

# Agile. Model-driven. No code.

The three tenets of IT modernization

A PEGA  
WHITEPAPER

Pega Government  
Business Line



Build  
for  
Change<sup>®</sup>

## Overview

As Congress works to realize the Modernizing Government Technology Act, and agencies look to both upgrade mission-critical systems and implement cyber protections, there is an urgent need for government decision-makers to rethink their approach to modernizing legacy systems.

To avoid the mistakes that have doomed past modernization efforts, agencies must consider employing best practices that are more agile and iterative in nature, cloud-based, and model driven. These best practices are in contrast to traditional approaches where software is developed with inflexible tools and programming languages, leveraging waterfall methodologies. Moreover, as government organizations begin to transform their modernization approach, Congress will also need to consider how these changes should be reflected in future legislation, as well as the oversight proceedings that ensue.

## The challenge

Government organizations are complex. They have deeply rooted and unique cultures, data siloes, and significant legacy systems associated with them. Many often struggle to maintain day-to-day functions while at the same time transforming operations, modernizing legacy systems, and delivering citizen-focused services. As stewards of taxpayer dollars, these organizations are challenged with the pressure to innovate and modernize, while simultaneously responding to ongoing policy changes. Traditionally, government organizations have had two choices for modernizing government operations:

- **Custom development:** Applications that are costly and time-consuming to develop and maintain. Once these custom applications are actually delivered, the functionality is obsolete or does not meet current organizational requirements.
- **Commercial off-the-shelf (COTS):** Applications that can be inflexible and inadequate, forcing government organizations to spend more money for customizations that not only require additional delivery time, but increase the cost of future operations and maintenance.

These traditional approaches also lock government organizations into unwanted license agreements and solutions, requiring expensive, ongoing commitments to product vendors and system integrators. This unfortunate situation impairs an agency's ability to quickly respond to the ever-increasing velocity of policy and technology changes.

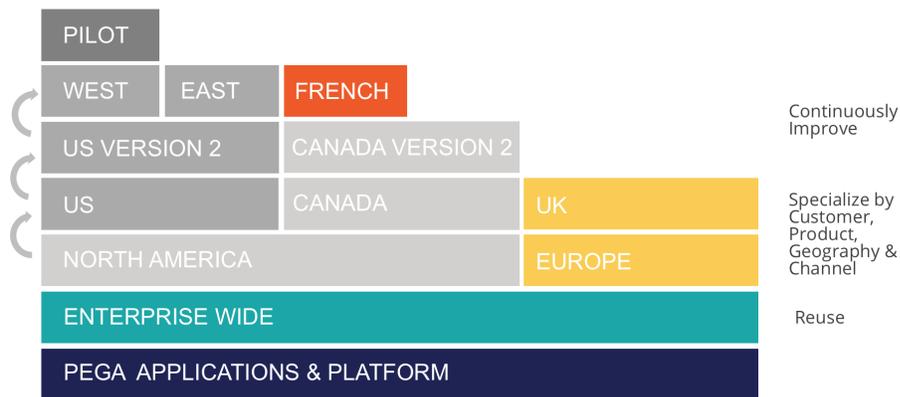
## The solution

Governments are in one of the most dynamic, diverse periods in history. They face the continual need to respond quickly to changing regulations and legislation, socio-economic forces, emergencies, and technological advances. Government agencies need a new, innovative approach to solution development—one that significantly cuts implementation time, costs, and risks while enabling rapid response to change. Pega offers government organizations a distinctly superior solution for transforming legacy systems. Pega® Government Platform is the leading agile, secure, unified platform that empowers agencies to transform and innovate without having to rip-and-replace existing systems.

Specifically, Pega provides:

- **Wrap and renew legacy systems:** Rather than stitching together disparate technologies, Pega wraps around legacy applications, refreshing the user experience and extending functionality. Our software can easily integrate with legacy systems without the need to migrate or replicate. This allows government organizations to be agile in the front end (customer engagement) and stable on the back end (enterprise resource planning and other operational systems). This flexibility gives government organizations a low-risk way of future proofing mission-critical systems. Organizations can deprecate old solutions or pieces of functionality out, as it makes sense, substantially lowering the risk of a failed, embarrassing large-scale modernization effort.
- **No code:** Pega goes above and beyond the typical advantages organizations find with open source software. Owners of open source software make the code base available to users for free, so they can extend or make changes when enhancements or upgrades are required. With Pega, there is no reason for coding, as the application is collaboratively configured by both IT and business users through graphical models and simple metaphors. These models, in turn, automatically generate the documentation and application code. When changes are made to the model, the code and documentation are automatically updated. This approach allows business owners to implement simple changes without having to depend on their IT department or systems integrator.
- **Direct capture objectives (DCO):** Uniquely, Pega directly captures the policies, procedures, and regulations that define how work gets done (rules, data models, UI, integrations, reports, and organizational structures) as part of a government organization's automated process. DCO eliminates errors that have historically occurred when programmers manually translate requirements into code. Instead of creating mountains of requirements documents, administrators and IT staff use a shared visual model that automatically generates required solution documentation. This approach dramatically increases both the speed and accuracy with which objectives are captured, bringing IT and business users closer together.

