Modernizing for manufacturing
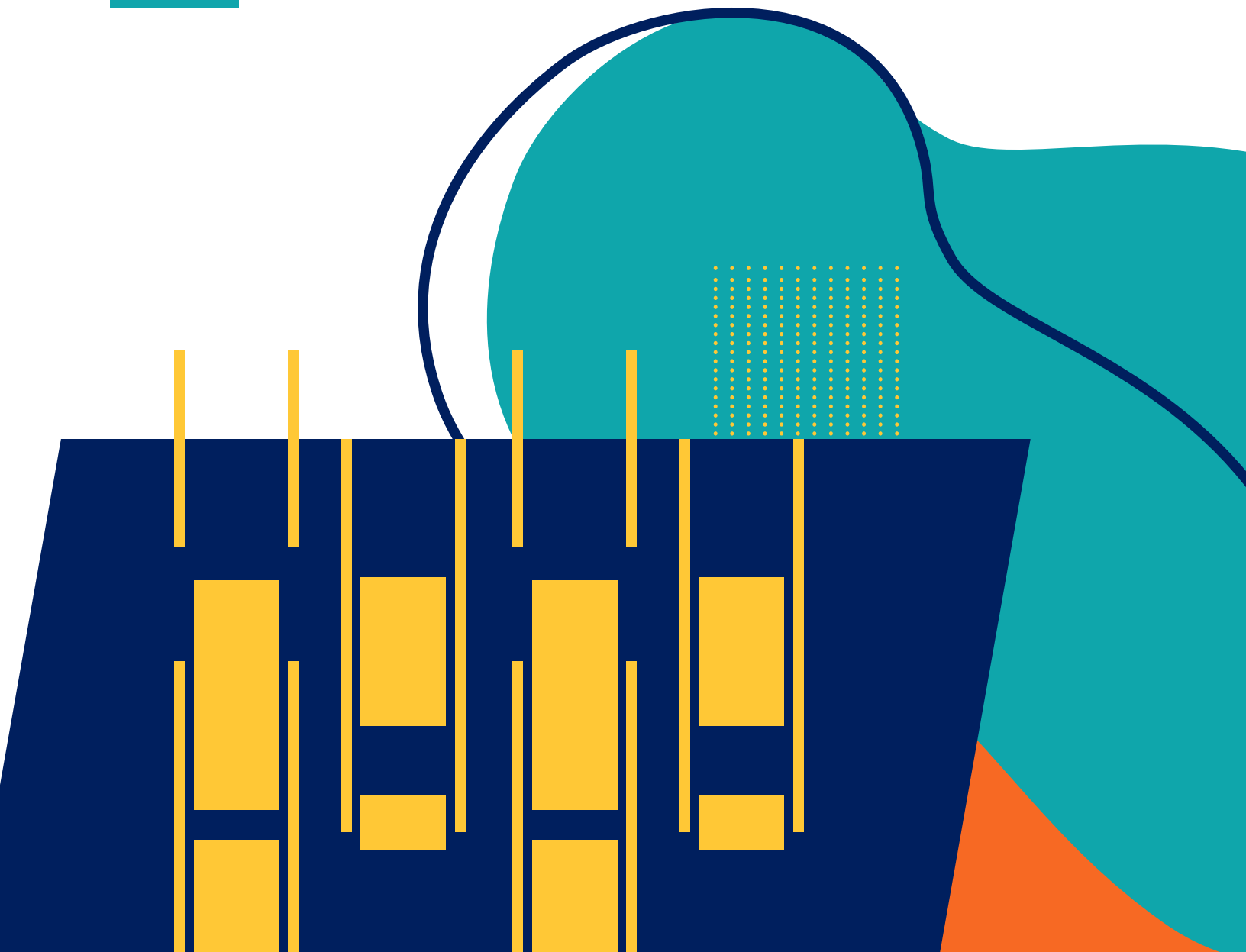
The low-code approach to modernization

As manufacturers look to both upgrade mission-critical systems and implement cyber protections, there is an urgent need for key decision-makers to rethink their approach to modernizing legacy systems. To avoid the mistakes that have doomed past modernization efforts, manufacturers must consider employing best practices that are more agile and iterative in nature, cloud-based, and model-driven. These best practices contrast with traditional approaches where software is developed with inflexible tools and programming languages, using waterfall methodologies. Moreover, as manufacturing organizations begin to transform their modernization approach, they will also need to consider how to keep up with the next wave of changes on the horizon.

