



# Modernizing Government Technology with a Low-Code Platform

## ACCELERATING DIGITAL TRANSFORMATION AT FEDERAL AGENCIES WITH ENTERPRISE LOW-CODE DEVELOPMENT AND INTELLIGENT AUTOMATION

A proven strategy for successful government IT modernization and digital transformation is introducing technologies to build new applications that execute on top of legacy mission and ERP systems. Enterprise low-code platforms do just that, enabling agencies to leverage current IT investments and extend their legacy systems' capabilities. The key: Don't replace complexity with more complexity.

This white paper describes how government agencies can gradually decouple their ERP and core systems while migrating mission-critical functionality and data on a sustainable schedule with five technologies:

- Enterprise Low-Code Platform
- Intelligent Automation
- Agile Development
- DevOps
- Cloud Infrastructure and Security Services

These technologies allow IT to respond to changing requirements and reduce technical debt while accelerating application delivery, new services, and cost savings.

Learn how four federal agencies implemented enterprise low-code mission applications that address their specific requirements and integrate with their legacy systems. Appian's enterprise low-code platform enables these agencies to deploy mission-critical applications faster, without coding. Federal executives trust Appian for their most complex mission systems because the platform works in concert with the existing IT landscape.



## Federal Digital Transformation Challenges

Legacy Enterprise Resource Planning (ERP) and other monolithic core systems prevent CIO, CTO, program, and agency executives from succeeding in a rapidly changing legislative, regulatory, and policy environment. Government technology leaders need agility to fuel digital transformation—and meet the expectations of Congress, citizens, and businesses to modernize their systems, improve user experience and responsiveness. But traditional ERP systems and development approaches do not support the government’s current and future application requirements, speed, and budgets.

Government IT departments are challenged to adopt new technologies and evolve to meet new demands. IDG conducted a large cross-industry IT modernization study in 2018, reporting that executives cited three related challenges in achieving digital transformation.

- **“Communication with line of business”** was the primary challenge with a 90% response rate
- **“Adapting with technology”** was the second most common challenge with an 88% response rate
- **“Employees training”** was the third most common challenge with an 83% response rate

Dependence on legacy platforms and systems limits federal agencies from improving core functions and important programs. Federal executives shared their concerns in a 2018 study of IT decision-makers by Accenture Federal Services. A total of 83% of the executives reported that technical debt severely limits their ability to be innovative, and 79% reported that technical debt inhibits their responsiveness to change.

Gartner observed that legacy systems consume an increasing portion of government organizations’ budgets, hindering their ability to fund innovation. According to the GAO and OMB, the federal government spends more than 75% of its IT budget on operations and maintenance (O&M). These expenditures continue to stifle innovation and investment in new development and modernization. Agencies need new resources, training, and technology to improve mission services and modernize core systems.

# Legacy System Modernization Imperative

Federal executives are eager to innovate, reduce technical debt, and improve their mission programs. Accenture Federal Services found that 81% of federal executives surveyed would “tear up and replace all of their organization’s core systems if they could.” The Modernizing Government Technology (MGT) Act and The Federal Information Technology Acquisition Reform Act (FITARA) support and will accelerate agencies’ modernization and transformation initiatives. **The key is to not replace complexity with more complexity.**

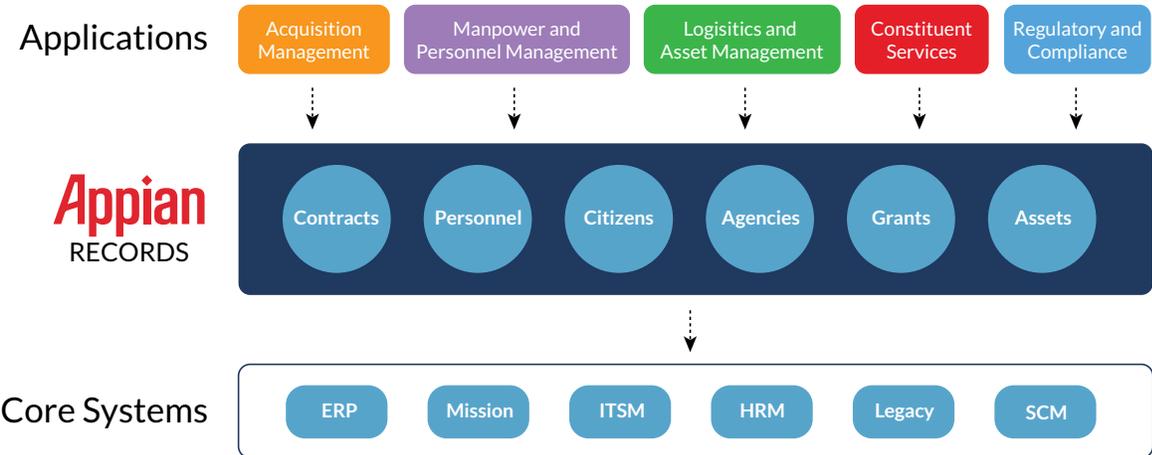
A new approach to IT and business line collaboration and application development that reduces the learning curve across the organization is needed. Agencies must be able to upgrade and modernize their technologies and skill sets to resolve these issues and meet changing mission requirements. Learning new technologies, finding ways to evolve, and reducing organizational resistance to change will remove modernization and digital transformation roadblocks.

