



Engineering What's Next:

**AI-Powered Legacy Modernization**

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## Modernization is Momentum

**Before an organization can transform, it must understand what's holding it back.** For most enterprises, legacy systems quietly consume the very resources needed for innovation—absorbing time, talent, and budget in the name of business as usual (BAU).

Outdated platforms require costly specialist skills and constant maintenance, leaving little capacity for strategic growth. Technical debt piles up, dependencies deepen, and innovation slows. This is why legacy modernization isn't just an IT initiative—it's a business imperative.

**By modernizing or documenting critical legacy applications, organizations reduce reliance on scarce expertise, minimize maintenance overhead, and free capital for innovation.** Once systems are stabilized, optimized, or replatformed, that same budget can be redirected from maintenance to momentum—funding the development of new products, digital capabilities, and customer experiences.

Modernization begins with visibility. Through AI-enabled discovery and dependency mapping, teams can see how their systems truly work, identify risk, and make change safely. This understanding becomes the foundation for lasting agility—the ability to evolve continuously, respond faster, and build what's next.

## The Case for Modernization

A core objective for many businesses today is updating their technology to more modern, sustainable systems that will enable the organization to support the latest applications, such as artificial intelligence (AI), machine learning (ML), and cloud computing. In the digital age, those who neglect to shift gears as necessary jeopardize the viability of their entire operation.

Upgrading IT infrastructure, however, goes beyond a single hardware or software download—it isn't a one-and-done initiative. With technology advancing so fast (and faster every day), today's organizations need continuous support in their modernization efforts. As a result, legacy modernization requires a dedicated partner that can handle the ongoing management necessary to truly future-proof an organization's IT.

## Modernization Begins with Understanding

Before modernization begins, organizations must confront a simple truth: you can't transform what you don't understand. A deep, data-driven understanding of legacy systems—their dependencies, behaviors, and business logic—is the true foundation of every successful modernization effort. Without that visibility, even small changes can introduce exponential risk.

When institutional knowledge leaves with experienced developers, organizations inherit opaque code, missing documentation, and unpredictable interdependencies. What once felt stable becomes brittle—minor updates to a method, API, or database field can trigger downtime, compliance failures, or security gaps. In this environment, even necessary modernization steps—like refactoring, containerization, or cloud migration—carry uncertainty.

That's why the foundation of modernization is not rewriting code, but rediscovering it. Through AI-enabled discovery, dependency mapping, and living documentation, enterprises can reveal how legacy systems truly function—and what's required to refactor, replatform, or replace them without disrupting business continuity.

This visibility transforms modernization from a high-risk overhaul into a controlled, measurable evolution. It creates a roadmap that's sustainable, auditable, and aligned to business priorities—laying the groundwork for everything that follows.

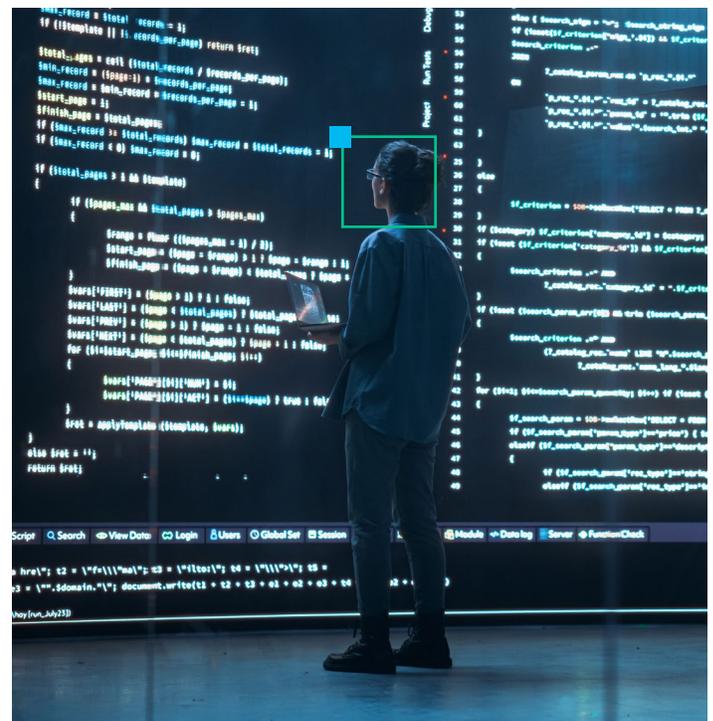
## The Basics of Legacy Modernization

Put simply, legacy modernization is the process of updating and enhancing a business's technology infrastructure. Similarly, legacy application modernization services aim to revitalize an organization's dated technology systems by upgrading the business software (and oftentimes, hardware) that makes up its IT architecture.

