Break free from legacy: *Rethink applications and retire your tech debt*

Whitepaper

Enterprise technology has reached a critical turning point.

While legacy systems continue to form the backbone of operations across industries – processing trillions in transactions annually – these aging infrastructures have become significant barriers to digital transformation and autonomous operations:

- 70% of Fortune 500 software is over 20 years old
- Enterprise IT leaders in the U.S. spend $1.14T maintaining existing infrastructure
- Teams spend up to 60% of their working hours bridging gaps between systems

But the barriers to transformation are high.

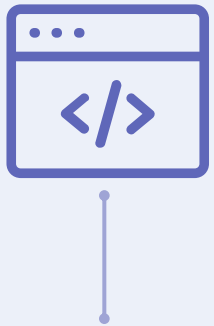
Enterprises have struggled to overcome the obstacles that keep them locked into legacy systems and prevent transformation.

The imperative to move away from outdated, ineffective legacy systems is clearly there – but that doesn't make it any easier. Seventy percent of legacy transformation projects fail, indicating a fundamentally flawed approach. Enterprises have continued to tackle these projects using the same sets of tools and frameworks that have proven to be inadequate. As a result, a pattern of recurring obstacles has emerged.

The failure modes of transformation projects:

Costly discovery through lengthy analysis, complex current state, and ill-defined processes.

Gaps in cloud readiness due to systems not built for modern, cloud-based environments.

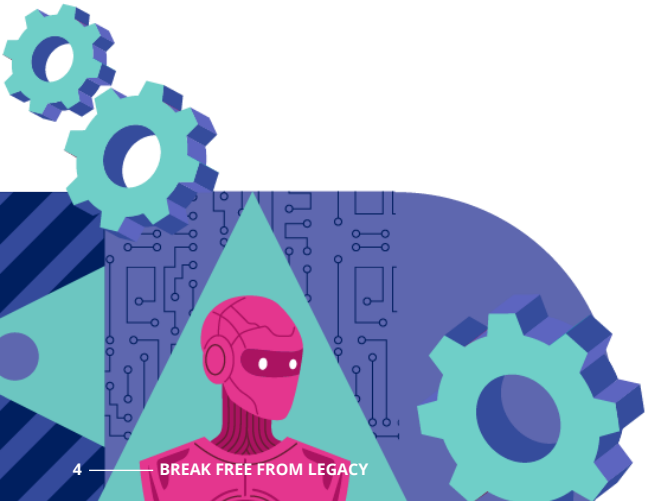


Inability to fully retire legacy systems due to embedded systems and unforeseen complexity.

MARKET LEADERS VS. LAGGARDS:

The widening gap

It is increasingly clear: The enterprises that do transition away from legacy systems and into a modern, cloud-based infrastructure stand to separate themselves from the competition.



01.

Workflow intelligence

- Leaders: Deploy AI-augmented workflows enabling autonomous decision-making
- Laggards: Remain trapped in rigid, rules-based legacy processes

02.

Business agility

- Leaders: Achieve 40–50% faster implementation through intelligent automation
- Laggards: Struggle with manual updates that take weeks or months

03.

Customer experience impact

- Leaders: Deliver real-time, personalized engagement across channels
- Laggards: Create fragmented experiences with 40–60% slower response times

04.

Operational excellence

- Leaders: Build autonomous workflows that self-optimize based on real-time conditions
- Laggards: Maintain manual processes consuming 50% more IT resources

AI-powered transformation

There's a better way to transform. Now enterprises can use AI to accelerate discovery, realize value, and drive the future of work. Organizations that successfully execute this transformation won't just reduce costs and improve efficiency; they'll create sustainable competitive advantages through enhanced agility and innovation capabilities. Transforming legacy infrastructure isn't optional – it's a prerequisite to realizing the autonomous vision. The path forward requires a fundamentally different approach to modernization – one that leads with AI-powered workflow automation.

01.

Rapid Transformation
Reshape your process architecture

- Discover processes and re-engineer applications in record time
- Reimagine applications to incorporate modern best practices and automations
- Free data to the cloud and decouple monolithic architectures

02.

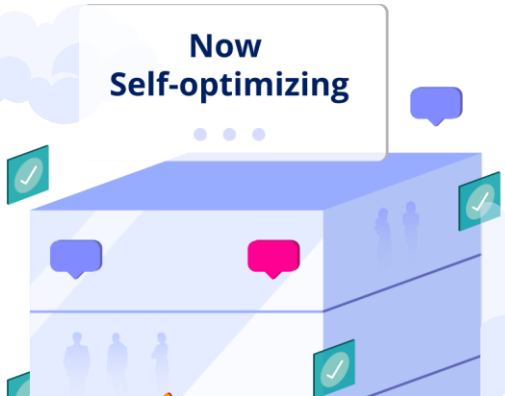
Business Value
Break free from legacy costs

- Break the cycle of annual legacy IT maintenance
- Capitalize on business agility and resiliency
- Deliver best-in-class customer experiences

03.