Today enterprise low-code platforms enable IT executives to more effectively align with their agency’s program and functional executives and adopt a culture of innovation for successful transformation efforts. Agencies can now quickly demonstrate modernization benefits and cost savings to sustain funding and support for innovative initiatives.

Government CIOs should develop a roadmap for implementing the capabilities they need to meet their organizational goals. An enterprise low-code platform supplies program teams with the tools, technology, and approach to lead and sustain digital transformation and modernization efforts. This includes:

- Developing and deploying innovative applications that solve mission, technical, and stakeholder needs
- Empowering non-IT staff to contribute to the design and development of applications in support of digital transformation projects
- Leveraging non-technical staff, subject matter experts, and standards based design languages like BPMN and DMN to build applications
- A visual design environment where end-users feel like they are part of the change effort
- Reducing IT costs with common and reusable software components

## Enterprise Low-Code Platform Integrates and Extends Legacy Mission and ERP Systems



# A Proven Approach to Federal Modernization and Transformation

A proven approach to successful digital transformation is introducing innovative technologies and methodologies—**like an enterprise low-code platform, intelligent automation, DevOps, and Agile**—to build new systems that execute **on top of legacy ERP systems**. This approach allows IT to be more responsive to rapidly changing requirements and reduce technical debt while accelerating application delivery, new services, and cost savings.

Allowing legacy systems to run in parallel with new platforms as modernization initiatives roll out over time reduces technical debt. Agencies can decouple their ERP and core systems gradually while migrating mission-critical functionality and data on a sustainable schedule. With Appian, organizations can quickly deploy applications that address their specific requirements and integrate with their legacy systems.

Equipped with low-code tools, non-technical staff can contribute to building mission and core systems, further reducing the burden on IT resources. Appian's standards-based development platform reduces training, communications, development, and interoperability barriers. Because open standards require no interpretations or transformations, information is more efficiently transferred, with reduced risk.

## Enterprise Low-Code Platform

With a low-code development platform, you don't code an application line-by-line, you draw it—like a flowchart. Low-code development has evolved to take advantage of visual design tools—like drag-and-drop modelers and point-and-click interface creation—to enable the rapid creation, launch, use, and change of powerful applications. The platforms enable government agencies to rapidly modernize the user experience (UX) and customer experience (CX) of legacy systems, without a “rip and replace” strategy.

Low-code development gives IT the power to accelerate modernization and digital transformation projects. Agencies are adopting low-code development platforms to enable a broad range of developers to rapidly build and deploy web and mobile apps—without the need for time-consuming coding. Appian's visualization tools further facilitate collaboration across IT, program, and agency staff.

Through the secure, open exchange of information with systems and data across the enterprise—including legacy, new, and future applications—the Appian platform promotes interoperability and integration. The

## SUCCESS STORY:

### Grant Management System Digital Transformation

A federal agency developed its award-winning grant management system on the FedRAMP-certified Appian Cloud. The mission system awards and manages an annual average of \$13 billion in financial assistance to 4,000 state and local agencies. The system extends and is integrated with legacy core financial systems. The agency uses low-code, Agile, and DevOps to quickly respond to legislative, regulatory, and policy changes.

The federal grantor and grantees consolidated redundant activities and optimized grant award and grant administration processes. The agency decreased average grant processing time by more than 25% and received consecutive clean financial audits. Agency staff access data from 4,000 state and local government agencies across the United States to make better grant funding decisions.

platform provides a single view of all relevant information across all systems and data sources, increasing productivity and improving program outcomes. Appian Records provides application users with a unified, actionable view of all relevant data, across many sources like databases, legacy and external systems.

### Agile and DevOps

Agile and DevOps, for iterative development and incremental delivery, support and complement low-code development. The combination of low-code, Agile, and DevOps significantly reduces IT risks, costs, and technical debt. Conversely, this triad accelerates speed, power, functionality, and development time-to-value.

