

2019 – 2020

Building a Comprehensive MSME Credit Assessment Platform

From traditional analysis to data-driven, integrated credit decisioning.

PART OF MY ANALYTICS JOURNEY



THE CHALLENGE

Fragmented & Manual MSME Credit Assessment

Multiple data sources, manual analysis and inconsistent processes led to slow decisions, higher risk and a sub-optimal customer experience.



THE SOLUTION

An integrated, data-driven MSME credit assessment platform



KEY BENEFITS

-  **40–60% Reduction in turnaround time**
Integrated data & automated workflows
-  **15–25% Lower operational effort**
Eliminated multiple manual hand-offs and repetitive requests
-  **50–70% Improvement in portfolio quality**
Stronger risk discrimination and lower NPAs
-  **Better Customer Experience**
Single window, digital journey with faster decisions

BUSINESS IMPACT

-  **40–60%**
Faster turnaround time
-  **15–25%**
Lower operational cost
-  **50–70%**
Improvement in portfolio quality (lower NPAs)
-  **Scalable**
Platform for future growth

DATA-DRIVEN
CREDIT FOR
A STRONGER
MSME ECOSYSTEM.



From data to decisions. Enabling growth for MSMEs.

PEOPLE

PROCESS

ANALYTICS

IMPACT

The transformation addressed a structural MSME underwriting problem: corporate-style assessment based mainly on annual financial statements and broad benchmarks did not reflect the heterogeneity, information latency and faster shock transmission of smaller businesses.

Strategic question	Response
Why was a different approach needed?	MSME borrowers differed materially by industry, size, region and business model; a single financial-ratio benchmark could mislead.
What changed in the assessment?	Financial strength was combined with banking behavior, bureau behavior, engineered trends, statistical PD and expert credit interpretation.
What was the technology shift?	Explainable logistic-regression PD models formed the backbone, with decision trees and random forests used as challengers where non-linear relationships mattered.
How did it become a platform?	Data ingestion, standardization, scoring, policy, credit judgment, workflow and monitoring were brought into one governed decision architecture.
What made this a leadership transformation?	Business, credit, analytics, technology and governance teams had to align on default definition, risk appetite, features, validation and operating workflow.

Strategic thesis

The project was not simply a model build. It moved MSME credit from a predominantly annual-statement and judgment-led process toward a multi-source, evidence-based and explainable underwriting platform while retaining human credit judgment.

Analytical architecture

Stage	What the platform did
Define outcome	Use historical repayment behavior and roll-rate analysis to define default in line with risk appetite.
Design time windows	Separate observation, performance, out-of-time testing and implementation periods to prevent leakage.
Build borrower view	Combine financial statements, banking behavior, credit bureau data and contextual segmentation.
Engineer features	Create ratios, trends and interactions; filter for availability and predictive power; reduce redundancy.
Model & challenge	Use logistic regression for explainable PD; compare tree-based challengers where non-linear signal exists.
Validate & monitor	Test discrimination, holdout/OOT performance, population stability, business logic and post-deployment drift.

End-to-end analytical flow



Feature engineering translated credit knowledge into model signals

Raw / conventional signal	Engineered signal	Credit intuition
Current ratio	Current ratio(t) / Current ratio(t-1)	Is liquidity improving or deteriorating?
Cash & bank balance	Cash / ATNW; Cash / Net sales	Is liquidity meaningful relative to business size and capital?
Outside liabilities	TOL / Total assets; TOL / ATNW	How leveraged is the borrower relative to assets and tangible capital?
Banking behavior	Balance trends; cheque returns; utilization; overdrawing	Is day-to-day operating behavior weakening before annual accounts reveal it?
Bureau behavior	Facilities; enquiries; delinquency; lender exposure	What does external leverage and repayment conduct indicate?

Model strategy

LOGISTIC REGRESSION		DECISION TREE / RANDOM FOREST	
Strengths • Explainable coefficients and scorecard logic • Familiar and defensible in credit risk • Works well with binned / transformed variables • Easier to challenge and govern	Watch-outs • Requires disciplined variable treatment • Linear log-odds can miss complex relationships	Strengths • Captures non-linear relationships • Handles interactions naturally • Useful where bad-rate patterns are not monotonic • Can improve predictive performance	Watch-outs • Harder to explain • Higher validation burden and overfitting risk

Data & technology foundation

Layer	Role in MSME Credit Assessment
Financial statements	Structural capacity: sales, margins, liquidity, leverage, efficiency and coverage.
Banking behavior	High-frequency operating health: credits/debits, balance trends, returns, utilization and volatility.
Credit bureau	External leverage and repayment conduct: facilities, enquiries, delinquency and lender exposure.
Feature / scoring layer	Hundreds of candidate variables, selection, transformation, logistic PD and ML challengers.
Workflow & monitoring	Risk bands, policy, credit judgment, audit trail, overrides, performance and drift monitoring.

Operating model

Business / Credit	Define the decision, risk appetite, default relevance, qualitative factors and operating process.
Data Science	Create features, fit models, compare challengers, validate and monitor.
Technology	Build ingestion, scoring, workflow, audit trail and user experience.
Risk / Governance	Approve methodology, challenge assumptions, monitor stability and control overrides.

5. Leadership & Capability Narrative

Business problem -> analytics -> governance -> production decisioning

This case demonstrates the transition from analytics strategy to production decisioning in a high-stakes banking domain. The work combined MSME credit knowledge, predictive modelling, platform design and governance rather than treating machine learning as a standalone technical exercise.

Leadership dimension	Evidence from the MSME platform
Business problem framing	Recognized why corporate-style financial analysis was insufficient for heterogeneous MSME portfolios.
Credit domain depth	Translated liquidity, leverage, profitability, efficiency, repayment behavior and delinquency concepts into model features.
Statistical modelling	Applied supervised PD modelling, logistic regression, feature transformation and temporal validation.
Machine learning	Used / evaluated tree-based approaches where non-linear relationships could add value beyond classical scorecard assumptions.
Transformation leadership	Worked across consulting, credit, analytics and technology teams to move from model concepts to a comprehensive platform.
Governance mindset	Treated target definition, time windows, stability, explainability, validation, overrides and monitoring as integral to the solution.

Portfolio message

The technology changed from digitization to predictive modelling, but the philosophy stayed the same: understand the business problem deeply, select the right data and technology, and embed the solution into the decision process.

Project work: 2019-2020 | Kotak Mahindra Bank | Collaboration with McKinsey & Company | Methodology-level reconstruction