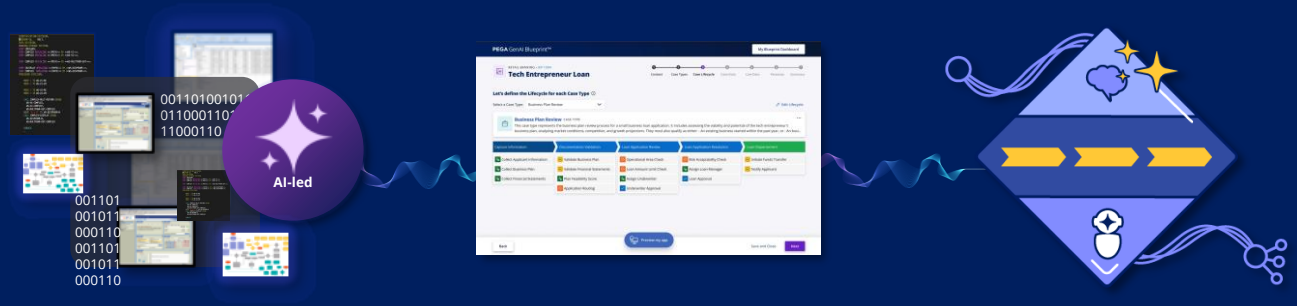
Unlock Potential
Enable the Autonomous Enterprise

- Implement self-optimizing processes
- Deploy AI-driven decision automation
- Enable predictive maintenance and scaling



How does it work?

Leverage AI to rethink & retire legacy applications



Rapid analysis

Extract process data & accelerate discovery

Intuitive Blueprint

Reimagine application design in minutes

Future-proof architecture

Rapidly deploy cloud-ready applications

Transform using Pega Blueprint™

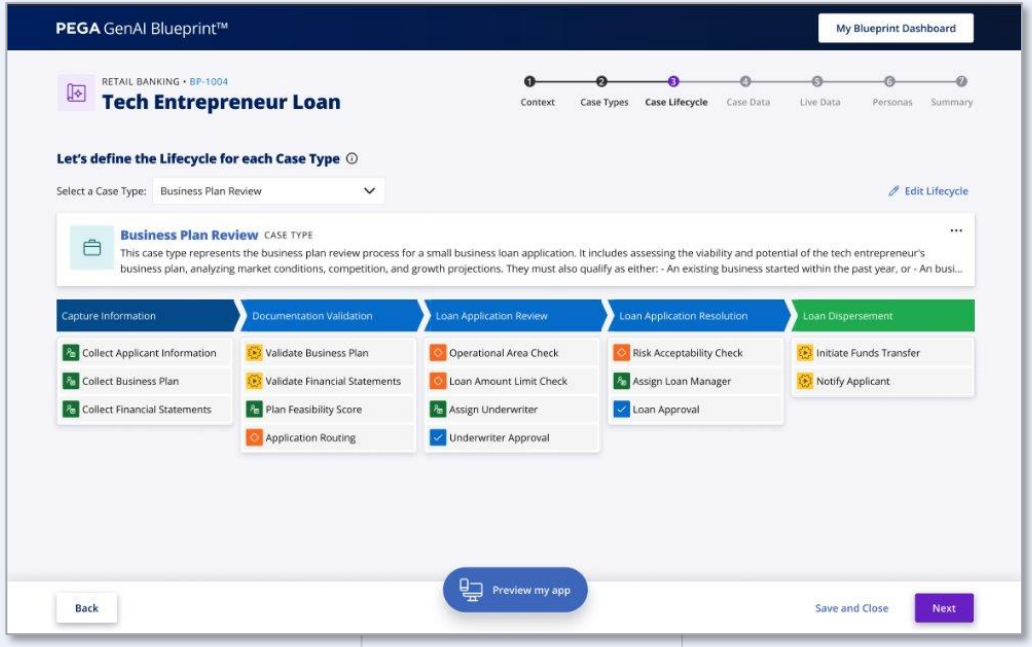
The obstacles that have long stood in the way of successful projects are now solved problems with agentic AI.

