Students' ECONOMIC FORUM

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To kindle interest in economic affairs...
To empower the student community...

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AI-Powered Credit Scoring

From Static Scores to Smart Decisions - How AI is Rewriting the Rules of Credit

Jul 2025 Theme 403


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"We have been weaving AI into our services… with a pilot for instant credit… allowing for faster processing bypassing credit officers. It's just the beginning of what we will see."

Sabine Keller-Busse, Head of UBS's Domestic Business

The 'SIB Students' Economic Forum' is designed to kindle interest in the minds of the younger generation. We highlight one theme in every monthly publication. Topic of discussion for this month is 'AI Powered Credit Scoring'

In banking, some of the most decisive forces work quietly in the background. A credit score does not appear on bank hoardings; it is not celebrated on billboards, and most customers do not think about it until the moment they apply for a loan. Yet, in a matter of seconds, it can change the course of lives: determining whether an entrepreneur gets working capital to seize a sudden business opportunity, whether a farmer can purchase new equipment before planting season, or whether a young couple can finally move into their first home.

For decades, this critical decision rested on a relatively narrow formula - a handful of financial history variables, drawn from credit bureau records, processed through static statistical models. It was an improvement over the purely subjective judgment of earlier decades, but it was still a blunt tool. It could not always tell the difference between a borrower on

Now, Artificial Intelligence is rewriting that story. AI-powered credit scoring is not merely an upgrade to the old system; it is a paradigm shift. It replaces fixed models with adaptive, self-learning algorithms that draw from vastly wider data sets - many of them in real time - to create a far more holistic and dynamic view of a borrower's creditworthiness. The shift is not just technical; it is cultural. The lender–borrower relationship is moving from a one-time approval exercise to an ongoing, data-driven partnership.

From Gut Instinct to Bureau Scores to AI Models

In India's early banking years, lending decisions were highly localised. The branch manager's opinion mattered more than any documented score. Personal familiarity, community standing, and anecdotal references often shaped the outcome. While this allowed for flexibility and personal trust, it also meant bias and inconsistency.

The early 2000s brought the first national-scale credit bureaus such as CIBIL. For the first time, a borrower's repayment history, outstanding loans, and defaults were centralised, creating a standardised credit score that any lender could consult. This was a leap forward for transparency and efficiency, but it also had blind spots. Those without prior loans - the "credit invisibles" - were left outside the system. This included vast numbers of self-employed individuals, rural entrepreneurs, and young professionals.

The digital lending boom of the 2010s introduced a second wave. Fintech companies and some forward-looking NBFCs began incorporating alternative digital data: mobile payments, e-commerce behaviour, utility bill payment records. But the scoring logic was still static - a fixed formula applied to pre-selected variables.

AI represents the third wave - one that replaces formulas with models that learn. Machine learning systems analyse vast historical data to detect patterns and can adapt as new data flows in. Instead of being updated annually or quarterly, an AI credit model can evolve daily, reflecting the borrower's current behaviour and even predicting future risk.

How AI Scoring Actually Works - Without the Jargon

To the borrower, AI scoring might feel like magic: apply online, submit consent for data access, get an answer in seconds. Behind the scenes, it is a disciplined process.

First, the model ingests a broad mix of data:

Traditional data: repayment history, outstanding debt, credit utilisation, loan tenures.
Alternative data: bank account cash flow, UPI transaction patterns, mobile recharge regularity, GST returns, rental payments, utility bills, and more.

Behavioural indicators: changes in spending behaviour, digital footprint stability, and even psychometric test results that assess attitudes towards financial responsibility.

The AI then searches for patterns that historically correlate with repayment success or default. This isn't limited to obvious metrics like "number of missed payments" - it might pick up that borrowers whose average monthly deposits dip by 20% over three consecutive months are twice as likely to fall behind on EMIs, or that seasonal variations in income in certain sectors are normal and not a risk signal.