Ultimately, every modern company must decide whether to rearchitect, rebuild, or replace its infrastructure to accommodate the latest technological advancements (although the process may involve a combination of all three efforts).

[Legacy modernization](#) solutions encompass IT service offerings, such as:

- Application development
- Software project engineering
- Software testing
- Solution architecture
- Product/project management
- DevOps
- Secure software design and code





## Why Should Organizations Prioritize Modernization?

**The primary goal of legacy software modernization services is to ensure the entirety of your business technology is up to date and operating as efficiently as possible.** Succeeding in this effort suggests that every aspect of your IT infrastructure is both properly functioning and actively contributing to strategic goals in some way. Developing and supporting smart, versatile applications and software helps businesses to reduce technical debt, improve compliance posture, and achieve faster time to market.

But modernization isn't just about efficiency savings. Business as usual (BAU) teams and expenses tend to eat up valuable resources needed for innovation—outdated platforms require high-cost specialist talent and frequent fixes, straining budgets. By modernizing or documenting critical legacy applications, businesses reduce reliance on scarce, expensive skill sets, minimize ongoing maintenance costs, and free up budget for growth initiatives.

Once systems are effectively modernized, or minimally documented, that budget can be steadily transitioned from legacy support to adding new innovative features and functionalities, reducing reliance on BAU.

It's important to note that legacy modernization doesn't necessarily imply unrooting your entire business technology infrastructure. However, it does involve taking a closer look at your IT architecture, the software and hardware you employ, and the effectiveness of the systems and processes currently in place.

Understanding the intricacies of your tech environment (what we at Aditi Consulting refer to as legacy code discovery) is the first step toward optimizing legacy systems. Sometimes, this understanding is all you need to confidently support and enhance your business's legacy systems.

## What Industries Can Benefit from Legacy Modernization?

Technology is the backbone of nearly every modern organization across all verticals, which means prioritizing legacy modernization is in the best interest of virtually every business leader. However, there are some industries in which modernization is absolutely imperative for success, including:

### Financial Services



**Financial** institutions face mounting pressure to modernize as regulatory demands, fraud threats, and technical debt converge. Outdated systems and fragmented datasets limit visibility into customer behavior, slow compliance reporting, and heighten operational and security risks.

Even leading firms are confronting these challenges head-on. For example, [Morgan Stanley](#) has begun using AI-trained tools to translate legacy code into modern languages, generate plain-English documentation, and isolate code sections for regulatory reviews — a powerful step toward modernization and compliance transparency.

This kind of AI-enabled discovery and code translation exemplifies how modernization has evolved from a risky overhaul to a measurable, data-driven process. By modernizing core banking and compliance systems, financial institutions can strengthen regulatory posture, reduce technical exposure, and accelerate digital innovation with confidence.

By integrating diverse data sources, modernizing core banking, automating compliance reporting, and enhancing payment performance through legacy modernization services, these businesses can achieve faster product launches, improved compliance posture, and reduced risk through optimized vulnerability management strategies. Additionally, the secure, comprehensive view of customer information acquired through modernization and data integration enables firms to refine financial products and customize offerings.

### Healthcare



The **healthcare** sector faces mounting pressure to modernize. Organizations must optimize complex EHR systems, strengthen data security, and meet evolving regulatory standards—yet many still rely on legacy architectures that slow innovation and strain operations. Outdated systems limit interoperability, increase compliance risk, and trap critical data in silos. Manual workflows compound the problem, draining clinician time and accelerate burnout.

That's why modernization has become the cornerstone of healthcare transformation. Modern architectures enable the secure integration of data across care systems, streamline claims and prior authorization workflows, and embed automation where legacy systems once relied on manual intervention. This foundation unlocks the full potential of AI—turning static data into real-time intelligence.

[Major EHR vendors](#) are undertaking large-scale modernization of their core platforms to enable AI-native functionality. These efforts include rearchitecting data pipelines, refactoring legacy modules, and standardizing APIs to enable generative documentation, ambient listening, and agentic digital assistants. This modernization work makes AI integration possible. Legacy EHRs—built decades ago for billing, not decision support—lack the scalability and interoperability required to safely deploy intelligent automation at enterprise scale. By modernizing first, these platforms create the foundation for AI to enhance documentation, reduce administrative overhead, and surface actionable insights in real time.

