

From Mainframe to an AI-Enabled Application:

How a US-based Retailer Accelerated Legacy Modernization



40%

Faster Delivery

50%

Lower Engineering Effort

40%

Lower Costs

The Client

- Leading direct-to-consumer (DTC) retailer
- Headquartered in the United States with a global customer base
- Specializes in premium collectibles and commemorative merchandise
- Offers fine jewelry, custom apparel, and personalized products
- Operates a complex multi-brand, multi-channel business
- Relies on interconnected workflows to support core business operations



The Challenge

The client's operations depended on a complex mainframe environment built on Software AG's Natural programs, COBOL, and other legacy technologies, making modernization both business-critical and technically challenging.

From a Business Perspective



Rising cost of sustaining legacy systems



Delayed innovation and slower time-to-market



Inability to scale future digital initiatives



Rising operational risk from legacy dependencies



Retirement of key mainframe experts

From a Technology Perspective



Highly interconnected legacy architecture



Business logic embedded in poorly documented code



Shrinking availability of mainframe expertise



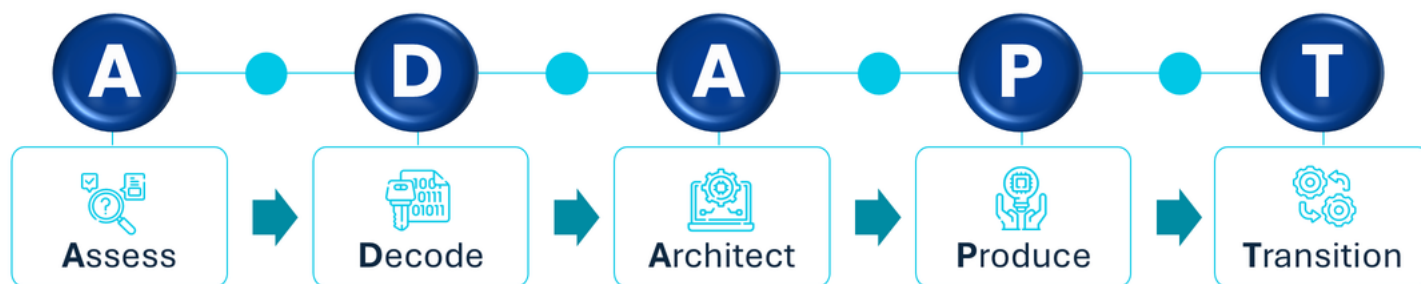
Limited integration with modern digital platforms



Accumulating technical debt

The Solution

Opteamix applied its **A • D • A • P • T** legacy modernization framework to deliver a human-led, AI-powered transformation that minimized risk, accelerated delivery, and preserved critical business logic. The engagement began with a pilot of a high-impact module, validating the approach before scaling modernization across the broader mainframe ecosystem.



Phased Modernization



Started with a high-impact business module to validate the modernization approach

Established a phased roadmap aligned with business priorities and long-term technology goals.

Reduced transformation risk while building stakeholder confidence for enterprise-wide adoption.

AI-Assisted Discovery and Documentation



Used Gemini AI and Claude AI together to accelerate discovery and documentation.

Cross-validated AI outputs to improve accuracy and minimize hallucinations before human review.

Uncovered hidden dependencies, application flows, and embedded business rules across the legacy environment.



Business Logic Preservation



Mapped business rules from legacy code to functional requirements, ensuring end-to-end traceability.

Enabled rapid SME validation and identified obsolete modules for retirement.

Preserved critical business logic throughout the modernization lifecycle.

Architecture and AI-Driven Engineering



Designed a scalable, cloud-ready target architecture aligned with the client's future roadmap.

Leveraged AI engineering agents to create clean, modular, production-ready code.

Opteamix's experienced architects and engineers reviewed and validated the AI-generated artifacts.

AI-Powered Quality Engineering



Accelerated functional testing with AI to improve coverage and validation.

Applied automated quality checks across the modernization lifecycle.

Integrated modernized applications into CI/CD pipelines to enable continuous delivery.

Governance and Human Oversight



Combined AI automation with human-in-the-loop validation at every critical milestone.

Ensured business continuity through engineering governance and SME approvals.

Conducted regular Executive Steering Committee reviews to monitor progress, mitigate risks, and maintain alignment with business objectives.

The Outcomes

By combining AI-powered automation with human-led engineering expertise and oversight, Opteamix delivered measurable improvements in speed, cost efficiency, quality, and long-term business agility.



40% Faster Modernization

AI Agents accelerated delivery timelines

40% Lower Engineering Costs

AI, automation, and delivery efficiency reduced overhead

50% Lower Engineering Effort

Automation reduced manual effort across SDLC improving productivity

100% Business Logic Preservation

End-to-end traceability ensured critical rules and workflows were preserved

AI-Ready Enterprise Architecture

Established a modern, scalable architecture designed to support AI agents, intelligent automation, cloud adoption, and future digital innovation

Ready to Validate Modernization in Your Environment?

Schedule a free modernization assessment or discuss your transformation roadmap with Opteamix experts.



Talk to Our Application Modernization SMEs

Opteamix is an AI-powered technology services company headquartered in Denver, Colorado, with a delivery center in Bengaluru, India.

We help enterprises modernize, build, and operate technology with AI-powered, human-centric solutions that combine engineering excellence with a culture of continuous innovation.

Guided by our purpose of **Simplifying Success**, we partner with organizations to drive scalable growth and meaningful business transformation.



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