

# Case Study: Leveraging AI and Analytics in Modernizing Mission-Critical Banking Applications

How a Leading U.S. Bank Transformed Operations and Accelerated Innovation with Mantra's AI-Driven Modernization Approach

## Background

One of the largest banks in the United States, serving millions nationwide, faced a pivotal moment as the digital revolution swept through the financial services industry. The demand was not only for modern technology, but for intelligent, data-driven systems that could deliver actionable insights and automate routine processes. At the heart of their transformation was the need to reimagine a key product—integrating advanced AI and analytics to drive operational excellence, customer satisfaction, and sustained growth.

This case study examines how the bank collaborated with Mantra to integrate AI and analytics at the heart of its modernization initiative, highlighting the challenges, strategic solutions, and tangible outcomes that propelled the bank into a future of intelligent banking.

## Challenges

- **Accelerated Time-to-Market for an Intelligent Product:** The bank needed not just a faster product release, but also one enhanced by AI-driven features—enabling predictive insights and proactive service. The competitive landscape required solutions that leveraged data for continuous learning and improvement.
- **Migration from Legacy Systems to AI-Ready Architecture:** The aging Visual Basic 6 (VB6) platform could not support robust analytics or machine learning models. Modernizing to .NET provided the technical foundation for integrating AI algorithms and real-time data analytics.
- **Reducing Costs with Automation and Smart Analytics:** High support and maintenance costs stemmed from manual processes and limited data visibility. Moving toward AI-powered monitoring and predictive analytics reduced incident response times and streamlined support efforts.

- Talent Realignment for Data Science and AI: As demand for VB6 expertise waned, the bank refocused on cultivating skills in AI, machine learning, and data analytics, ensuring teams were prepared for the new era of intelligent banking.
- Change Management in the Age of AI: Transitioning to AI-driven processes required a cultural shift—encouraging teams to trust automation and act on analytics-based recommendations.

## Solution: Mantra's AI-First Approach

### Comprehensive Stakeholder Engagement

Mantra launched the engagement with deep-dive discovery sessions, focusing on the bank's aspirations for AI and analytics. This alignment ensured that modernization goals prioritized actionable insights, more intelligent workflows, and data-driven decision-making.

### Smart Sourcing for AI and Data Expertise

Mantra's four-tier innovative sourcing model included recruiting data scientists, AI specialists, and analytics experts. By blending onshore and offshore resources, the project was able to innovate continuously—rapidly deploying new AI models and analytics dashboards in sync with evolving business needs.

### Milestone-Driven Delivery with Embedded Analytics

The project's 22 milestones were redefined to include analytics implementations—such as real-time reporting, predictive modeling, and anomaly detection powered by AI. Each stage delivered tangible advancements in data intelligence and automation, measured against key performance indicators.

### AI-Enhanced Operational Workflow

Operational workflows were redesigned around AI and analytics, utilizing automated monitoring, intelligent alerts, and data visualization. Weekly cross-functional standups reviewed AI performance metrics and user feedback, ensuring iterative improvement of machine learning models.

### Agile Methods with a Data-First Mindset

Sprints included developing and integrating AI-powered features, such as:

- Predictive analytics for customer behavior and system health
- Automated ticket classification and resolution recommendations

- Real-time performance dashboards and anomaly detection

Continuous integration pipelines were configured to automate model retraining and data validation, ensuring that AI results remained accurate and relevant.

## Team Composition

- 2 Full-Time Onsite Resources: Project Manager and Technical Lead, both with backgrounds in AI deployment and analytics strategy.
- 12 Software Developers: Responsible for building the .NET application and integrating AI APIs, analytics engines, and visualization tools.
- 5 Quality Assurance Professionals: Specialized in validating AI outputs, accuracy, and model drift.
- 1 Database Administrator: Managed data pipelines, storage for AI training data, and analytics optimization.
- 1 Additional Project Manager: Oversaw AI program governance and cross-team coordination.

This composition ensured that both legacy modernization and advanced analytics were addressed in tandem.

## Implementation & Execution

### AI Readiness and Risk Analysis

The engagement commenced with a comprehensive assessment of AI readiness, which involved evaluating data quality, existing analytics infrastructure, and opportunities to automate legacy processes. Risks specific to AI, such as data bias and algorithm transparency, were identified and mitigated early on.

### Seamless Migration with Analytics Integration

As the application moved from VB6 to .NET, Mantra embedded analytics hooks and machine learning endpoints throughout the new architecture. Custom migration tools extracted and cleansed historical data to fuel AI model training and benchmarking.

### Incremental Delivery of AI Features

Each milestone delivered a new layer of intelligence—ranging from basic reporting to advanced predictive analytics and natural language processing for support requests. User

feedback and analytics guided each iteration, maximizing the business value of every release.

## Automated Defect Management Using AI

AI-driven monitoring systems flagged anomalies and automatically classified support tickets, drastically reducing turnaround time for critical issues. Model-driven prioritization ensured that high-impact defects received immediate attention.

## Ensuring Business Continuity and Data Confidence

AI-powered dashboards gave leadership real-time visibility into both legacy and modernized systems, with predictive alerts ensuring proactive maintenance and user support.

# Measurable Value & Outcomes

### Quantified Business Results Fueled by AI and Analytics

- The new product beta-launched six weeks early, with AI-driven automation accelerating development cycles.
- All 22 milestones, including analytics and AI features, met their delivery dates—boosting confidence in the methodology.
- Ongoing maintenance costs dropped by 41%, with predictive analytics and automated monitoring eliminating manual reviews.
- Support calls fell by 22%, as AI bots and analytics-based solutions resolved frequent issues proactively.
- Defect turnaround times improved to 12 hours, leveraging automated classification and escalation powered by AI algorithms.

Key Metric	Before Modernization	After Modernization (AI-Enhanced)
Product Launch Schedule	Delayed	6 weeks ahead; accelerated by automation
Maintenance Costs	High	Reduced by 41% via predictive analytics
Support Calls	Baseline	Down 22% with AI-driven self-help
Defect Turnaround	Over 24 hours	12 hours, thanks to AI ticket triage
Milestone Delivery	At risk	22/22 on time (analytics tracked)

## Lessons Learned & Best Practices

### Driving Value through AI and Data Intelligence

This engagement demonstrated that true digital transformation in banking demands more than new software—it requires embedding AI, analytics, and a data-driven mindset across technology, process, and culture.

### Best Practices for AI-Enabled Modernization

- Prioritize data quality and governance from the outset—AI is only as good as the information it learns from.
- Embed predictive analytics and automation to amplify operational efficiency and accelerate time-to-value.
- Foster a collaborative culture, where technical and business teams leverage analytics insights for continuous improvement.

## Closing Summary

By placing AI and analytics at the heart of modernization, Mantra and the bank delivered not just new technology, but a smarter, more responsive financial platform. The resulting gains—in efficiency, cost savings, risk mitigation, and agility—set a new benchmark for what’s possible in intelligent banking transformation.

For organizations charting a similar course, the message is clear: Harness the power of AI and analytics from day one. The future belongs to those who transform data into insight and insight into action.