- Reuse and specialization:** Pega® Government Platform uses a layered architecture that captures the complexity of an agency's organization (see Figure 1), allowing organizations to reuse common assets across multiple mission areas, resulting in notable cost savings, while still allowing specialization. Only Pega provides this patented, reusable architecture, called the Situational Layer Cake (SLC). The SLC not only drastically increases reuse and standardization, but application development is accelerated exponentially compared to traditional methods. If global changes are needed due to policy amendments, the modification is made in the one place (enterprise layer as shown below) and all the layers above inherit this change automatically.



**Figure 1**

- Mobility first:** A key capability of the Pega® Platform is mobility. We deliver industry-leading mobile technology that will enable organizations to extend their full suite of services to their customers – directly on their mobile device. With Pega, all applications can function as mobile apps “out-of-the-box,” allowing users to access the application from a laptop, tablet, or smartphone. These native capabilities allow organizations to develop an application in Pega and access it through a mobile browser with a single click. With Pega, mobile applications change along with the underlying application, with no further coding required. Pega offers additional options for developing and deploying mobile apps, depending on the functionality requirements of the applications.

- **Robotic automation and artificial intelligence (AI):** Pega's intelligent robotic automation is fully integrated and works with both humans and independently, to allow enterprises to move beyond task automation to optimizing how work gets done. Workforce intelligence, Robotic Desktop Automation (RDA), and Robotic Process Automation (RPA) help organizations integrate technologies, optimize work, and make data-informed decisions. Pega's goal is to enable our clients to wrap their business around their customer, not the other way around. Pega also leverages AI to drive next best action across any channel and embeds intelligence in all aspects of an application. Wherever the customer goes, the Pega® Customer Decision Hub goes. The major analyst firms have regularly recognized Pega as a leader in several of their reports over the years. We're number one in case management. We're number one in business process management. We're also number one in real-time decision management. We're the only software vendor who can make this claim.
- **Transparent and auditable:** Pega® Government Platform incorporates all the power of rules, processes, decisions, predictive analytics, and case management into every customer or constituent contact, bringing intelligence to each interaction and providing complete documentation for audit, reporting, and knowledge-base needs. It maximizes visibility, transparency, and control for government organizations through rich, out-of-the-box analytics, and reporting capabilities.

## The value

Pega challenges the status quo by smashing through government silos and streamlining organizational complexity. Pega empowers government organizations to deploy highly automated applications in a fraction of the time and cost of traditional development methods. A Forrester Consulting Total Economic Impact™ (TEI) study<sup>1</sup> examined the potential return on investment (ROI) enterprises may realize by deploying the Pega® Platform. It found:

- **ROI of 321 percent:** The analysis found this was achievable with a payback period of less than 12 months.
- **Development cost savings of 75 percent:** With the adoption of the Pega® Platform, all of the interviewed organizations transitioned to a model-driven approach with agile methodologies.
- **Reduced time-to-market by 50 percent:** The analysis commissioned that organizations are able to launch new business applications up to 90 days earlier.
- **End-user productivity gains up to 75 percent:** Interviewees reported that their end-users had typically achieved 20 to 50 percent of productivity gains.

Pega brings together dynamic case management, robotic automation, business process management, mobile applications, no-code development, and business decision management in a unique, unified, model-driven platform. This enables the delivery of a complete end-to-end customer or constituent engagement solution that connects front-office requests to back-office processes.

The agile methodology and platform technology, employed by Pega, supports today's legacy modernization initiatives. This is achieved by enabling low-risk, wrap-and-renew options, allowing organizations to phase-out old code or systems in a timeframe that is realistic, mitigates risk, and improves government business outcomes.