Discover the as-is architecture by compiling existing process documentation (like PDFs, diagrams, BPMN files, demo videos, and screenshots) alongside output from legacy code analysis tools.

Reimagine applications by analyzing those components and generating an end-to-end, cloud-ready application in minutes, complete with everything needed for future-proof architectures.

Retire legacy applications and deploy the newly designed Blueprint™ application directly into Pega Platform™ production.

Some of the world's most successful enterprises are already using Blueprint™ to transform operations.



Deutsche Telekom is a leading telco provider – with more than 250 million customers. For them, building agility and efficiency into HR operations isn't just important, it's essential.

Frequent changes to laws and regulations, nearly a thousand distinct processes, and a team spanning 25 countries made it difficult to produce a seamless experience and align business and IT teams across languages and priorities.

This scenario reflects the challenges large organizations face when approaching legacy transformation, or really any project that strives to modernize and transition work without dropping customers. It is the kind of dilemma that almost every successful, complex enterprise will face at some point.

By leveraging AI-powered process engineering with Pega GenAI Blueprint™, Deutsche Telekom was able to accelerate transformation while maintaining continuity. They bridged the gap between IT and business stakeholders, ensured airtight workflows that improved existing processes, and reimagined how work gets done by executing new applications. As of mid-2024, Deutsche Telekom had consolidated more than 500 HR processes into one platform, enabling greater agility and retiring legacy systems in a controlled, strategic way.

Lloyds Banking Group, Britain's largest bank with over 26 million customers, is no stranger to modernization efforts.

After all, they've been in business for more than 300 years. But rather than remain tied to the old ways of working, Lloyds knew they needed to transform by moving to the cloud.

They manage 50 applications across four banking areas using Pega, serving 35,000 users and handling 40–50 million cases per year. The bank sought to mitigate its costly, monolithic upgrade cycle, improve the user experience for customers and employees, increase efficiency and productivity, and lower its total cost of ownership by simplifying its application portfolio.

In 2022, they began migrating their estate to Pega Cloud®. Within a year they had fully transformed, remediated and rationalized eight legacy applications into four cloud applications, along with four net-new applications within six months. As of 2024 the bank has executed 33 platform updates – dozens more than would have been feasible on prem. They can deliver 10+ changes to production each week. And they've already been able to decommission multiple applications.

Lloyds' story is encouraging, but it gets even better. Their migration is set to accelerate even further thanks to new capabilities that weren't available in 2022.

Agentic AI in Blueprint™ simplifies cloud migration by decoupling monolithic systems, harmonizing data and integrations, and ingesting and defining systems of record as data objects.

Consider a few specific mechanisms that make this particularly powerful:

Intelligent data ingestion & definition: AI-powered analysis automatically maps legacy database structures and generates cloud-native schemas, while maintaining existing data relationships. This enables rapid migration without disrupting business operations or requiring extensive manual reconfiguration.

Real-time data orchestration: Smart data tracking systems enable continuous information flow between established systems and cloud-based processes, ensuring seamless business continuity. This two-way data exchange maintains consistency while supporting immediate processing and ongoing scheduled updates.

Secure elastic storage: Cloud-native data lakes provide scalable, enterprise-grade storage with built-in security and governance. Auto-vectorization capabilities prepare data for AI operations while maintaining immediate accessibility for day-to-day workflows.

Operational excellence: Universal connectivity framework virtualizes data access across multiple sources through a single interface. This abstraction layer supports over a dozen integration protocols and hundreds of pre-built connectors, enabling rapid reproduction of existing APIs while simplifying future integration needs.

Success hinges not on piecemeal solutions, but on adopting a comprehensive platform strategy capable of handling enterprise data at scale. Pega Live Data architecture revolutionizes this paradigm by offering a cloud-native approach that delivers both immediate value and long-term strategic advantages.

