

Overcoming Legacy Infrastructure to Deliver Digital Transformation

MARKET TRENDS REPORT



Introduction

Achieving true IT modernization isn't a simple matter of moving data and applications to multiple clouds. It's not just the capacity to capture and analyze data in real time. Nor is it a robust and nimble enterprise architecture capable of orchestrating users, apps and information. Modernization strives to do all these things, yet true IT advancement cannot happen without the modernization of legacy applications that otherwise hinder IT advancement – or stop it in its tracks.

Legacy modernization is a step toward the digital future on a path that isn't always well-lit. Federal agencies seeking to advance IT transformation need a way to solve the challenge of legacy infrastructure and integrate it with more advanced applications, tools and solutions. Fearful that the cost of transformation will be prohibitive, IT leaders can become paralyzed, taking half measures that perpetuate the status quo. Meanwhile, the expense of maintaining legacy environments often exceeds the cost of transformation. There are also the costs of missed opportunities, perpetually underperforming systems and unmet mission goals.

What's needed is a way to connect all aspects of a modern enterprise, including clunky, on-premises legacy apps developed in the pre-cloud era. For many government organizations, the solution will be a cloud-based integration platform that virtually knits together modernization's technological loose ends, no matter how frayed, to create a seamless, high-performing, well-integrated IT system.

To learn more about the benefits of modernization and how federal agencies can surmount the challenges of legacy applications, GovLoop teamed up with Boomi, a Dell Technologies business and leader in cloud-based integration and application program interface (API) technology. This report looks at the role of a “fabric of connectivity” in bridging legacy and modern systems.

By the Numbers

64%

CIOs who say they are rolling out next-generation enterprise resource planning or modernizing legacy platforms

Source: [Deloitte](#)

56%

IT departments' technology budgets spent on maintaining business operations

Source: [Deloitte](#)

18%

Budget spent by the average IT department on building new business capabilities

Source: [Deloitte](#)

72%

Federal CIOs who say that legacy applications are the chief issue holding back modernization efforts

Source: [Professional Services Council](#)

65%

Low-code application development as a portion of all application development by 2024

Source: [Gartner](#)

"About 80 percent of [federal IT spending] is used to operate and maintain existing IT investments, including aging legacy systems ... that are more costly to maintain, more exposed to cybersecurity risks and less effective in meeting their intended purpose."

Source: [GAO report \(June 2019\)](#)



The Challenge: Legacy Systems Hobble Transformation Efforts

IT leaders have identified modernization of information technology systems as the best way to unlock more effective and efficient government. But if modernization is the key, then legacy infrastructure is the rusty hinge preventing the door from swinging open. The challenge for federal agencies is to find a solution that encompasses all aspects of modernization, including the transformation and incorporation of legacy applications.

Propping up legacy IT systems has long been a costly and intractable problem. Year after year, agencies sacrifice tens of billions of dollars and armies of skilled IT practitioners to keep legacies' lights on – resources that could otherwise fuel IT modernization and even innovation.

Entrenched systems developed decades ago using out-of-date coding languages (COBOL, Assembly, Ada, etc.) have been stubbornly resistant to modernization. Legacy systems rarely have documentation of the type that accompanies modern applications, and today's programmers aren't

experienced in the legacy systems' protocols. In many cases, people with the skills to patch or fix legacy systems simply don't exist.

Even though organizations and their IT teams acknowledge the inefficiency of legacy applications, they are reluctant to tinker with the machinery, lest they get themselves into what they fear could be a worse situation.

“The idea is, if it's not broken, don't mess with it,” said Alan Lawrence, Vice President of Boomi Federal.

But not messing with it doesn't mean that it's not broken. Legacy systems continue to function within the constraints of dated architectures, yet they are largely self-siloed and inert, incapable of easily integrating into modern IT ecosystems. Legacy systems considered indispensable are at the same time anchors that slow businesses processes and business intelligence, restrict the value of data, undermine security and thwart mission goals.

The Solution: Integration Platform as a Service

For many federal agencies, the legacy conundrum has a solution: Integration platform as a Service (iPaaS), a cloud-native technology that enables agencies to manage integration flows among a digital ecosystem's disparate applications.

iPaaS is a virtual fabric of connectivity that links all users, data and applications, wherever they are. In recent years, iPaaS has replaced traditional integration solutions at thousands of universities, nonprofit organizations, private sector companies and government agencies. By eliminating the high cost of maintaining legacy systems, iPaaS offsets its acquisition costs.

iPaaS securely unifies digital ecosystems to connect everyone and everything. iPaaS is an intelligent, flexible and scalable cloud-based platform that ensures “always on” business continuity. A well-conceived iPaaS solution accelerates and simplifies discovery, organization and management of data to make it actionable across an entire agency.

iPaaS connects employees, regardless of location, to applications, systems, processes and customers, enabling organizations to strengthen human and business

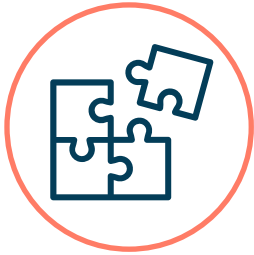
connections – and foster trust. Ultimately, the platform liberates organizations from fragile connections and legacy technology to yield maximum return on IT investments. Gains in efficiencies and productivity – derived from greater operational speed and agility – allow agencies to reallocate resources to strategic initiatives and, ultimately, better mission attainment.

A cloud-native iPaaS can cut migration time to a new platform, from more than two years to as little as four months – and greatly reduce staff heartburn. Migrating to a new version of a platform typically entails six to nine months of regression testing and concerns that the upgrade will wreck the system.