For providers and payers, modernization delivers measurable transformation. By unifying clinical, operational, and financial data, healthcare organizations gain real-time visibility across the continuum of care—reducing denials, improving claims accuracy, and strengthening audit readiness. Automated workflows free clinicians from repetitive administrative tasks, while predictive analytics enhance population health management and care coordination. The result is faster, more informed decision-making, higher patient satisfaction, and improved STAR ratings—all supported by scalable, secure, and AI-ready systems that position healthcare enterprises for sustainable, data-driven growth.

## High Tech



The **high-tech** sector is defined by relentless innovation—but even the most advanced engineering organizations face the drag of legacy code, technical debt, and brittle architectures that limit agility. At scale, the cost of maintaining and upgrading millions of lines of legacy code can slow delivery, increase risk, and delay adoption of AI and automation across products.

That's why modernization has become a strategic priority, not just a technical one. Modernization enables high-tech firms to evolve faster—replatforming legacy systems, automating repetitive engineering tasks, and unlocking AI-driven productivity across development pipelines.

In 2025, [Google researchers](#) reported using large language models (LLMs) to assist in modernizing internal codebases—automating migration, refactoring, and code review tasks at scale. Across 595 code changes totaling over 93,000 edits, more than 70% of those edits were generated by AI, cutting overall migration time by roughly 50%. These LLM-assisted workflows not only accelerated modernization but also improved accuracy and maintainability through automated discovery and validation.

For high-tech enterprises, the takeaway is clear: modernization is the prerequisite for AI-driven development. Whether through rearchitected platforms, API-first microservices, or intelligent automation in the software development lifecycle, modernization enables continuous delivery, faster iteration, and measurable innovation velocity.

The result is shortened release cycles, scalable architectures, and a direct line between modernization and competitive advantage—allowing firms to launch products faster, adapt quickly to user demand, and reinvest saved engineering costs into research and development.

## Manufacturing

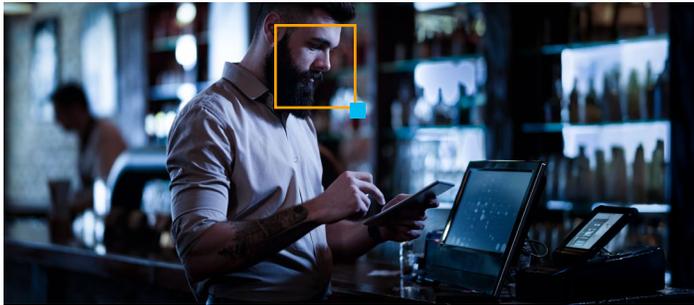


Globalization continues to intensify competitive pressure on **manufacturing**, demanding greater efficiency, agility, and cost control. Yet many production environments still rely on legacy manufacturing execution (MES) and enterprise resource planning (ERP) systems—architectures that were never designed for real-time insight or adaptive automation. These outdated systems create fragmented data, force manual intervention, and limit the ability to anticipate and respond to disruptions across the supply chain.

Modernization changes that equation. By integrating siloed systems and standardizing data on cloud-native platforms, manufacturers gain a unified view of operations—from plant floor to global logistics. IoT sensors and AI-driven analytics enable **predictive** maintenance, detecting anomalies before failures occur. Automated workflows enhance quality control, while digital twins and real-time analytics optimize production performance, resource utilization, and supply chain flow.

The impact is tangible: reduced unplanned downtime, lower maintenance costs, and increased throughput. Modernized operations become adaptive, intelligent ecosystems—able to scale capacity, reroute supply chains, and respond to market shifts with speed and confidence. In a global landscape defined by volatility and competition, modernization is what turns manufacturing from reactive to resilient.

## Retail



**Retailers** are under relentless pressure to modernize—balancing shrinking margins, rapid shifts in consumer behavior, and the growing complexity of omnichannel operations. Legacy point-of-sale (POS) and commerce platforms create data silos that limit real-time visibility, slow personalization, and strain IT resources with escalating cybersecurity and compliance demands.

Leading retailers are turning to AI to overcome these challenges. [Walmart](#), for example, is using AI-powered agents to modernize legacy software code—some of it written decades ago in mainframe languages—and automate critical processes like accessibility compliance. By doing so, Walmart’s engineers have achieved an eightfold increase in productivity, with AI automatically identifying 60% of compliance bugs and fixing 95% of them.

By modernizing core retail systems and embedding AI across operations, retailers can achieve real-time visibility, operational efficiency, and customer intimacy at scale. Modernization unifies POS, order management, and e-commerce platforms into cloud-native environments with dynamic inventory visibility and AI-driven personalization. Unified data platforms power adaptive loyalty strategies, while modernized payment systems embed security and compliance by design.

The result is a seamless, secure omnichannel experience that drives higher conversion and customer loyalty—while real-time insights optimize pricing, inventory turns, and margin performance in an increasingly competitive retail landscape.