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<sup>1</sup> <https://www.pega.com/forrester-tei>

## Policy and program implications: Oversight topics to consider

As legislators prepare to conduct continued oversight over government IT modernization initiatives, agency decision-makers need to consider the following questions:

- Has your organization looked at the benefits of using a more iterative software development approach in your proposed IT modernization program?
- Are you getting advice from innovators in the private sector with regard to the best and most up-to-date agile development methodologies?
- Has your agency considered using a library of reusable application assets to accelerate development timeframes and reduce cost?
- Many changes are required to shift people, process, and technologies from a waterfall to an agile development methodology. What specific actions are you planning to take to successfully transition your organization's culture, processes, and technology?
- Is your organization actively developing a governance structure to manage and mitigate risk associated with your IT modernization program?
- What changes are required to your IT modernization initiative's program management office, methodology, and associated performance metrics to accommodate this shift in development methodology?
- Has your organization looked at the benefits of transforming your DevOps environment and processes to mimic what is being used by innovators in the private sector?
- The most forward-looking tech companies are developing their applications leveraging unified platforms that are model driven and require low or no programming code to mitigate risk and unify their business process with actual software development process. Is this the approach you're taking?
- The traditional "rip-and-replace" approach to modernizing legacy systems has not performed very well in government or the private sector. The approach that appears to be getting the best results today is to build an orchestration layer across legacy systems that bridge those siloes, and then replace those silo modules over time. This approach appears to lower risk levels and reduce disruptions in day-to-day activities. Have you considered this method to mitigate risk?

## IT modernization customer success stories

Governments and Fortune 500 companies around the world are leveraging Pega's capabilities to modernize legacy applications, streamline processes, improve customer expectations, and lead the way to change. We've highlighted a few of our customer success stories below.

### U.S. Department of Veterans Affairs

To ensure the most advanced medical equipment and services are available for Veteran care, the U.S. Department of Veterans Affairs (VA) Financial Services Center (FSC) implemented the Invoice Payment and Processing System (IPPS). IPPS is a unified, online invoice certification system that VA FSC uses to process all payments on behalf of medical facilities nationwide. This includes the purchase of hospital equipment, from pacemakers to hospital beds to facility maintenance services.

Unifying all payment processing under IPPS, VA was able to replace legacy applications and improve the system's efficiency and flexibility. Previously, multiple siloed systems were stitched together, making communication among systems slow and expensive to maintain. IPPS introduced automation, and streamlined the payment process by receiving invoices from all available formats, performing advanced business rule processing, automatically routing invoices for approval, and generating the appropriate payment transactions. With more than 15,000 certified VA IPPS users throughout the country, this results in significant time savings and improved employee productivity.

As a result of implementing IPPS, VA FSC reduced its invoice processing costs by 33 percent. With more streamlined and efficient operations, VA FSC was also able to redistribute staff to other mission-critical areas across the organization, eliminating the cost of hiring additional employees. Not only was VA able to keep valuable staff members and institutional knowledge, the organization was also able to save taxpayer dollars.

[Read the full story here.](#)

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### U.S. Department of the Treasury

Within Treasury, the Bureau of the Fiscal Service supports the department's mission through exceptional accounting, financing, collections, payments, and shared services. To manage the post-payment lifecycle of all Automated Clearing House (ACH), FEDWIRE, and government checks paid out by U.S. agencies, the bureau used five legacy applications and multiple disparate processes. These systems maintain seven year's worth of government payment data, including seven billion records. In 2013, the Bureau of the Fiscal Service – a consolidation of the Financial Management Service and the Bureau of the Public Debt – partnered with Pegasystems to help Treasury further modernize, streamline accounting, and improve customer service.

Treasury cases contain confidential financial information that require high levels of security, and Pega's automation and security capabilities ensure adherence to strict federal government security requirements. Additional security features implemented include confidential desktop scanning, secure document management, and a secure portal for financial institutions to view and take action on a variety of Federal Automated Clearing House (ACH) exceptions.

The modernization will expand its legacy application functionality and provide web-enabled access for users to see payment information, ask questions, make stop-payment requests and view scanned images of cashed checks. As a result of the project, the bureau will have consolidated all post-payment life cycle management (electronic and checks) into a single digital system, making it easier for employees to support payment questions and special requests. With PPS, the U.S. Treasury will be able to better manage exceptions, close gaps in the payment process, and improve customer service. One additional bit of good news for U.S. taxpayers is that this successful modernization effort is estimated to reduce system operating costs by \$10 million per year, on a reoccurring basis.

[Read the full story here.](#)

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## U.S. Department of Agriculture

EzFedGrants is a comprehensive grants management solution, capable of administering the nearly \$100 billion of USDA loans, guarantees, and insurance that flow annually in support of American farmers and ranchers. The solution has also been built to scale, to meet the grant requirements of additional external federal agencies. To accomplish this objective, USDA chose Pegasystems to serve as the grantee-facing, self-service portal, and core technology used to automate the many complex processes of the grants management lifecycle across many disparate organizations.

