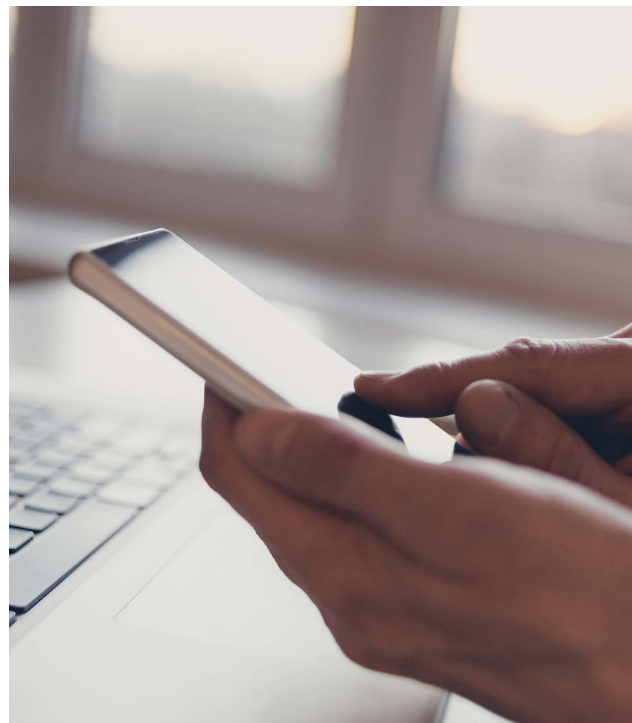


The definition of digital transformation is broad at best. In our survey, we asked respondents to define what digital transformation meant for their agency. A common theme arose in their responses (see page 5). Public servants defined transformation as the appropriate use of technology to improve operations and better serve citizens.

In fact, 68 percent of respondents said digital technologies were essential to support government innovation and transformation (Figure 2). Additionally, they agreed that it was most important to innovate digital services and applications to continue meeting mission goals (Figure 3).

But while public servants connect innovation to the appropriate use of technology, they also report not having those necessary solutions in place. Less than 45 percent of respondents felt their agency's current IT solutions and systems were more than adequate in helping them do their job, while 21 percent said their systems didn't even provide the capabilities to do their job (Figure 4).

Why? Finding and adopting the right technology to meet mission-critical innovation needs is easier said than done. That explains why many agencies prioritize and pursue digital transformation without achieving significant progress. While the need for better technology is clear, the best way to acquire that technology is not.



How does your agency define digital transformation?

"New ways of accomplishing tasks with the aid of modern computer infrastructure Business and organizational activities, processes, competencies and models to fully leverage changes with mixed digital technologies applicable to the served communities in a strategic and prioritized manner with the present and future outlook for the business"

"The automation of tasks and elimination of risk. Making better decisions with better data"

"Adapting the latest technologies to solve real problems and increase efficiency"

"Establishing and maintaining IT systems that follow the open data, content and web API policy; that transform business and organizational mission, goal and processes so that they fully balance the changes and opportunities to combine digital technologies to provide services and support to its customers"

"Service to citizens that is faceless, anytime, anywhere, and reliable"

"The use of data and systems to improve citizen services and operational efficiency"

"Transitioning to use technology appropriate for the task or goal"

"Communication tools for secure and reliable real-time collaboration"

The Challenges to Government Innovation

If agency leaders recognize the need to innovate their processes and services through digital transformation – specifically, through the acquisition and deployment of robust new technologies – why aren't they doing it?

As survey respondents noted, there are a number of obstacles that make it difficult to transition to better technologies, including the burden of current infrastructures, resource shortages and ineffective planning.

Legacy Systems

A primary obstacle to innovation is the current composition of government IT infrastructures. Most agencies' current technology systems don't support the type of digital services and processes that are expected of organizations today. They don't meet citizen expectations for customer service tools, nor do they help employees efficiently collaborate and do their jobs.

When government leaders attempt to replace those outdated and legacy systems, however, they find the task much more difficult than simply ripping out one system and replacing it with a better one.

"The primary reason why agencies are not able to innovate is because they're hamstrung by the types of legacy solutions and infrastructure that exist within their environment," Adolf said. "The tools they have in place that are core to their mission in many cases are not designed in a way that's easy to innovate on."