Once trained, the model scores each applicant, but unlike traditional models, it continues learning. If real-world performance changes - say, defaults suddenly rise among a certain borrower profile – the model adjusts. This constant learning is what makes AI scoring fundamentally different from its predecessors.

The Power of Alternative Data for Inclusion

Perhaps the most transformative element of AI scoring is the incorporation of alternative data. In India, where large segments of the population have never taken a formal loan, this is a game-changer.

Consider two individuals in a small town: both have no credit bureau history. One runs a kirana store with steady UPI sales, pays rent and electricity bills on time, and has a healthy pattern of mobile recharges. The other has irregular income and a history of bounced payments to suppliers. Traditional scoring would treat them identically - essentially "no score." AI scoring can tell the difference and reward the first borrower with better terms.

This opens the door to formal credit for millions - gig economy workers, micro-entrepreneurs, first-time borrowers, and rural households - who were previously invisible to lenders. The implications are enormous for financial inclusion, economic growth, and poverty reduction.

Speed Meets Precision

For the customer, AI scoring's speed is one of its most obvious benefits. Loans that once took days to approve can now be sanctioned within minutes, sometimes seconds. This is crucial in a market where consumers are accustomed to instant e-commerce checkouts and same-day deliveries.

For the lender, the speed is matched by greater precision. AI models can detect micro-signals of potential distress - such as declining average balances or inconsistent bill payments - before they become defaults. They can also reward positive changes quickly, improving customer engagement and loyalty.

Real-Time Risk Management

Traditional credit scoring was a static snapshot; AI turns it into a live feed. With consent-based account aggregation, lenders can receive continuous updates on a borrower's financial health. This enables proactive interventions: restructuring terms before a problem escalates, offering top-ups when the

borrower's profile strengthens, or flagging suspicious activity instantly.

Fraud detection is also faster and smarter. AI can spot unusual application patterns, mismatched identity details, or behavioural anomalies linked to known fraud cases - all without delaying genuine approvals.

Case Studies - Proof in Practice

Agricultural Lending in Maharashtra: A regional NBFC integrated UPI sale, fertiliser purchase data, and mobile recharge patterns into its AI credit model for farmers. Approval times dropped from 5 days to 24 hours, rural customer acquisition rose 38% in six months, and NPAs remained stable.

Urban MSME Credit: A fintech lender in Bengaluru used AI to analyse GST returns, online reviews, and supplier payment timelines for small manufacturers. Default rates fell 20% while loan volumes increased by 30%.

Global Lessons: M-Pesa in Kenya leverages mobile money usage data to issue microloans with over 90% repayment rates. China's Ant Group uses e-commerce and payments data to score millions of borrowers in real time.

Regulation and Responsible AI

The Reserve Bank of India supports innovation but insists on responsible use. AI scoring models must be explainable - borrowers should know why they were approved or declined. Bias must be tested and eliminated. Privacy is critical under the Digital Personal Data Protection Act, 2023.

India has a unique advantage in this space thanks to its digital public infrastructure - Aadhaar, UPI, and the Account Aggregator network - which provide verified, high-quality data streams for AI models.

The Road to 2030 and Beyond

By the end of this decade, AI credit scoring could evolve into continuous credit profiles - like financial health trackers. Borrowers could see their score adjust daily based on real behaviour. Credit terms might adjust automatically, rewarding positive changes instantly.

This could make lending more humane, offering help when borrowers struggle and opportunity when they thrive. But this future will require careful balance - protecting privacy, ensuring fairness, and keeping the human element in lending.

Beyond the Algorithm – Keeping Credit Human

As powerful as AI-powered credit scoring has become, its greatest potential will only be realised if it is grounded in human-centred banking. A number is not a person; an algorithm is not a relationship. Behind every score is a story - a shopkeeper weathering a seasonal slump, a family managing medical expenses, a young graduate stepping into their first job.

