



AUTOMATION AND CLOUD:

The Building Blocks of Successful Modernization

MARKET TRENDS REPORT



Introduction

Ten major federal agencies spend \$337 million a year supporting IT systems that are between 8 and 51 years old, according to a June 2019 [report](#) from the Government Accountability Office (GAO). That's a stark contrast from the push for cloud computing and modernization that many agencies feel.

Cloud and modernization go hand in hand; it's hard to have one without the other. Cloud supports many emerging technologies such as artificial intelligence, machine learning and automation. The latter is especially crucial because it can take tedious manual processes off workers' hands, allowing them to use their time and attention for more challenging work. The result is a more efficient and effective agency.

In fact, 60% to 80% of finance, human resources and procurement tasks are automatable, [McKinsey](#) found, paving the way for net long-term cost savings of at least 30%. Other research estimates that \$40 billion to \$80 billion worth of resources could be reallocated to more value-added activities, according to [research by Deloitte Consulting](#).

Several federal agencies are optimizing some of their operations with automation. For example, the NASA Shared Services Center powers George Washington, the government's first digital bot, with robotic process automation that enables the bot to handle HR and procurement processes. U.S. Citizenship and Immigration Services (USCIS) has a bilingual chatbot called Emma – named after poet Emma Lazarus – that can answer questions. The Army uses the Sgt. Star chatbot to handle inquiries about joining the service.

These technologies, which rely on modern infrastructure, have many benefits, including increased citizen engagement, cost savings and better use of employees' time and skills. They also have a common denominator: the importance of data. Still, most federal agencies struggle with reconciling these up-and-coming capabilities with legacy systems.

To better understand how cloud and automation form the foundational steps on the path to modernization, GovLoop partnered with Rubrik, a cloud data management company. In this report, we explore the challenges of updating legacy systems and how an effective cloud data management platform can overcome them. We also provide insights from Rebecca Fitzhugh, Principal Technologist at Rubrik, on modernization best practices.

CLOUD DATA MANAGEMENT DEFINED:

A cloud data management platform orchestrates mission-critical application data across private and public clouds while delivering data management functions such as backup, disaster recovery, archival, compliance, search, analytics and copy data management in a single platform that can run anywhere.

Source: [Rubrik](#)

BY THE NUMBERS

IT Modernization, Cloud Gain Traction

\$90 billion

how much the government plans to spend on IT modernization during fiscal year in 2019.

Source: [GAO](#)

\$110 billion

the amount The Technology CEO Council estimates the government can save over 10 years through IT modernization.

Source: [Tech CEO Council](#)

1.2 billion

work hours government employees can save using automation.

Source: [Deloitte](#)

22%

of national governments' IT budgets are spent on cloud.

Source: [Gartner](#)

20.6%

of local governments' IT budgets are spent on cloud.

Source: [Gartner](#)

“Modernization is a constant state of change and part of the day-to-day business of technology at every agency.”

- [Cloud Smart Strategy](#)

THE CHALLENGE

Modern Goals, Legacy Systems

Updating legacy systems is one of the biggest mandates coming from the White House heading into 2020. Often when agencies think about modernizing systems, they think about implementing a cloud solution, but automation is also essential to embrace the power of efficiency. For instance, automation reduces error rates because of limited human interaction, and enables Agile and DevOps processes, which allow for speedier service delivery. Before federal agencies invest in cloud and automation, however, they need to fully understand the constraints and roadblocks related to these technologies.

One challenge is that just as yesterday's technology doesn't go far enough to meet today's needs, neither do many entrenched processes. For instance, agencies are stymied by the iterative models they're used to – manually defining each step to be taken, said Rubrik's Fitzhugh. She likened it to giving someone directions to her house by saying, "First, leave your house, then get in your car, then drive straight on the road for five minutes."

A declarative policy-driven approach is better, she said. It shows the end state and lets an application take you there. "I would just say, 'Here's my address,' and then we plug that in and get there. That's a real tenet of IT transformation."

A second challenge lies not in technology, but in planning and culture. Specifically, agencies must take into account the business impact of transformation projects related to IT modernization. IT modernization is the integration of new technology into all areas of a business, fundamentally changing how an agency operates and delivers value to customers.

But many people are averse to change, even when the outcomes are beneficial. To get stakeholder support for modernization efforts, agencies must map out how they can get attention-grabbing small wins that can be scaled for further growth once that buy-in is there.

"Without having a clear understanding of the business impact, a lot of transformation projects fall because, simply put, IT is unable to secure the key stakeholder buy-in because they haven't done their due diligence upfront," Fitzhugh said. "They're just trying to ram in whatever new piece of software it is."

Careful planning also addresses a third challenge: ensuring that agencies can simultaneously support legacy and modern systems. A complete overhaul of technology can wreak havoc not only from a technical perspective, but also a cultural one.

"Imagine trying to apply [automated workflows] to legacy technology where the interface requires some kind of archaic console and the software looks like it was written for Windows 3.1," Fitzhugh said. "It's not really fun and it often derails any kind of effort to deliver services in an automated fashion."