Fifty-six percent of survey respondents cited the inability to integrate new solutions with outdated technologies as a primary barrier to effectively innovating (Figure 5). Legacy systems were most often built for unique needs, met in a specific IT environment. They were not built to integrate with newer environments like cloud, nor were they made to be heavily altered as new service demands arise.

But while these systems aren't flexible enough to be adapted, they also prove difficult to replace. Because these solutions were designed for custom needs, the newer off-the-shelf solutions that most organizations target for cost-savings and operational simplicity don't provide a sufficient substitute. Most pre-built applications simply can't provide all of the capabilities of a single, custom-built system. As a result, IT leaders are forced to either sacrifice functionality to modernize or purchase multiple solutions to replace one system.

Not only is the latter tactic resource-intensive, combining multiple solutions to aggregate those capabilities can also reduce the efficacy of modernization efforts. As more solutions are added to

an already-complex legacy IT infrastructure, the ability to securely and effectively manage those systems decreases.

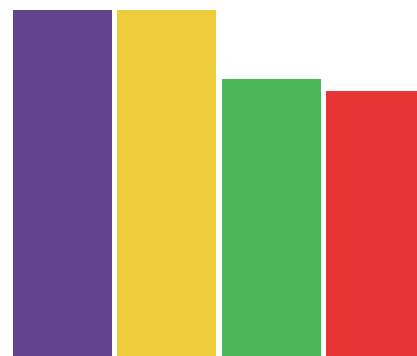
Resource Shortage and Misallocation

Not only do these legacy systems present integration roadblocks, they also consume already-constrained government resources. Unsurprisingly, more than half of survey respondents cited the costs of new technology as a major concern (Figure 5). Data shows, however, that an even bigger cost barrier to innovation is legacy IT.

For most agencies, well over half of their IT budget is spent on operating and maintaining (O&M) current IT systems. According to ITDashboard.gov, 68.6 percent of the current federal IT budget is being spent on O&M, with only 22.9 percent spent on development, modernization and enhancements. Survey respondents cited similar conditions – 43 percent said the cost of operating and maintaining current IT systems hindered effective innovation (Figure 5).

Legacy systems not only tie up IT professionals' time and skills in outdated processes, they also consume the budget to invest in new technologies or new skills for IT professionals.

FIGURE 5



What barriers are hindering your agency from effectively innovating with technology today? (Select all that apply)

- 56% Inability to integrate new solutions with outdated infrastructures
- 56% Cost of acquiring new technologies
- 45% Lack of skills in current workforce to deploy new systems
- 43% Cost of operating and maintaining current IT solutions



Leadership and Planning

Finally, innovation efforts suffer from a lack of cohesive leadership and planning to execute large-scale technology projects.

Replacing legacy infrastructure with effective new solutions requires careful planning, not just to acquire those solutions but to maintain and upgrade them as needed. One survey respondent noted, “I have not seen a true digital transformation plan. I have seen some short-term plans and other innovations, but not the comprehensive, integrated, long-term, visionary plan I’d hoped for.” Unfortunately, this experience isn’t unique in government settings.

While many government leaders understand the need to invest in new technologies, they are often prevented from doing so by the nature of federal work. “The timeline for doing those modernizations or innovations often outlasts some of the personnel who are appointed to make those types of decisions,” Adolf said.

Budget cycles, personnel turnover and changes in administration often prevent leaders from seeing an effective technology transition through from planning to execution and maintenance. At the same time, the developers and users of these applications also have difficulty keeping pace.

But these dynamics of federal government work are unlikely to change. That means leaders must seek a different approach to technology that is more agile and flexible to changing circumstances.

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— *Jason Adolf, Industry Practice Leader for Federal at Appian*

The Application Platform-as-a-Service Solution

Despite these obstacles, many agencies are committed to pursuing digital transformation. While 33 percent of respondents weren't sure of their agencies' technology adoption plans, only 5 percent of respondents said their agencies weren't currently adopting or planning to adopt digital technologies to improve business operations and IT systems (Figure 6). The key to success will be making sure to adopt the right technologies that provide the benefits of new tools while also helping alleviate the challenges many agencies face.