The DevOps model is the antithesis of traditional ERP and core systems development. The high-cost, high-risk, slow, and long development schedules of legacy systems has been turned on its head with DevOps, Agile, and low-code development. Furthermore, with the DevOps model, development and IT infrastructure teams collaborate early and continuously to rapidly deliver new apps and capabilities in a DevOps environment.

The ability to develop reusable software components is another key benefit of DevOps, Agile, and low-code development. The Appian platform delivers reusable apps and components, ensuring that new and enhanced applications can quickly meet changing mission and agency needs. In addition, the legacy and core systems that organizations depend on today can access Appian objects. This means that agencies can store and manage the same business rules and process models in Appian for reuse by other legacy systems. **The low-code platform should work in concert with your existing IT landscape, not take it over.**

The benefits of combining DevOps, Agile, and low-code approaches include:

- Faster and higher quality software development, with reusable components from existing applications
- Significant cost savings because low-code applications require less time to develop, maintain, and support
- Better collaboration across IT development, operations, and infrastructure teams
- Greater support for innovation, interoperability, and continuous improvement from systems built in a DevOps environment

### SUCCESS STORY:

## Acquisition and Procurement Systems Modernization

A large federal agency modernized its acquisition planning and end-to-end procurement planning processes with the Appian platform. The system has thousands of users and interfaces with more than 20 other systems. The agency delivers new application features every two weeks with a combination of low-code development, Agile, and DevOps. The team implemented a new module to support a major federal regulation change within two months.

The agency uses the Appian platform for acquisition planning and provides complete visibility into the status of FAR-compliant acquisition plans in the pipeline. The application shows the completion status of acquisition plans and automates reviews for 11 different approval chains. A procurement request application accelerates the end-to-end procurement process, from initial request through solicitations and contract writing, administration and close-out. The application leverages Appian Records' enterprise-wide data management capabilities because data integration is central to the agency's procurement transformation.



## Intelligent Automation

Artificial Intelligence (AI) and Robotic Process Automation (RPA) can dramatically improve operational efficiency, constituent experience, and staff engagement. For federal IT leaders who want to leverage intelligent automation in their mission and core system processes, the Appian platform orchestrates the modern workforce of people, systems, and robots. Appian brings native AI services and low-code integration to the best available AI services from Google, Amazon, and Microsoft.

Federal IT and program executives must learn how to benefit from intelligent automation in order to modernize and transform federal programs and services. By adding the power of AI and RPA to their low-code applications, agencies can improve their processes, responsiveness, and customer experience. Automating processes gives team members more time to focus on high-value initiatives and increases staff satisfaction.

RPA is an approach to intelligent automation that includes tools such as rules engines, bots, and “screen-scraping”. RPA automates repetitive tasks, such as cutting and pasting data from one system to another, replying to web queries, answering routine calls, and responding to common email requests. Combining case management and BPM with RPA drives better decisions, increases productivity, and eliminates redundant data entry.

Organizations implement AI to increase constituent engagement and organization productivity. Agencies that manage routine correspondence with citizens, businesses, employees, and other agencies can reduce their operating costs with chatbots. For example, chatbots free staff from repetitive tasks, allowing them to work on more valuable and interesting assignments and improve their skills.