## Telecom & Media



**Telecom and media** companies face mounting pressure to modernize as legacy systems strain under the demands of next-generation connectivity and content delivery. Many operators still rely on outdated OSS/BSS infrastructures that limit flexibility, increase maintenance costs, and slow innovation. These systems were not built for the complexity of 5G networks, edge computing, or real-time streaming—and now represent both a technical and strategic bottleneck.

As detailed in [Aditi Consulting’s 2025 Telecom + Media Report](#), legacy modernization has become a critical priority for service providers seeking to unify fragmented systems, strengthen security, and reduce operational inefficiencies. Modern architectures replace rigid, on-premise environments with modular, API-first platforms that enable automated network orchestration, intelligent monitoring, and seamless integration across partner ecosystems. These foundations also support the deployment of AI-driven analytics for fraud detection, billing accuracy, and customer experience optimization.

The result is more than improved performance—it’s a redefined operational model. Modernized OSS/BSS systems reduce downtime, accelerate rollout of 5G and edge services, and unlock new monetization opportunities such as slice-based offerings and personalized media experiences. By eliminating technical debt and modernizing at scale, telecom and media enterprises position themselves to deliver the reliability, agility, and innovation their customers expect in an AI-driven world.

## Why Legacy Modernization Solutions from Aditi Consulting?

Aditi Consulting's legacy modernization approach provides multiple entry points tailored to client needs. While some organizations begin with AI-enabled legacy code discovery to gain visibility into application logic, dependencies, and risk profiles before embarking on modernization (**Path A**), others start with an operate-first model, where our specialists assume management of the legacy environment, reduce operational burden, document application behavior, and then iteratively modernize (**Path B**). Both paths converge into the same modernization road map, ensuring clients can engage at their own pace.

Of course, we recognize that modernization journeys don't follow a single blueprint. **To meet clients where they are, Aditi provides two structured on-ramps into modernization:**

	Path A	Path B
<b>General Approach</b>	<b>Discovery-First Modernization</b> (Design • Build • Operate)	<b>Operate-to-Modernize</b> (Operate • Build • Design)
<b>Entry Point</b>	AI-enabled code discovery	Operational management of legacy environment
<b>Key Deliverables</b>	<ul style="list-style-type: none"> <li>• Dependency maps</li> <li>• Business rules extraction</li> <li>• Risk analysis</li> <li>• Modernization feasibility</li> </ul>	<ul style="list-style-type: none"> <li>• Day-to-day stability</li> <li>• Living documentation of how applications behave</li> <li>• Embedded discovery during operations, evolving into AI-enabled code discovery and modernization</li> </ul>
<b>Ideal For</b>	Clients seeking up-front clarity, decision support, or proof of value before committing to modernization	Clients burdened by maintenance costs or skill scarcity who need relief now while building toward modernization

Once again, both paths ultimately intersect at the same starting point to full modernization, allowing clients to balance urgency, risk appetite, and business readiness.

### The Aditi Advantage

#### Your AI-powered Partner

We aren't just technology partners at Aditi Consulting. Our unique AI-driven discovery process, proven regulated-industry delivery, and pod-based execution sets us apart from other digital engineering services firms. The Aditi advantage is multifaceted, leveraging expertise in various critical areas of information technology and digital engineering, such as:

- AI + Automation
- Application Modernization
- Cloud + Infrastructure
- Data + Analytics
- Managed Support
- Talent on Demand

# Where Do I Start with Legacy Modernization?

When your tech falls behind, your business falls behind, which is why it's critical to prioritize modernization and sustainability in your tech infrastructure. We help organizations modernize high-risk, high-cost legacy systems with an AI-enabled approach that delivers measurable results at every milestone.

But, like any operational initiative, modernization isn't one-size-fits-all. Aditi offers two proven on-ramps—AI-driven discovery or stabilize-then-modernize—so clients can move at the right pace with less risk. Both paths lead to a structured road map and successful transformation. To get started with Aditi's legacy modernization solutions, contact us today to [request an application assessment](#).



Building a Digital World with Human Spirit

We are committed to providing extraordinary experiences through all stages of the transformation journey to foster lasting relationships.

**ADITI**  
CONSULTING

### About Aditi Consulting

Aditi is a leading digital engineering services company. We partner with established and emerging enterprises by leveraging borderless talent across three continents to achieve transformative outcomes that will reshape their trajectory.

We lead and support our clients' efforts to design, build, and operate the products, systems, and processes required to deliver impact by leveraging deep insights, practical knowledge, and human spirit.

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