An application platform-as-a-service (aPaaS) is a low-code solution that combines the security, availability and scalability of cloud-based products with the agility and usability of modern application development platforms. According to our survey, that's exactly what agencies need from IT solutions today. More than 50 percent of respondents cited adaptability across IT environments as a necessary function of digital process automation platforms. More than 45 percent also said usability for workers without IT skills was essential (Figure 7).

A cloud-based digital automation process platform provides these benefits and more. Specifically, aPaaS helps organizations create integrated solutions, decrease maintenance demands, enhance flexibility, develop more effective business processes and implement better service delivery.

Easier Integration

One of the biggest barriers to new technology acquisition in government is the inability to integrate new systems with existing and legacy IT infrastructures. aPaaS solutions are specifically designed to eliminate this concern. They're able to integrate both with existing solutions, as well as ones you might need to meet future needs.

An aPaaS solution with an open architecture, like Appian, simplifies integration with third-party reporting platforms and analytic tools. It can leverage an agency's existing investments in user management solutions, including single sign-on and dual-factor authentication. Hybrid cloud options allow aPaaS components to talk directly with an on-premises database or big data infrastructure, without having to manually reconfigure either.

Plus, integrations between the existing systems can be built and tested within the aPaaS environment. That allows for rapid development of new solutions in the application platform, without disrupting any connect operations that reside in your legacy infrastructure.

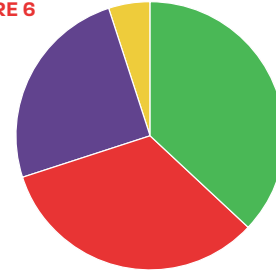
An application platform also provides an avenue for new tools to be inserted into your IT landscape. It's highly adaptable to different system types, and the centralized nature of aPaaS means developers can share integration components, thus reducing the level of effort to tie new applications into the existing legacy environment.

Greater Flexibility

Because new applications can be added to the platform or built within it, aPaaS also offers agencies greater flexibility in how they move forward in their digital transformation journeys.

"The organizational structure of the government is not terribly flexible," Adolf said. "So the only way to work around that is to have tools on the IT side that allow users to create virtual organizational structures that allow for better collaboration. We have to provide ways to work within existing structures that allow for more significant creativity, and allow cross-functional teams to work across boundaries."

FIGURE 6



Is your agency currently adopting or planning to adopt digital technologies to improve business operations and IT systems?

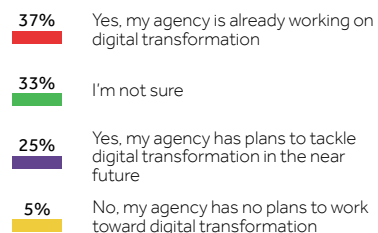
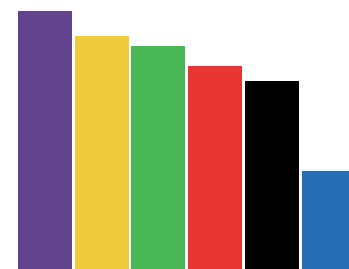
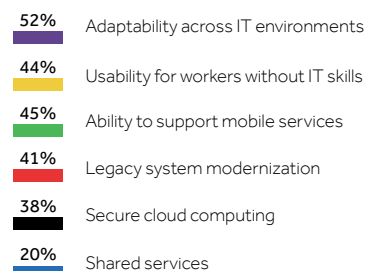


FIGURE 7



In addition to automation, what other benefits do you require from a digital process automation platform, to help your agency be more effective and innovative? (Select all that apply)



APaaS provides a borderless IT environment in which users can create new solutions. Applications hosted on a common platform can be easily scaled or transferred across an enterprise. Multiple applications can be deployed on the same set of infrastructure. Unlike custom off-the-shelf point solutions, these applications can serve virtually any function that an agency performs.

When a department's needs change, those applications can quickly be altered or sunsetted while new applications are developed in the cloud-based platform. Organizations no longer have to worry about lengthy procurement cycles to meet rapidly changing scenarios or needs. They can quickly and easily create new tools within a technology they've already acquired. "Application platform as a service solutions have been designed to provide a level of IT flexibility that most agencies just don't otherwise have," Adolf said.