Prior to the EzFedGrants solution, many of the grant processes within these individual USDA agencies were paper-based and could take months to transact. USDA was able to capture, standardize, and consolidate these undocumented and manual processes into Pega, allowing for massive operational efficiencies and cost savings with the first go-live.

This holistic solution enables the USDA to manage grants throughout the entire lifecycle. Easily configured dashboards give the USDA management team a 360-degree view of its programs in real time, allowing for greater operational efficiencies, as well as the ability to decrease potential fraud through improved visibility, tracking, and transparency. Moreover, stakeholders' user acceptance and confidence in the accuracy of the data has increased exponentially since the single, integrated solution eliminates data redundancy and inefficiencies.

[Read the full story here.](#)

## AIG

AIG insures risk around the world, selling more than 90 types of insurance products in over 100 countries, in 400 offices, and 40 languages. AIG had a big global presence, but lacked scale. AIG also had silos – 91 to be exact – and no common backbone. The company set out to simplify its systems, taking the complexity out and bringing more responsiveness in, while allowing the products to remain as “local” as possible to each country. AIG sought technology that would help optimize their complaint process and improve their overall end-user experience across global offices, for both the agent and the customer.

The first Pega-based system that AIG built and launched in just nine weeks was the layer cake OneClaim™ system. On top of the Pega backbone, AIG built three critical layers for re-use: global, regional, and country. The OneClaim™ system has been successfully rolled out across three continents and 81 countries. AIG continues to modernize additional systems, leveraging the same Pega backbone, enabling AIG to have one global system that’s still capable of meeting local requirements. Since deployment, AIG has achieved a 20 to 30 percent reduction in cycle times for higher frequency claims, straight-through processing for high frequency, low complexity claims, and improved outcomes for all lines of business.

[Read the full story here.](#)

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## American Express

Amex has successfully leveraged Pega technology since 2009 and relies on Pega as their BPM, case management, and contact center standard. In the past four years, Amex has developed and implemented over 20 Pega-based applications to automate a wide range of functions, including:

- Credit card disputes
- Customer complaints
- Monetary adjustments
- Fraud
- Card member loyalty
- Payment exceptions
- Risk rating
- Underwriting of merchants and corporate card customers
- Card member payment plans

Pega’s end-to-end system is designed to provide excellent care for Amex customers, based on their relationship servicing model. Since deploying Pega, customer satisfaction has tripled, expense and service margins have decreased, customer handling time is lower, and credit card attrition is down 4 percent.

[Read the full story here.](#)

## JP Morgan Chase

The Treasury Services Division of JPMorgan is entrusted with the cash business of more than 135,000 corporations, financial institutions, and governments in over 180 countries around the world. Daily operations include payments totaling \$7.5 trillion and more than 23 Million transactions. JPMorgan wanted to break down the various operational silos that had developed over time, and create a robust system that would service customers quickly and efficiently, regardless of their location.

JPMorgan and Pega combined forces to develop a strategy for bringing the systems and operations together into an integrated global platform. The integrated platform put information at the clients' fingertips, by enabling them to access one application for all the information needed to make investment decisions. As a result, customers are no longer bound by the eight to five schedule of their local branch. Instead, they leverage centralized hubs around the globe to ensure 24x7 service. JP Morgan has also achieved increased profitability, scalability of applications, expedited resolution times, service in the same time zone, and a much improved, 360-degree view of their portfolio.

**Read the full story [here](#).**

## Conclusion

Government agencies face ongoing change. From technological advances to shifting regulations and legislation, these organizations operate within one of the most dynamic and diverse periods in history. Consequently, staying ahead of the curve means transforming and modernizing legacy systems, in a way that not only saves time and money, but also empowers government workers to respond rapidly to change.

Unified, agile, and secure, the Pega® Government Platform offers governments a superior solution for meeting these challenges. A number of governments and Fortune 500 companies around the world are already leveraging Pega's capabilities, and reaping these rewards, by modernizing legacy applications, streamlining processes, and improving customer expectations. With Pega, leading the way to change has never been easier.

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



## ABOUT PEGASYSTEMS

We are Pegasystems, the leader in software for customer engagement and operational excellence. Our adaptive, cloud-architected software – built on the unified Pega® Platform – empowers people to rapidly deploy, and easily extend and change applications to meet strategic business needs. Over our 30-year history, we've delivered award-winning capabilities in CRM and BPM, powered by advanced artificial intelligence and robotic automation, to help the world's leading brands achieve breakthrough results.

For more information, please visit us at [WWW.PEGA.COM](http://WWW.PEGA.COM)