



Financial Services Industry

Legacy to Leading-Edge:

How Technology Modernization Drives Financial Sector Efficiency



In [our previous article from this series](#), we explored why operational efficiency should be the top priority for financial institutions. To achieve this efficiency, organizations of all sizes must tackle one of their greatest obstacles: legacy systems. This outdated technology, once the backbone of financial services applications like lending, portfolio management, and underwriting, are now significantly hindering progress and competitiveness.

Legacy System Limitations

✔ Limited flexibility

Monolithic environments are built as a single, tightly coupled unit, making it difficult to modify or update individual components without affecting the entire system.

✔ Integration challenges

Conversely, many institutions run on a patchwork of poorly integrated applications accumulated through mergers, acquisitions, and hasty, short-term decisions.

✔ Scalability issues

As the system grows, it becomes more challenging to add new features or handle increased load.

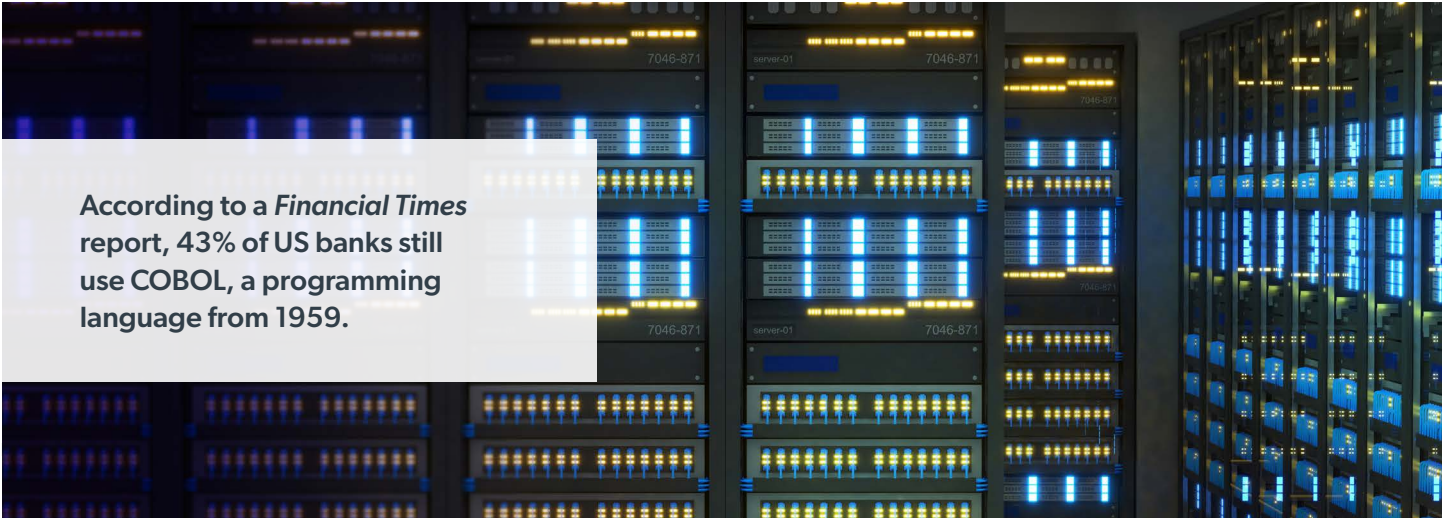
✔ Reduced agility

These systems weaken an institution's ability to quickly adapt to changing market demands, as even small updates often require modifying, testing, and complete redeployment.

✔ Higher costs

Operational inadequacies and higher licensing fees can drive up expenses. Relying on legacy programming languages also comes with a cost, as there is a shortage of skilled developers who can work with them.

Despite these limitations, many financial institutions still used antiquated technology. According to a *Financial Times* report, 43% of US banks still use COBOL, a programming language from 1959.ⁱ The cost of this technical debt, also known as legacy depreciation, is crippling. Spending on outdated payment systems alone cost banks and financial institutions \$36.7 billion in 2022, and a recent IDC study predicts that number will rise to \$57.1 billion in 2028.ⁱⁱ With technology gaps only widening, it is more pressing than ever to modernize for operational excellence.