The temptation in an era of instant approvals and automated decisions is to let the machine make the call and move on. But the most forward-looking lenders see AI not as a replacement for human judgment, but as a complement to it. Algorithms can process far more data than any human, but they cannot understand the emotional context or aspirations of a borrower without human interpretation. The future will belong to institutions that use AI for speed and scale, while keeping empathy and flexibility in the decision loop.

Ethics as a Competitive Advantage
In global finance, trust is currency. The institutions that win in AI-driven lending will be those that are transparent about how scores are calculated, fair in how data is used, and proactive in correcting bias. Already, regulators from the Reserve Bank of India to the European Central Bank are signalling that ethical AI will be a compliance requirement. But beyond regulation, ethical use will be a brand differentiator. Customers who feel respected and understood are more likely to stay loyal, even when they have multiple borrowing options.

A Call to Action for the Indian Banking Sector

India stands at an inflection point. Our Digital Public Infrastructure gives us a head-start the rest of the world envies. The Account Aggregator framework, UPI, and Aadhaar create a unique foundation for AI credit scoring models that are both rich in data and consent-driven. What we do with this advantage in the next five years will define whether AI in credit becomes a tool for broad-based empowerment or just another layer of complexity.

Banks, NBFCs, and fintechs should move quickly - not only to build robust models, but to build the governance, training, and customer education needed to use them responsibly. Partnerships between traditional banks and agile fintechs can accelerate adoption while keeping the trust and stability customers expect.

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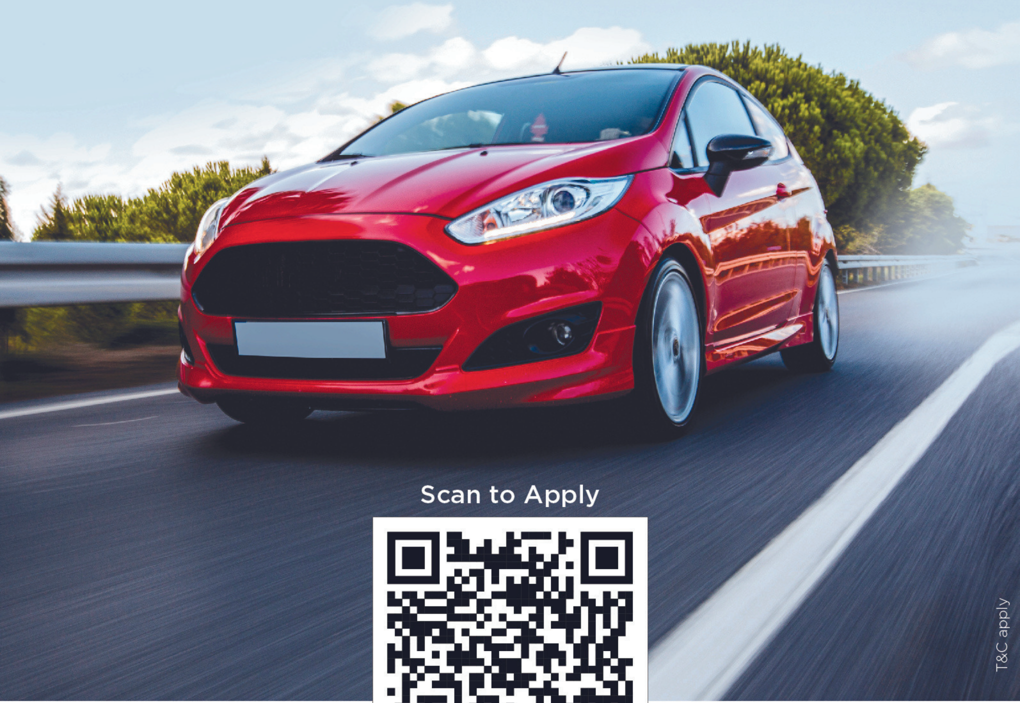

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