twimbit

Reimagining Credit with AI

Executive Summary

Key insights and takeaways

AI-driven credit scoring is reshaping the global financial landscape, enabling access to credit for underserved populations, including the unbanked and underbanked. By leveraging machine learning (ML), natural language processing (NLP), and alternative datasets, financial institutions are democratizing credit, enhancing inclusion, and improving risk assessment. This report highlights global case studies and key lessons, focusing on AI's transformative potential in financial inclusion.

Scope and objective of the report

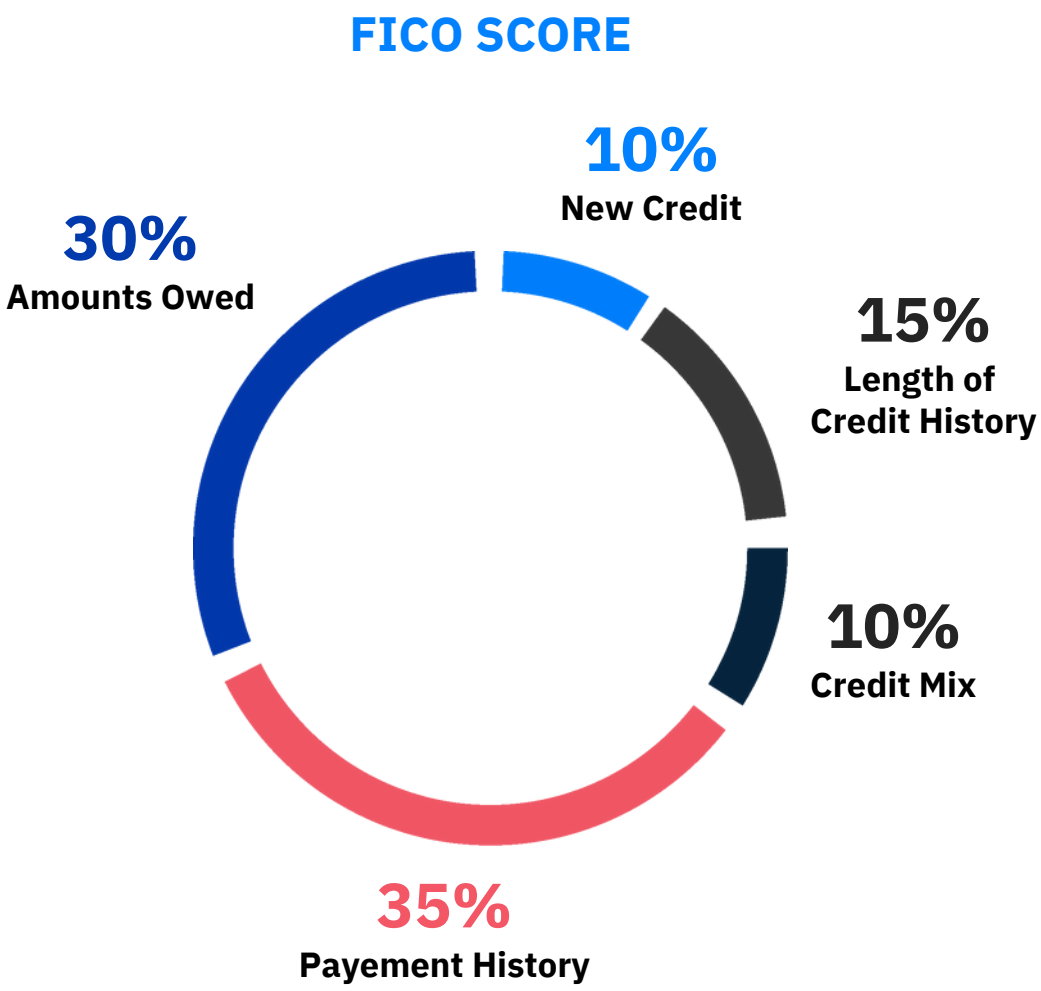
This report explores the global impact of AI in credit scoring, examining successful implementations by leading financial institutions. It identifies lessons learned and provides actionable recommendations to drive scalability, inclusivity, and operational efficiency.

1. Introduction to credit scoring

1.1 Evolution of credit scoring systems

Globally, traditional credit scoring models like FICO (Fair Isaac Corporation) have struggled to cater to informal economies, where the lack of formal financial records excludes large populations. Emerging markets, home to a significant portion of the unbanked, highlight these limitations.