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The Case for Modernization

A 2022 industry survey revealed that an overwhelming 95% of top global banking executives identified outdated legacy systems and core banking platforms as major obstacles to their efforts to optimize data and establish customer-centric growth strategies.ⁱⁱⁱ

This stark figure highlights the widespread recognition within the industry that modernization is not just desirable, but essential for future success. But what does that success look like?



-  **Improved Performance and Scalability**
Modern systems are designed to handle larger volumes of data and transactions more efficiently, allowing financial institutions to grow and adapt to increasing demands and market changes without compromising speed or reliability.
-  **Reduced Operational Costs**
While the initial investment in modernization can be significant, the long-term benefits often include reduced maintenance costs, improved efficiency, and optimized resource allocation.
-  **Artificial Intelligence (AI) Enabler**
Modernization provides the necessary data accessibility, processing power, and scalable infrastructure required to develop, deploy, and maintain sophisticated AI-driven products and services.
-  **Better Regulatory Compliance**
As financial regulations become increasingly complex, modern systems offer improved capabilities for monitoring, reporting, and adhering to regulatory requirements, reducing the risk of non-compliance and associated penalties.
-  **Enhanced Security and Minimized Risk**
With cyber threats constantly evolving, updated systems provide robust security features that are better equipped to protect sensitive financial data and transactions from breaches and fraud.
-  **Enhanced Customer Experience and Personalization**
With access to more comprehensive and real-time data, financial institutions can offer more personalized experiences that improve customer satisfaction and loyalty.
-  **Shorter Time-to-Market for Innovations**
Modern, flexible systems allow financial institutions to rapidly implement new features and integrate emerging technologies, fostering a culture of fast-paced innovation.
-  **Increased Transparency**
Advanced technologies enable clearer visibility into operations, transactions, and data flows, fostering trust among stakeholders and facilitating better decision-making processes.

Key Modernization Technologies that Drive Efficiency

To overcome the limitations of legacy systems and begin to reap the benefits listed above, financial institutions must embrace three key technologies that drive modernization and improve operational efficiency.

ARTIFICIAL INTELLIGENCE

AI has the power to revolutionize the industry by fueling innovative applications, including:

✔ Automated Decision-making

AI algorithms can analyze vast amounts of data to make informed decisions on loan approvals, investment strategies, and risk assessments, significantly reducing processing times.

✔ Fraud Detection and Prevention

Machine learning models can identify unusual patterns and potential fraudulent activities in real-time, enhancing security and reducing financial losses.

✔ Predictive Analytics

AI-driven predictive models help financial institutions forecast market trends, customer behavior, and potential risks, enabling proactive strategy development.

✔ Personalized Customer Experiences

AI algorithms can analyze customer data to provide tailored product recommendations, personalized financial advice, and customized services, benefitting both customers and their banks.

✔ Digital Transformation

By analyzing user behavior, automating repetitive tasks, and predicting user needs, AI can improve the design and functionality of digital banking platforms, resulting in enhanced user experience and customer satisfaction.

CapTech has consistently applied AI modernization techniques across various projects. On a recent project, we helped a Fortune 50 financial services company boost efficiency and sell products more effectively by building an AI-driven recommendation engine that generates compelling product descriptions and conversation topics, enabling more productive and engaging sales conversations.

AUTOMATION

Automation technologies can be used to optimize operations across the financial sector.

✔ Automate Repetitive Tasks

Automation tools can handle routine, high-volume tasks such as data entry, reconciliations, and report generation. This not only reduces costs but also improves service quality by freeing up human resources to focus on customer satisfaction and more complex, value-added activities.

✔ Reducing Human Error

By minimizing manual intervention in repetitive processes, automation significantly reduces the likelihood of errors, enhancing accuracy and reliability in financial operations.

What does this look like in action? When a top three U.S. bank needed to reengineer its financial crimes functions, CapTech employed cutting-edge automation and analytics to streamline processes and enhance compliance.