Deploy to a *cloud-native* platform

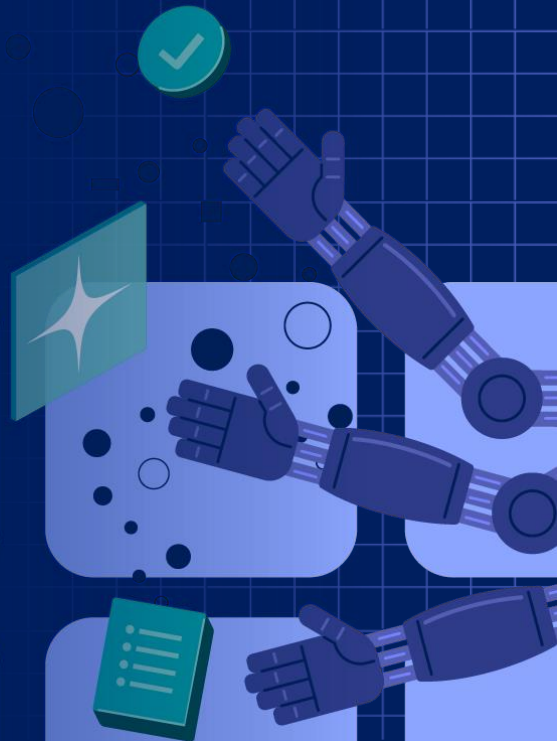
The platform approach creates a positive feedback loop between cloud migration and AI-driven process engineering, serving as an essential mechanism for true enterprise transformation. Pega Infinity™ can act as the essential foundation to deploy and execute newly imagined workflows and processes on one side while streaming live data from the cloud, data lakes, and integrated systems on the other.

Cloud infrastructure and AI processes work in concert and enable organizations to:

1. Seamlessly integrate AI-driven decision-making into cloud-native workflows, allowing for real-time process optimization and intelligent automation.
2. Leverage predictive analytics and machine learning to continuously improve operations while maintaining data consistency during the migration.
3. Build the foundation for an autonomous enterprise by layering agentic AI into workflows, employee activities, customer interactions, and process optimization.

All of this creates an environment where data becomes a strategic asset, processes evolve intelligently, innovation accelerates, and everything can be captured and activated centrally and continuously.

Legacy Transformation: *Delivered*



HOW TO GET STARTED

Transformation in action

Getting started with a legacy modernization project today is faster, easier, and more productive than ever.

Go to Pega.com/blueprint to start designing applications for free.

The first step is often the hardest. Staring down a modernization project – not to mention getting stakeholder and executive buy-in – is not always easy.

To help, Pega has rolled out a legacy transformation pilot to allow clients the chance to get hands-on with their future at no cost and minimal time commitment. We'll partner over the course of a couple weeks to walk through AI-led discovery, application design and iteration in Pega Blueprint™, and implementation and retirement.

Over the course of this engagement, you'll be able to:

- Reverse engineer legacy processes
- Reimagine modern, cloud-ready workflows
- Retire your first legacy app

From there, we can expand the scope of work to include any number of additional applications earmarked for retirement, especially in situations where there are ***core processes stuck in the mainframe***, when you need to ***decouple workflows from ERP***, or when ***retiring BPM and Lotus Notes***.

Not sure which of your legacy applications will make for good transformation candidates? If *any* of the following statements is true, it's worth exploring legacy transformation with Pega:

- ❑ This is a pure workflow application, like a BPM or CRM.
- ❑ This app lives on a system with rules and logic built in, like on the mainframe or in Lotus Notes.
- ❑ We have existing process documentation that describes our legacy state.
- ❑ We have attempted transformation projects in the past, but they stalled out.
- ❑ We are working with a hyperscaler or GSI partner on a legacy modernization project today.

Accelerate the path to modernization.

Transformation Roadmap

Pega Blueprint™ **cuts the software development lifecycle by 50 percent** for modernization projects.

0-3 months: Short-term wins → **3-6 months: Operational evolution** → **6-18 months: Future-proof transformation**

Phase 0:
Map What's Possible

Rapidly uncover the as-is state; identify areas to consolidate many apps down to few using GenAI and Blueprint; drive strategic efficiency while reducing the overall scope of work.

Phase 1:
Design The Future

Transformation Test Drive: 2-week, no-cost pilot to run discovery, reimagine processes, & deploy to the cloud; build a comprehensive go-to-market plan.

Phase 2:
Empower Your Team

AI-driven software architecture design; rapid prototyping; establish a governance & change management framework; build knowledge & capacity for internal teams.

Phase 3:
Go Live in 90 Days

Leverage Pega's AI-powered development to get new workflows live fast. Drive data migration, integration, testing & validation against business requirements. Start retiring legacy apps.

Phase 4:
Optimize & Transform

Ongoing innovation & optimization, continuous evolution; expansion to new business opportunities; scale decommissioning of legacy applications.

Pega is the leading Enterprise Transformation Company™ that helps organizations Build for Change® with enterprise AI decisioning and workflow automation. Many of the world's most influential businesses rely on our platform to solve their most pressing challenges, from personalizing engagement to automating service to streamlining operations. Since 1983, we've built our scalable and flexible architecture to help enterprises meet today's customer demands while continuously transforming for tomorrow. For more information on Pega (NASDAQ: PEGA), visit http://www.pega.com