### SUCCESS STORY:

## Manpower and Recruiting System Digital Transformation

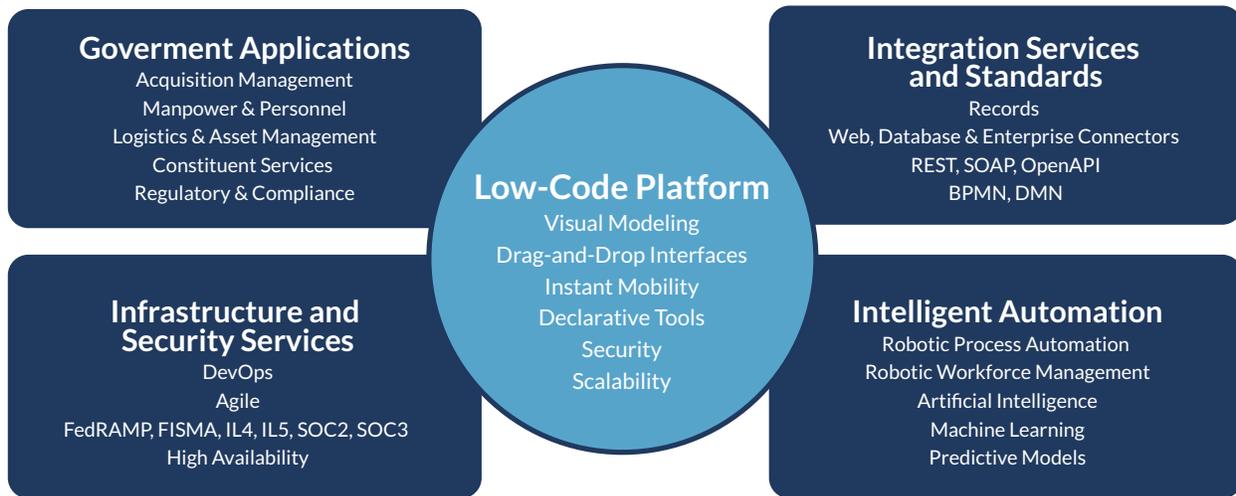
A Department of Defense (DoD) organization developed a mobile-enabled system that provides 3,000 recruiters with all the tools they need from the moment they meet an applicant to the time a new recruit leaves boot camp. The system supports command operations and is the DoD’s first cloud-hosted, mobile recruiting solution. The Appian platform has increased staff productivity and responsiveness, helping the DoD more effectively recruit the best candidates.

The development team releases new capabilities every two to four weeks, using innovative low-code, Agile, PaaS, and DevOps technologies. The DoD organization has ambitious plans for introducing artificial intelligence (AI) and robotic process automation (RPA) to improve recruiting and training. AI and RPA tools will enable the DoD to more strategically and effectively use program data to select, place, and educate recruits.

## Government Low-Code Functional Components

Functional Components	Description
<b>Low-Code Platform</b>	Visual Modeling, Drag-and-Drop Interfaces, Instant Mobility, Declarative Tools, Security, Scalability
<b>Integration Services and Standards</b>	Records, Web Service, Database, and Enterprise Software Connectors, BPMN, DMN, REST, SOAP, JDBC, XML, OpenAPI
<b>Intelligent Automation</b>	Artificial Intelligence (AI), Machine Learning, Robotic Process Automation (RPA), Robotic Workforce Management, Analytics, Predictive Models, Natural Language, Chatbots
<b>Infrastructure and Security Services</b>	DevOps, Agile, FedRAMP, FISMA, IL4, IL5, HIPAA, SOC2, SOC3, High Availability, Disaster Recovery, AWS GovCloud, Microsoft Azure, MilCloud
<b>Government Applications</b>	Acquisition Management, Manpower and Personnel Management, Logistics and Asset Management, Constituent Services, Regulatory and Compliance

## Government Low-Code Digital Platform Components



# Start Your Modernization and Digital Transformation Journey with Appian

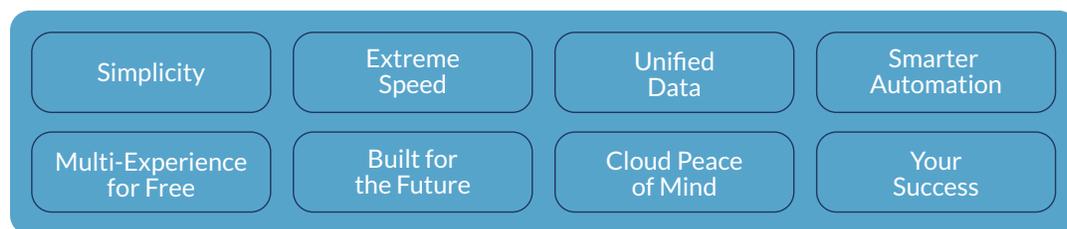
Agencies trust Appian’s enterprise low-code platform for their most complex mission systems. Appian partners with IT executives who must secure modernization funding, build a consensus across their agency, and create collaborative teams to build mission-critical applications. The platform enables government agencies to leverage current IT investments and extend the capabilities of their legacy systems.

Appian delivers secure, consistent, and seamless applications across cloud, mobile, and offline environments. Customers can deploy Appian on-premises, in the cloud, or in a hybrid environment that includes a FedRAMP Authorized Managed Cloud (up to Cloud Security Information Impact Level II and IV), and the ability to run in MilCloud, AWS GovCloud, and Microsoft Azure. The platform allows federal customers to choose where to deploy their applications without limiting functionality or flexibility.

Agencies retain control and avoid software vendor “lock-in” with a standards-based low-code platform that ensures agile, portable, and cost-effective applications. Government customers build secure cloud apps that address their specific needs—rather than relying on costly, heavily customized packaged applications.