These optimizations accelerated customer onboarding by 45%, increased case resolution efficiency by 40%, and reduced operational costs by 35%.

CLOUD COMPUTING

A staggering 71% of Fortune 500 companies still rely on mainframes to run their business,^{iv} meaning the majority of global leaders continue to find cloud computing too intimidating, expensive, or both. The difficulty and cost, however, are only going to increase, and delaying the transition will only compound those challenges. Despite the initial investment, the cloud's transformative potential offers immense value, empowering institutions to achieve:

✔ Operational excellence

Cloud platforms provide the scalable, flexible infrastructure needed to adapt to changing business needs and market conditions.

✔ Enhanced security

Leading cloud providers offer advanced security measures and compliance certifications that often surpass on-premises solutions.

✔ Reliability and performance efficiency

Cloud services ensure high availability and performance, critical for real-time financial operations and customer-facing applications.

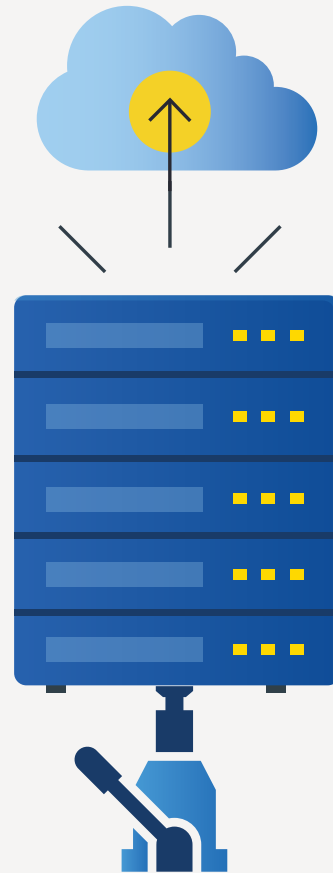
✔ Cost optimization

By shifting from pricey on-premises infrastructure to pay-as-you-go cloud models, financial institutions can better manage costs and allocate resources more efficiently.

✔ Environmental sustainability

Cloud data centers are often more energy-efficient than traditional on-premises facilities, helping financial institutions reduce their carbon footprint.

Cloud migration can yield extraordinary results. For example, CapTech, partnered with a global insurance company to migrate its systems to the cloud, resulting in a nearly 40% reduction in operational costs.



LegacyLift™: The AI Modernization Accelerator

AI can also be leveraged to accelerate legacy system modernization. With the precision of an exhaustive manual effort, but at a much lower price point, CapTech's AI-powered LegacyLift™ solutions offers rapid requirements analysis, comprehensive code understanding, and accelerated modernization roadmap development.

The Future of Financial Operations

By embracing technological modernization, financial institutions can overcome the limitations of legacy systems and position themselves for sustained growth and competitiveness in an increasingly digital financial ecosystem. While AI can enable real-time insights for enhanced understanding of the business and its customers, automation can handle routine tasks, so

people have more time for higher-level strategizing. And neither can reach peak functionality without a well-architected cloud infrastructure on which to operate and scale.

Though implementation of these technologies is still ongoing in the financial sector, as their benefits become increasingly evident, we expect to see accelerated adoption across the financial landscape, driving greater efficiency and innovation in the years to come.

¹43% of banks still use COBOL," Relevant Software, August 15, 2024, <https://relevant.software/blog/modernizing-legacy-systems-banking/>.

²Legacy technology could cost banks billions," The FinTech Times, June 16, 2023, <https://thefintechtimes.com/legacy-tech-cost-banks-57billion-in-2028-idc-finds>.

³95% of execs say legacy systems are major obstacles," Capgemini, April 21, 2022, <https://www.capgemini.com/news/press-releases/world-retail-banking-report-2022-incumbent-banks-must-embrace-data-centric-capabilities-to-drive-personalized-customer-experiences/>.

⁴Many banks still use mainframes," Planet Mainframe, December 2022, <https://planetmainframe.com/2022/12/relevance-of-mainframe/>.



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