

HEXAWARE

Proactive Risk Management with Predictive Analytics in Banking

Strengthened Risk Detection with Machine Learning

Case study



Client

| Client

- Challenge
- Solution
- Benefits
- Summary

An Italian Bank with a Heritage of Trust

Our client is one of Europe’s oldest and largest banking institutions, serving over 6 million customers across retail and commercial segments. With deep roots in Italian banking history, the enterprise has continually evolved to meet changing customer expectations and regulatory landscapes.



Challenge

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Unlocking the Power of Customer Data and Analytics

To keep pace with a rapidly digitalizing customer base, the bank sought to modernize its risk management strategy through predictive analytics. The goal was clear — turn fragmented data into foresight and reduce exposure to loan defaults through smarter, data-driven decisions.

Only 25% of the bank’s 6 million customers had consented to data usage. Even within this subset, restrictions on personally identifiable information (PII) limited the ability to build a complete customer profile — constraining the reach of analytics.

Delinquent payment data for personal loans was dispersed across five legacy systems, making it difficult to consolidate and analyze. Without a unified customer view, early risk detection was inconsistent and delayed.

More than 100 of 240 critical risk factors were manually extracted from Excel files. This not only slowed analysis but also introduced errors, diverting teams from strategic modeling to repetitive data preparation.

Impact on Business Performance

The combined effect of limited data access, system silos, and manual processes left the bank’s risk management function reactive rather than predictive—leading to operational inefficiency, slower insights, and higher exposure to loan defaults.



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Building a Unified, Predictive Framework for Risk Detection

To address these challenges, the bank needed a data foundation that could bring together fragmented information, automate analysis, and enable predictive insights. Our solution focused on building a unified, machine learning (ML)–driven framework that transformed how the bank identified and managed delinquency risk.

Consulting-Led Data Modernization Journey

Hexaware’s engagement with the bank began with a consulting-led approach focused on understanding before implementing. Through a series of workshops, teams from business and IT collaborated to map existing processes, uncover data challenges, and identify modernization opportunities.

This discovery phase set the direction for an end-to-end data and machine learning (ML) solution aimed at transforming how the bank predicted and managed risk.

Step 1: Building a Unified Data Foundation

The journey started with unifying fragmented data. Hexaware integrated delinquent payment information

from five disconnected legacy systems into a single, accessible framework. A dedicated data mart was created to support exploratory data analysis and model development—laying a scalable foundation for predictive analytics.

Step 2: Automating and Enriching Risk Factors

Next, Hexaware addressed one of the bank’s biggest inefficiencies: manual data extraction. Over 100 Excel-based variables were automated and enriched with additional key indicators. This integration not only improved data quality but also created a robust, ready-to-train dataset—reducing human effort and enabling faster, more reliable insights.

Step 3: Building the Predictive Model Stack

With the data in place, Hexaware turned to advanced modeling. The team evaluated seven machine learning algorithms, including Random Forest, C5.0, CART, and Rpart, to identify the best-fit approach for predicting customer delinquency. Through extensive feature engineering, over 240 variables were refined to improve model accuracy, interpretability, and scalability.

Calibrating the Solution for Scale and Accuracy

To ensure the framework could evolve with the bank’s growing analytics needs, Hexaware implemented a structured, layered approach:

- **Data Discovery:** Unified critical data points across sources for a single source of truth.
- **Feature Engineering:** Transformed and optimized over 240 variables for model precision.
- **Model Training and Validation:** Tested and refined seven ML algorithms for best-fit accuracy.
- **Operational Integration:** Embedded the final model into the bank’s analytics ecosystem for proactive intervention.

Our solution enabled the bank to shift from reactive to predictive risk management with greater accuracy and speed. By unifying data and automating analysis, it empowered smarter, real-time decision-making. The bank is now better equipped to anticipate risk and act proactively.

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Turning Predictive Insights into Risk Control

With the predictive framework in place, the bank could finally move from reactive monitoring to proactive control.

Data-driven insights now empowered teams to identify potential delinquencies early, act faster, and make more informed lending decisions—all with greater confidence and precision.

Over 90% Accuracy in Risk Detection

The ML model achieved 90%+ accuracy in identifying risky customers likely to default – a dramatic improvement in early warning capabilities.

16 New Risk Patterns Discovered

The solution revealed 16 previously unknown risk profiles, enabling the bank to intervene proactively and design better repayment strategies.

Faster Decision-Making by 60%

By automating manual data extraction and consolidation, analysts cut report generation and model preparation time by over 60%, improving responsiveness to risk signals.

Unified Data View Improved Collaboration

Integrating data from five legacy systems into one accessible framework improved visibility across risk and business teams, supporting more informed, collaborative decisions.

Operational Efficiency Gains

Manual effort was reduced significantly, freeing analysts to focus on strategic model improvement rather than repetitive data tasks.



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Strengthening Risk Management for the Digital Future

Today, the bank operates with a data-driven risk prediction framework that continuously monitors customer payment behavior. The predictive model helps identify delinquency risks early, supporting timely interventions that protect both the bank’s profitability and its customers’ credit health.

Hexaware’s machine learning-led approach not only addressed immediate inefficiencies but also established a scalable blueprint for future AI-driven initiatives in banking.

As our client continues to refine its data consent strategies and expand analytics adoption across new product lines, the foundation built through this project positions it strongly for the next phase – proactive, predictive, and personalized banking risk management.



Accelerate Predictive Intelligence with MLOps

Discover how **Hexaware's MLOps framework** enables banks to scale predictive models seamlessly—from pilot to production—driving real-time insights and smarter risk control. For more information, reach out to us at **marketing@hexaware.com**.

About Hexaware

Hexaware is a global technology and business process services company. Every day, Hexawarians wake up with a singular purpose: to create smiles through great people and technology. With this purpose gaining momentum, we are well on our way to realizing our vision of being the most loved digital transformation partner in the world. We also seek to protect the planet and build a better tomorrow for our customers, employees, partners, investors, and the communities in which we operate.

With offices across the world, we empower enterprises to realize digital transformation at scale and speed by partnering with them to build, transform, run, and optimize their technology and business processes.

Learn more about Hexaware at <https://www.hexaware.com>.

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