- **Static data dependency:** Credit card transactions, bank account histories, and loan repayments are insufficient in cash-based economies.
- **Exclusion of informal sectors:** Gig workers, small business owners, and rural populations are often left out due to rigid requirements.



Source: myFICO

In SEA, where 70% of the population remains either unbanked or underbanked (World Bank, 2023), these data points are scarce. Many individuals and small businesses operate in cash-dominated environments, leaving little to no digital or formal financial footprint.

Today

>70%

Consumers

Underbanked or unbanked today

88%

of industry experts believe **digital FS will improve access for the underbanked** by 2025

67%

of industry experts believe **unbanked will still have limited access to FS** by 2025

1.2 Challenges in traditional credit scoring models

- **Data gaps:** Over 1.4 billion adults globally lack access to formal financial services (World Bank, 2023).

Source: World Bank

- **Exclusionary practices:** Rigid requirements often exclude gig workers with inconsistent income patterns, small business owners, and rural populations.
- **Lack of flexibility:** Credit scoring models like FICO, developed in markets like the U.S., often fail to incorporate cultural and behavioral factors relevant to SEA. For example, in rural Indonesia, over 50% of households rely on informal credit sources, making traditional systems irrelevant for assessing their creditworthiness.

More than 70% of Southeast Asia's population is either underbanked or unbanked

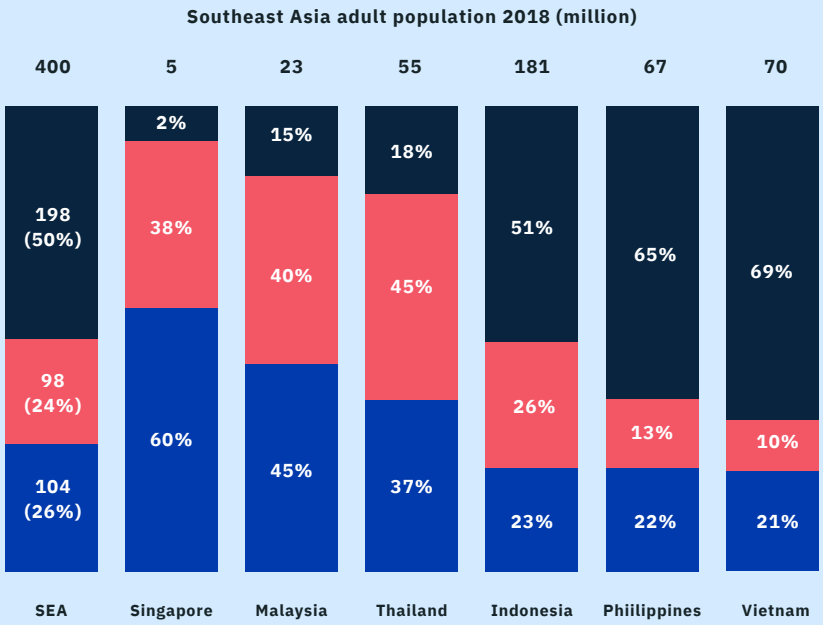
Unbanked:
No access to basic financial services (a bank account)

Underbanked:
Not well-served in financial services or have unmet needs

- No acccess to credit cards, underinsured, no long-term savings products

Banked:
Well-served in financial services needs

- Have access to credit cards, insured or have investment products



Source: economysea

While global digital ecosystems are rapidly advancing, traditional scoring models remain reliant on static data sources. In contrast, alternative data points such as mobile phone usage, utility payments, and e-commerce activity are:

- More accessible in SEA due to widespread mobile penetration (90% mobile penetration in Indonesia, for example).
- Strong indicators of creditworthiness for those excluded from traditional banking.

Traditional systems like FICO lack the capability to ingest and process such diverse data types at scale.

2. The role of AI in credit scoring

Artificial intelligence (AI) has emerged as a game-changing tool in credit scoring, particularly in regions like Southeast Asia (SEA), where traditional systems often fall short. By leveraging advanced technologies such as Machine Learning (ML), Natural Language Processing (NLP), and Predictive Analytics, AI enables financial institutions to develop dynamic, inclusive, and accurate credit scoring models.