Simplified Maintenance

But while these new applications are developed and deployed across disparate parts of an organization, IT leaders can rest assured that they aren't overcomplicating their existing IT landscape. In fact, maintenance and operation of IT is significantly simplified.

With aPaaS, core functionalities, policies and rules are regulated in one place and then scaled across all applications hosted on that platform. "All of that can be managed in a single service environment," Adolf said. "One vendor is hosting the platform, maintaining its security credentials and upgrading feature and functions so that customers can focus on adding new capabilities to their applications."

With Appian solutions, for example, security certifications like FedRAMP are fully maintained by the vendor so agencies know their platform meets security standards without spending additional IT resources to maintain the environment. Appian also provides native mobile applications so that agencies are not responsible for maintaining and testing code against multiple mobile operating system versions. IT personnel no longer have to worry about maintaining and testing those standards.

Additionally, maintenance is vastly simplified within the agency environment, because IT

administrators can manage all applications from a single platform. That means when upgrades, patches or other maintenance is required, one staff member can make that change across the entire enterprise's applications. That's a significant time and cost saver compared with traditional processes, where multiple personnel would work in different environments to maintain common standards.

More Effective Business Processes

This centralized, simplified execution of development and maintenance doesn't just help IT departments. Application platform-as-a-service can transform business processes across an agency to help public servants meet mission goals.

When asked what were the most important improvements that agencies could make to business processes, survey respondents cited improved productivity (67 percent), increased speed of innovation (44 percent) and better, faster decision-making (38 percent) as their top three objectives (Figure 8).

aPaaS solutions can streamline business and IT processes to meet all three of those objectives. Because applications are all developed and monitored from a single platform location, administrators can easily access relevant performance data, compare it across services and make better decisions about business processes. When potential procedural or technical improvements are identified, they can quickly be tested within the platform and then scaled across applications without adding costs.

Moreover, agency personnel don't have to rely on IT administrators alone to make these improvements. Appian's aPaaS solution is intuitive and low-code. It leverages forms and interfaces similar to familiar website designs. It even offers point-and-click and drag-and-drop options to replace manual coding for visual design that's more like drawing than coding. That allows even non-technically skilled users to change application processes to increase efficiency and productivity

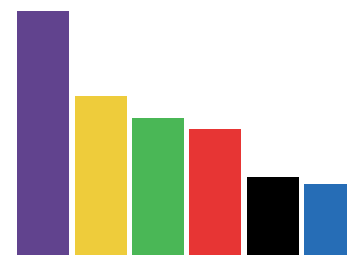
Better Service Delivery

Finally, because all applications are built in a common platform using a common theme, it's easier to deliver streamlined service across the enterprise and provide

consistent user experiences across applications. That consistency can enhance customer satisfaction as familiarity with services grows, encouraging users to leverage more available tools to get their jobs done effectively.

This consistency also cuts costs. Using aPaaS, IT administrators can avoid training users on multiple systems, instead teaching them one interface and allowing them to leverage that understanding across disparate applications. Considering that 45 percent of survey respondents said they didn't have skills in the current agency workforce to easily adopt new technology solutions (Figure 5), this uniformity is essential. Plus, familiarity with a common toolset can reduce end-user operation errors that often consume IT staff time to repair.

FIGURE 8



What are the most important improvements you could make to your organization's business processes? (Select all that apply)



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— Jason Adolf, Industry Practice Leader for Federal at Appian

Business Process Management and Automation

Application platform-as-a-service solutions are designed to help agencies quickly update and modernize their business processes. One key component that helps deliver those process improvements is automation – where routine tasks are taken out of human hands and automatically executed in the aPaaS environment.

The concept of automation is not new to government agencies. In fact, 58 percent of respondents felt a robust digital process automation platform was essential to their agency meeting mission goals (Figure 9). What's more, less than 3 percent of respondents said their agencies don't rely on automation to make their business processes more efficient today, while 35 percent said more than three-quarters of their processes use automation (Figure 10).

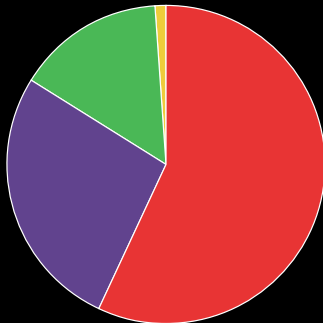
As agencies deploy cloud-based application platforms for digital transformation, the use of automation – as well as the benefits it provides – will only grow. Process automation allows agencies to define and automate a set of business processes and activities, thus enabling them to create a more efficient and productive workflow. With automation, an aPaaS solution can allow certain tasks to be assigned to various software programs in order to reduce errors, speed up processing time and free up staff.