Appian’s focus on eight core principles is a primary reason that IT leaders rely on us when developing and implementing their platform, modernization, and digital transformation strategies. Appian is committed to delivering exceptional value and customer experiences from your first interaction through implementation and support. Gartner, IDC, and TrustRadius.com say that Appian has the most satisfied customers who enjoy the fastest time-to-value in the industry.

## Appian Core Principles



### SUCCESS STORY:

#### Onboarding and Security Clearance Applications Extend Legacy HRM System

A federal law enforcement and homeland security agency developed a personnel administration and security clearance system with the Appian platform. The system automates on-boarding, off-boarding, and security processing for all agency employees and contractors. The agency transformed on-boarding and security clearance processes to extend core Human Resource Management applications.

The Appian platform provides a single process view and data integration across more than 10 legacy systems including an ITSM, data warehouse, Office of Personnel Management Personnel Investigations Processing System (PIPS), and GSA USAccess solution for issuing HSPD-12 compliant credentials. The low-code system augments legacy personnel security applications, optimizes agency processes, and improves data management.

## Federal Low-Code Application Examples

See how the Appian enterprise low-code platform enables federal agencies to deploy mission-critical applications faster and without coding. The platform offers significant flexibility over traditional solutions because it enables rapid design, development, and deployment of mission and back-office systems.

[Request an Appian demo](#) to see how you can build, use, and change applications that support:

- Improved agility and flexibility
- Decreased total cost of ownership (TCO)
- Better user experience (UX) and customer experience (CX)
- Rapid and frictionless application modernization
- More effective risk management and governance

### Explore Appian Public Sector Applications

Manpower and Personnel Readiness	Acquisition Management	Logistics and Asset Management	Constituent Services	Regulatory and Compliance
<ul style="list-style-type: none"> <li>• Talent Management</li> <li>• Training Delivery Management</li> <li>• Recruiting</li> <li>• Employee &amp; Contractor On-Boarding</li> <li>• Employee &amp; Contractor Off-Boarding</li> <li>• Workforce Management</li> <li>• Expense and Time Tracking</li> <li>• Background Investigations</li> <li>• Security Clearance Management</li> </ul>	<ul style="list-style-type: none"> <li>• Acquisition Planning</li> <li>• Contract Writing</li> <li>• Purchase Requests</li> <li>• Contracts Management</li> <li>• Requirements Management</li> <li>• Closeout Processing</li> <li>• Vendor Management</li> <li>• Government Purchase Card</li> </ul>	<ul style="list-style-type: none"> <li>• Asset Data Management</li> <li>• Fleet and Asset Management</li> <li>• Field Service Management</li> <li>• Logistics Management</li> <li>• Mobile Maintenance</li> <li>• Facilities Management</li> <li>• Real Estate Management</li> <li>• Lease Management</li> </ul>	<ul style="list-style-type: none"> <li>• Grants Management</li> <li>• Constituent Case Management</li> <li>• Claims Processing</li> <li>• Correspondence Management</li> <li>• Intelligent Contact Center</li> <li>• Self Service Solutions</li> <li>• Eligibility and Enrollment</li> <li>• Permitting and Licensing</li> </ul>	<ul style="list-style-type: none"> <li>• Entity, System, and Process Audit</li> <li>• Financial Audits</li> <li>• Field and Site Inspections</li> <li>• Regulatory Submission Management</li> <li>• Workplace Safety Compliance</li> <li>• Investigative Case Management</li> <li>• Background Investigations</li> <li>• Project/Portfolio Management</li> </ul>

## Sources

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**Gartner.** “A Digital Government Technology Platform Is Essential to Government Transformation”, 2018.

**IDG.** “The Future of Work”, 2019.

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**Office of Management and Budget.** “Efficient, Effective, Accountable: An American Budget, Budget of the U.S. Government”, 2018.

**The Federal Information Technology Acquisition Reform Act (FITARA)** was enacted as Section 831 of the National Defense Authorization Act for Fiscal Year 2015 (Public Law 113-291).

**The Modernizing Government Technology (MGT) Act** was enacted as part of the Fiscal Year 2018 National Defense Authorization Act (NDAA) on December 12, 2017 (Public Law No. 115-91).

## Appian

Appian provides a low-code platform that accelerates the development of mission-critical applications. U.S. government agencies, defense organizations, and many of the world’s largest corporations trust Appian applications to improve manpower and personnel readiness, regulatory and statutory compliance, acquisition management, logistics and asset management, and constituent services.

For more information, visit [Appian Public Sector Solutions](#)