The challenge

Manufacturing organizations are complex. They have deeply rooted and unique cultures, data silos, and significant legacy systems. Many often struggle to maintain day-to-day functions while transforming operations, modernizing legacy systems, and delivering client-focused products and services. These organizations are challenged with the pressure to innovate and modernize, while simultaneously responding to ongoing business changes. Traditionally, manufacturing organizations have had two choices for modernizing their operations:

- **Custom development:** Creating bespoke applications that are costly and time-consuming to develop and maintain. Once these custom applications are actually delivered, the functionality is often already outdated or fails to meet current organizational requirements.

- **Commercial off-the-shelf (COTS):** Pre-built applications that can be inflexible and inadequate, forcing manufacturing organizations to spend more money for customizations that not only require additional delivery time, but also increase the cost of future operations and maintenance.
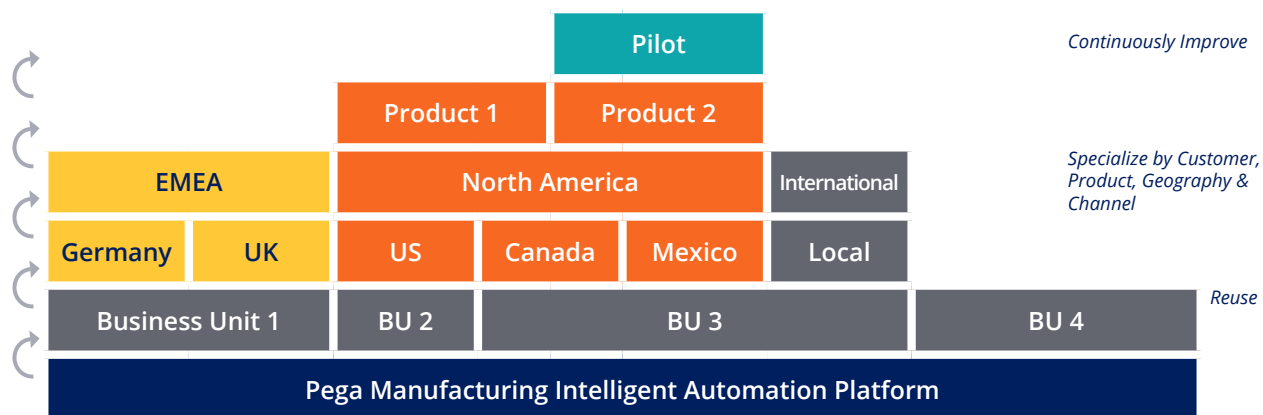
These traditional approaches also lock manufacturers into unwanted license agreements and solutions, requiring expensive, ongoing commitments to product vendors and system integrators. This unfortunate situation impairs a manufacturer's ability to quickly respond to the ever-increasing velocity of business, process, and technology changes.

The solution

Manufacturers 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. They 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 manufacturers a distinctly superior solution for transforming legacy systems. The Pega Platform™ is the leading agile, secure, unified platform that empowers companies to transform and innovate without having to rip and replace existing systems.

Specifically, Pega leverages:

- **Wrap and renew legacy systems:** Rather than stitching together disparate technologies, Pega wraps around legacy applications, refreshing the user experience and extending functionality. Pega software can easily integrate with legacy systems without the need to migrate or replicate. This enables manufacturers to be agile on the front end (customer engagement) and stable on the back end (enterprise resource planning and other operational systems). This flexibility gives organizations a low-risk way of future proofing enterprise-wide systems. Manufacturers 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.

- **Low code:** Pega goes above and beyond the typical advantages that 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. These custom changes and extensions can make patching or upgrades labor intensive, as well as introduce security vulnerabilities. With Pega's low-code capabilities, making patches or upgrades is quick and low-risk, 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 of 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 manufacturing organization's automated process. DCO eliminates errors that have historically occurred when programmers manually translate requirements into code. Instead of creating mountains of requirements documentation, 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 uses a layered architecture that captures the complexity of a global manufacturer, allowing it to reuse common assets across multiple business units, geographies, and product and process areas, resulting in notable cost savings, while still allowing specialization. Only Pega provides this patented, reusable architecture, that not only drastically increases reuse and standardization, but also accelerates application development exponentially compared to traditional methods. If global changes are needed due to new business changes, the modification is made in one place (enterprise layer as shown below) and all the layers above inherit this change automatically.

			Pilot			Continuously Improve
		Product 1	Product 2			
EMEA		North America			International	Specialize by Customer, Product, Geography & Channel
Germany	UK	US	Canada	Mexico	Local	
Business Unit 1		BU 2	BU 3			BU 4	Reuse
Pega Manufacturing Intelligent Automation Platform						

Pega Infinity™ – Software built on a Center-out™ Business Architecture for immediate and pervasive transformation

- **Mobility first:** A key capability of the Pega Platform™ is mobility. Pega delivers industry-leading mobile technology that enables 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.