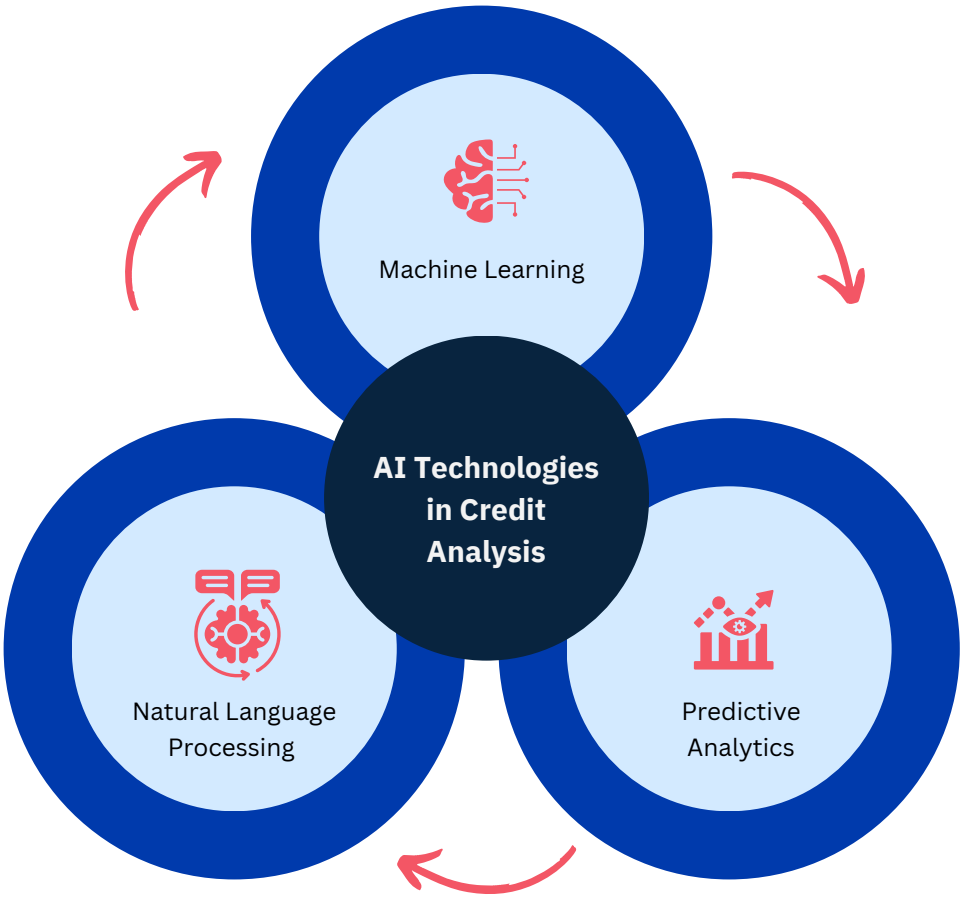
Digital lending continues to grow steadily as an appealing and accessible option, particularly for underserved communities with limited access to traditional financial services. Peer-to-peer lending platforms have improved credit management practices, keeping non-performing loan (NPL) ratios low.

2.1 Overview of AI technologies in credit analysis

- **Machine Learning (ML):** Identifies hidden patterns in diverse datasets to predict creditworthiness. Unlike traditional systems that rely solely on static credit reports, ML incorporates alternative data like mobile phone usage, e-commerce activity, and utility payments to assess creditworthiness.

- **Natural Language Processing (NLP):** NLP processes and interprets unstructured data such as customer service interactions, loan application narratives, or even social media posts to generate additional insights into a borrower's behavior and intentions.

- **Predictive Analytics:** Predictive analytics uses historical data and AI algorithms to forecast a borrower's future financial behaviour. It evaluates variables such as income trends, spending habits, and repayment timelines to determine risk levels.



2.2 Benefits of AI in modern credit scoring

- **Broader inclusion:** Alternative data allows scoring of individuals without traditional financial histories.
- **Improved accuracy:** AI models minimize biases and predict risks with greater precision.
- **Dynamic decision-making:** Enables real-time adjustments based on user behavior and economic shifts.

The integration of AI in credit scoring is critical for a regions, where informal economies dominate, and access to credit is limited. With alternative data, AI bridges the gap between financial institutions and underserved populations, fostering financial inclusion and driving regional economic growth. AI technologies, tailored to local challenges, are proving instrumental in reshaping the global credit landscape.

3. Banks and fintechs expand lending with AI

Key players in the digital economy have entered the DFS (Digital Financial Services) sector by launching digital banks. They are embracing generative AI to power virtual assistants and perform credit scoring for underserved customers, among other uses. These innovations are set to boost speed and accuracy, intensifying competition in the financial landscape.