Those tasks include:

- Designing model processes that drive powerful apps with a low-code process modeler
- Daily operation execution when users eliminate reliance on old school paper forms and speed operations with automation
- Management of dynamic business rules that embed process automation in enterprise-wide apps, ensuring consistency and reinforcing organizational structure
- Optimizing new applications and processes through automated testing, predictive analytics, dynamic reporting and business-activity monitoring.

"As government work, policies and regulations become more complex, we want to give government workers more time to work on complicated tasks and reduce the amount of time they spend on less complicated tasks," Adolf said. That's why Appian's aPaaS solutions leverage automation for most turnkey and routine business processes. Automation empowers users to focus on innovation, rather than on operation and maintenance of technology.

FIGURE 9



What role does a robust digital process automation platform play in supporting agency goals?

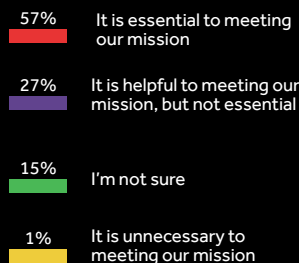
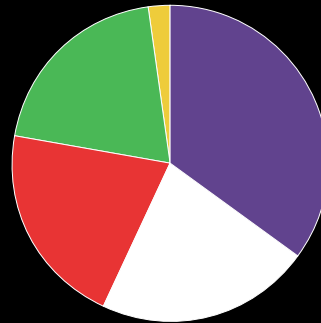
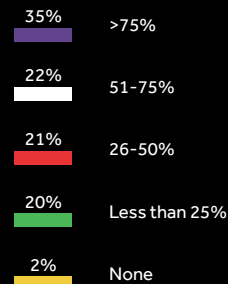


FIGURE 10



What percentage of your agency's business processes are supported by or made more efficient with automation technologies?



Conclusion

The need to digitally transform agency's IT systems and business processes will only increase as citizen expectations escalate and resources dwindle in government.

"When we talk to agencies in what has been for the last few years a highly volatile regulatory and political environment, the focus is on being able to make quick adjustments to policies, rules and processes within your applications," Adolf said. "I don't know how you can survive today without being able to do that."

The ultimate benefit of application platform-as-a-service is the ability to meet that demand while breaking down barriers. That's why more agencies are making aPaaS a focal point of their digital transformation plans. It offers the flexibility to quickly upgrade or create new applications in new environments, while also maintaining centralized oversight of core platform functionalities, processes and rules. It allows IT personnel and end users to stop dedicating resources to outdated technologies and processes, so they can instead focus on ways to innovate for the future.

About Appian

Appian provides a leading low-code software development platform that enables organizations to rapidly develop powerful and unique applications. The applications created on Appian's platform help companies drive digital transformation and competitive differentiation.

For more information, visit www.appian.com.

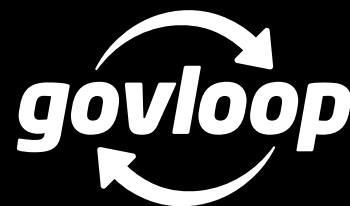
The Appian logo is the word "Appian" in a bold, white, sans-serif font.

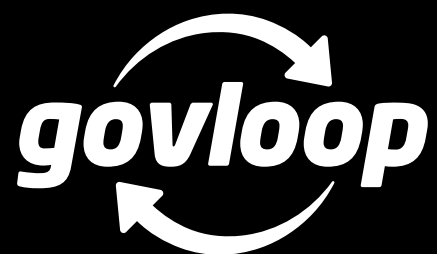
About Govloop

GovLoop's mission is to "connect government to improve government." We aim to inspire public-sector professionals by serving as the knowledge network for government. GovLoop connects more than 250,000 members, fostering cross-government collaboration, solving common problems and advancing government careers. GovLoop is headquartered in Washington, D.C., with a team of dedicated professionals who share a commitment to connect and improve government.

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