- **Intelligent automation and artificial intelligence (AI):** Pega's intelligent automation is fully integrated and works both with humans and independently, to allow enterprises to move beyond task automation to optimize 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.

- **Transparent and auditable:** The Pega Platform incorporates all the power of rules, processes, decisions, predictive analytics, and case management into every customer, supplier, or employee contact, bringing intelligence to each interaction and providing complete documentation for audit, reporting, and knowledge-based needs. It maximizes visibility, transparency, and control for manufacturing organizations through rich, out-of-the-box analytics and reporting capabilities.

- **Cloud choice:** Pega has evolved into the most cloud-friendly company in the industry. We have built our platform and applications in a way that allows our customers the ability to choose the architecture and deployment option that works best for their organization. The Pega Platform and applications can be deployed in any environment and can port between environments with no coding changes. This type of flexibility future-proofs your organization and allows adaptability to adjust your strategy as needed to efficiently achieve your business goals and objectives.

The value

Pega challenges the status quo by breaking down data silos and streamlining organizational complexity. Pega empowers manufacturers 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[1] examined the potential return on investment (ROI) enterprises may realize by deploying the Pega Platform. It found:

- ROI of 598% and net present value of $11.9M over three years

- $12.5M in savings over three years from productivity gains

- Project timelines reduced from 12 months to less than three months

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 time frame that is realistic, mitigates risk, and improves business outcomes.

Pega brings together dynamic case management, robotic automation, intelligent automation, mobile applications, low-code development, and business decision management in a unique, unified, model-driven platform. This enables the delivery of a complete end-to-end solution that connects front office requests to back-office processes. Major analyst firms have regularly recognized Pega as a leader in several key areas, including intelligent automation, case management, and real-time decision management. Pega is the only software company that can make this claim.

---

1 https://www.pega.com/forrester-tei-low-code

Simplifying operational complexity: What to consider as you modernize

As manufacturers prepare to deliver on the promise of digital transformation and Industry 4.0, they 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 across the industry with regard to the best and most up-to-date agile development methodologies?

- Has your company considered using a library of reusable application assets to accelerate development time frames 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 enterprise 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 and industry leaders?

- 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 the industry. The approach that appears to be getting the best results today is to build an orchestration layer across legacy systems that bridges silos, 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?

Who's getting it right?

Fortune 500 companies and governments around the world are leveraging Pega's capabilities to modernize legacy applications, streamline processes, improve customer experiences, and lead the way to change.

SIEMENS

Siemens is a global powerhouse focusing on the areas of electrification, automation, and digitalization. With 12 workflow systems across the company, it identified the need for one master system enabling successful digital transformation (DX) end to end and on a global scale.

To maintain control, transparency, and efficiency over its global digital transformation efforts, offer the necessary flexibility, and tackle increased complexity, Siemens needed to ensure a global standardization approach – while being able to adapt to local requirements on a single, unified platform.

Siemens implemented Pega as a standard platform for workflow and digital case management. The platform enables Siemens to drive and control global, end-to-end digitization from a central point, while enabling users to build their own applications to digitize complex and dynamic processes based on their country- and business-specific needs.

Since starting a partnership with Pega in 2015, Siemens has gone live with 20+ projects based on the Pega Platform™ across the globe, including Global Master Data Management, Order Management for Tomorrow, Cash Collection, Generic Workflow Self-Services, Customer Service, and GraphicsPool, to name a few.

The Pega Platform approach has generated major performance lifts for Siemens, including:

- 80-90% savings in time
- 1/10 the cost at 10 times the speed – infinite scalability
- Roll-out of changes in one week and easier implementations
- Global consistency and reduced complexity

Read the full story here.

Lead the way to change

Manufacturers face ongoing change. From technological advances to shifting regulations and legislation, these organizations are operating 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 workers to respond rapidly to change. Unified, agile, and secure, the Pega Platform offers manufacturers a superior solution for meeting these challenges. A number of 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 and employee experiences. With Pega, leading the way to change has never been easier.

For more information, visit pega.com/manufacturing

PEGA

About Pegasystems

Pega delivers innovative software that crushes business complexity. From maximizing customer lifetime value to streamlining service to boosting efficiency, we help the world's leading brands solve problems fast and transform for tomorrow. Pega clients make better decisions and get work done with real-time AI and intelligent automation. And, since 1983, we've built our scalable architecture and low-code platform to stay ahead of rapid change. Our solutions save people time, so our clients' employees and customers can get back to what matters most.

For more information, please visit us at **pega.com**