“People are afraid to migrate from one version to another because it may break all their applications,” said Mike Clark, Technical Sales Engineer for Boomi.

iPaaS overcomes the drag of legacy systems by accessing and enriching legacy data and connecting it to a modern application environment – in the cloud or on-premises – without installing the data on the iPaaS platform.

Best Practices: Developing a Strategy for Transitioning to iPaaS



Think integration before application modernization.

Implementing a cloud platform prior to assessing the applications that will run on it would make as little sense as installing a dishwasher and washing machine in a new house before putting in plumbing and electrical systems. In an IT ecosystem, iPaaS is the infrastructure and applications are appliances. Proper planning at the outset optimizes value, minimizes delays, promotes scalability and reduces technical debt.



Get clear about your integration strategy.

An integration platform is a holistic approach to an IT ecosystem that changes the way agencies accomplish missions; it's much more than a way to replace outdated IT systems. A well-conceived strategy for integrating data and applications integrates seamlessly with the federal data strategy to get the most value from federal data. At this stage, it is important to engage all stakeholders, focus on data quality and security, and understand data and integration priorities.



Build in flexibility to cover integration contingencies.

The speed at which IT evolves makes it imperative that organizations plan to accommodate unanticipated scenarios. An iPaaS solution should have the flexibility to handle contingencies, regardless of data types, complexity or endpoints. Batch processing can quickly process large volumes of transactions, efficiently moving data among systems at predetermined intervals. Real-time synchronization, by comparison, syncs data when change occurs. API-driven integration allows users to create, publish and manage APIs – and access specific slices of data.




Build an integration center of excellence (ICoE).

An ad hoc approach to integration, one that relies on multiple tools, forces developers to start from scratch each time applications need to be connected. This approach leads to delays and higher costs, in part because demand for highly skilled integration developers greatly exceeds supply. An integration center of excellence can smooth the process of new integrations, bringing together IT teams and business users. Working together, they can develop and abide by best practices, standards, requirements, documentation and reusable code, sharing it across an integration project.



Think big, start small.

Nimble, integrated, cloud-native platforms use artificial intelligence and machine learning to analyze data across entire systems. Insights gleaned from deep data dives can provide the basis for solving big, seemingly intractable problems, such as veteran homelessness and suicides, the opioid epidemic, aging electric grids and transportation safety. The more judicious approach, however, is to leverage iPaaS and earn quick, high-value wins. Building on those successes makes it possible to take on bigger projects – and get bigger wins.



Case Study: Airport Creates State-of-the-Art Info Hub Despite Legacy Obstacles

For many air travelers, the immediacy of government services is never closer to home than when navigating the real-time challenges of airport parking, checked bags, security lines, flight delays and the time-sensitive act of grabbing a meal on the run.

A large international airport in the western United States, eager to improve delivery of services, asked Boomi to review its IT system – more than two dozen disparate systems, actually – and recommend how it might create a state-of-the-art information hub.

The airport's leadership sought to transform fliers' experience in the airport – and transforming IT was the way it planned to get there. The airport's CEO envisioned travelers ordering meals on cell phones while going through TSA security and picking up their food just before boarding their flights. The sky was the limit.

The biggest challenge to advancing the vision was legacy infrastructure, which included airport systems and interfaces with the FAA and other state and local agencies.

Digitally transforming the airport meant that “a whole bunch of legacy applications had to get modernized in order to free up the data to provide digital services,” Lawrence said. A timeline developed by the airport's transition team anticipated at least two years of migrating data out of legacy applications – before it could begin the work of digitally transforming operations.

Using its cloud-native integration platform, Boomi completed the integration in four months, and the airport was able to retire its legacy infrastructure well ahead of schedule.

HOW BOOMI HELPS

Boomi's cloud-native iPaaS “fabric of connectivity” solution connects people, data and users – including recalcitrant legacy applications – to advance IT modernization and deliver on agencies' digital transformation initiatives. By liberating agencies from legacy technology and fragile connections, Boomi's iPaaS maximizes return on investment, increasing operational speed and agility that translates into higher levels of mission attainment.

Boomi quickly, easily and securely unites fragmented IT ecosystems, allowing everyone and everything to be connected. The intelligent, flexible and scalable cloud-based platform ensures “always on” connectivity. Boomi accelerates and simplifies discovery, organization and

data management to make it actionable across the entire agency. By pulling data out of silos and making it available to authorized users across organizations, Boomi facilitates use of artificial intelligence, machine learning and other tools that require large volumes of good data to generate value.

“Organizations want to be data-driven, to base their decisions on data, to do predictive analytics based on data, but they don't know where the data is, how reliable the data is and they can't access it,” said Lawrence of the challenges that iPaaS ameliorates. “That's what Boomi exists to do.”

For more information, visit [boomi.com](https://www.boomi.com).

Conclusion

In recent years, government agencies seeking to capture the benefits of IT modernization have encountered roadblocks. Despite the acquisition of advanced hardware and applications, including cloud computing, insufficient connectivity among systems' component parts has hampered performance. The disconnect among applications, whether on-premises or in the cloud, has served to undercut agencies' mission goals. For many organizations, legacy applications have been a particularly troubling hitch on the road to digital transformation.

The solution is cloud-based integration platforms. iPaaS provides a virtual "digital fabric" that weaves together modern IT systems' disparate components into a seamless, synchronized IT system. iPaaS finds and organizes an IT ecosystem's data, making it possible to leverage artificial intelligence, machine learning and automation in support of emerging data-driven organizations.



ABOUT BOOMI

Boomi's intelligent, flexible and scalable platform quickly and easily unites everything and everyone in your digital ecosystem across channels, devices and platforms.

With our cloud-native platform, getting started is easy, and you can scale it reliably and securely as you grow. Boomi's sophisticated capabilities – combined with an intuitive interface, built-in intelligence and Boomiverse community insights empower both IT and business users.



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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