THE SOLUTION: A Unified Cloud Data Management Platform

The glue that connects old and new systems is data. Agencies must ensure that as they move to new technologies, data housed in legacy systems remains secure and available. They must also ensure that they can use the data with new technologies to create new – sometimes cloud-native – applications.

To guarantee that legacy, modern and cloud-native applications can work synergistically, agencies need an effective cloud data management platform – a single, secure source for all data, whether that data is on premises, in the cloud or at the edge. The platform should consolidate hardware and software components into a single software fabric that can run anywhere and scale as needed.

Combining automation and cloud to create a high-function IT service model involves investing time in the design phase to understand what data and technology you have, where gaps exist and what you need to fill them.

Fitzhugh recommends that agencies see cloud-based automation as a cycle:

- Come up with a plan.
- Build the infrastructure and services needed to test and tweak the plan.
- Deploy software for consumption.
- Provide operational excellence, monitoring for pivot points.
- Start work on the next plan.

The feedback loop should close on itself.

What's more, agencies should use tools that work well with others. Older applications tend to run on older or obsolete operating systems that require a lot of manual care. By contrast, automation reduces risks associated with building, testing, deploying, remediating and monitoring. Determine what tools fit into each category and how compatible they are across the applications and platforms your agency has.

Armed with all that knowledge, agencies can implement a platform that embraces automation.



BEST PRACTICES

Making Cloud-Based Automation Click

1. Lay a foundation for solid automation with good data.

Relying on data and cloud-based platforms can increase efficiency and, eventually, set agencies up for success with more advanced initiatives such as automation.

2. Put application programming interfaces (APIs) first.

One way to connect everything is by using APIs. APIs allow for automated backend access to a piece of software, regardless of its age. Using them across multiple applications lets agencies weave together a single programmatic software fabric in which everything can communicate and integrate, whether it's a legacy application or cloud-native, Fitzhugh said.

3. Use Infrastructure as Code (IAC).

IAC is a descriptive model that uses the same type of versioning that DevOps teams use in source code but applied to the same environment for every deployment. This lets development teams bring applications to production without sacrificing the oversight of the operations team. It's not just about getting the information back reliably; it's also using code that's been written to build out the foundation, which can include the configuration of the data protection platform.

4. Avoid the creation of silos as you remove them through modernization.

Strive for simplicity; don't create silos. Historically, most organizations have had little to no incentive to build things that are shared across the enterprise. APIs can help here again by providing a single set of tooling across many applications and services.



CASE STUDY

Digital Transformation at the Federal Transit Administration

In 2011, the Transportation Department's (DOT) Federal Transit Administration (FTA) opted for a Platform-as-a-Service implementation to reduce silos that hindered agency operations. That helped, but it was slapped together for speed, resulting in persistent challenges. In 2017, FTA shifted its focus to data management and better communication between the IT and business divisions.

For instance, FTA stood up a data management group to improve communication between the grants management and transit data collection teams with the goal of getting the business line to understand how its actions align with technology needs.

"We realized that different groups were registering their customers in different ways," said Edward Dowgiallo, an architect at DOT's Office of the Chief Information Officer and FTA's Office of Information Technology. "That creates

challenges when you want to look across all the different data, so now we're working on a business process to create universal registration at our agency. That creates a new business line function to support it."

Dowgiallo has put together a DevOps pipeline to quickly build out microservices, such as machine learning, that support the platform. Additionally, FTA is using a cloud-based data science tool that takes data from the platform and creates data notebooks to help his team build a better knowledge base around the data.

Before, FTA would have had 10 different systems. Now it's one system with 10 modules. "Data is becoming the most important thing," Dowgiallo said. "With digital transformation, you really need to realize that data is your biggest asset."

HOW RUBRIK HELPS

Rubrik is a cloud data management company that delivers a single software platform to manage and protect data in the cloud, at the edge and on premises. The platform also handles data recovery, governance, compliance and cloud mobility – critical elements in an environment that focuses on autonomous business reliant on data.

"Automation increases agility by reducing human interaction and orchestrating dependencies across an organization," Fitzhugh said. "It also allows for the self-service consumption of infrastructure that enables you to eliminate silos."

To learn more, visit rubrik.com.

Conclusion

Modernization talk tends to focus on big-picture stuff: systems, architectures, entire computing systems. And it is about those things, but at modernization's most basic level is data – the information that resides not only in those new systems but also in legacy ones. Successful transformation efforts enable agencies to integrate data between the old and new so they can use it to better understand how to optimize their operations going forward.

Little about government IT is simple or straightforward, but the right data management platform can make it easier by removing the mystery around redundancy and security while supporting automation, which ultimately empowers agency employees to put the mission first.



ABOUT RUBRIK

Rubrik is the market leader in Cloud Data Management, the world's first platform to orchestrate data for hybrid cloud enterprises anytime, anywhere. Rubrik delivers instant application availability for recovery, search, cloud, and development. Hybrid Cloud enterprises benefit from Rubrik's market-leading Cloud Data Management platform with simplicity, instant data access, app-mobility, policy-driven automation, Ransomware protection, and analytics at scale.



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 300,000 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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