Case studies of successful implementations of AI in credit scoring by financial institutions

CASE STUDY 1

Bank BRI, Indonesia – Microfinance with AI

In Indonesia, one of the biggest barriers to financial inclusion is the lack of formal credit histories for many individuals, particularly those in rural areas. Bank BRI (Bank Rakyat Indonesia) wanted to extend financial services, specifically microloans, to rural populations who had no access to traditional credit systems. The issue was how to accurately assess the credit risk of these rural borrowers who lacked a formal financial footprint.

- **Challenge:** Scoring rural borrowers without formal credit histories and to to facilitate consumer credit digitally, without the need to visit branches.
- **Solution:** AI-driven credit scoring using **agricultural data** such as crop yield patterns and market prices with the help of digital lending apps like **Pinang** and **Ceria.** For example, crop yield patterns could be linked with income projections based on historical performance, while fluctuations in market prices for certain agricultural products helped model financial stability.
- **Outcome:** The AI-driven credit scoring system enabled Bank BRI to provide microloans to cover million rural borrowers, many of whom had never before had access to formal credit. Moreover, by using agricultural data and AI-powered risk assessment, the bank managed to reduce default rates.

This is illustrated by the over 50,000 loan applications worth more than USD 8 Million processed by the two apps. The loan volume across the two apps has also increased significantly as Pinang has seen 62% increase while Ceria has disbursed IDR 4 billion of loans every week, increasing by 45% per week. Another benefit to the bank is the reduction in turnaround time enabling an increase in business.

- **Lessons learned:**
  - Collaborations with local data providers, such as cooperatives, can yield valuable alternative datasets for credit scoring. By leveraging local data instead of relying solely on credit reports or bank statements, Bank BRI accessed previously unavailable data that better reflects borrowers' actual economic activity and income potential.
  - Custom AI models tailored to specific industries, like agriculture, enhance precision and provide more accurate risk assessments for underserved groups.

o Achieved a reduction in the time taken to process loan applications via mobile app from 2 weeks to less than 2 days.

o Enhanced fraud detection, reducing the rate of fraud by 40% to record low levels, versus other banks.

A key lesson from this case study is the importance of integrating external factors like weather patterns, market prices, and environmental risks into credit scoring models.

Source: Unsplash

CASE STUDY 2

Grab Financial, Southeast Asia – Gig economy credit scoring

The gig economy in Southeast Asia (SEA) has seen rapid growth, with millions of individuals working as drivers, food delivery partners, and other freelance roles through platforms like Grab. However, one of the major hurdles for these workers in accessing financial services is the inconsistent nature of their income streams.

For **Grab Financial**, a subsidiary of **Grab**, this presented a significant challenge. The company wanted to offer financial products like **personal loans, microloans**, and **insurance** to its growing base of gig economy workers.

- **Challenge:** Providing loans to gig workers with inconsistent income streams.
- **Solution:** ·Leveraged platform data, including ride volume, customer ratings, and transaction histories, to assess creditworthiness.
    - **Ride volume**: The number of rides or deliveries a driver completes, providing insight into their activity level and potential earnings.
    - **Customer ratings**: The ratings given by passengers and clients after each ride or delivery, which reflect the quality of service and customer satisfaction.
    - **Transaction histories**: Data from GrabPay and other in-app payment systems, providing insights into the financial behavior and reliability of workers.
- **Outcome**
    - **High adoption rate:** One in three active driver-partners has taken out a loan through Grab, indicating the usefulness and accessibility of these financial products.
    - **Financial inclusion:** For many driver-partners, taking a loan from Grab is their first loan from a formal institution, helping to build their financial history.

The outcome was a win-win: Grab Financial expanded its user base and increased customer loyalty by offering accessible financial products, while gig workers gained access to loans that allowed them to manage personal expenses, invest in their businesses, or improve their livelihoods.

Source: Grab

- **Lessons learned:**
  - Internal platform data, such as user activity and performance metrics, can serve as reliable credit indicators for non-traditional workers like gig workers.
  - Continuous refinement of AI models is crucial to account for fluctuations in gig economy behaviors and maintain low default rates.

With a variety of loan products tailor-made for gig-workers, Grab loan disbursals increased 57% year-on-year to USD 1.5 billion in 2023.

The key lesson from Grab's success is that internal platform data, such as ride volume, customer ratings, and transaction histories, can serve as reliable indicators of creditworthiness for non-traditional workers like gig workers. These data points are more representative of a worker's income-generating potential than traditional credit scoring factors.

CASE STUDY 3

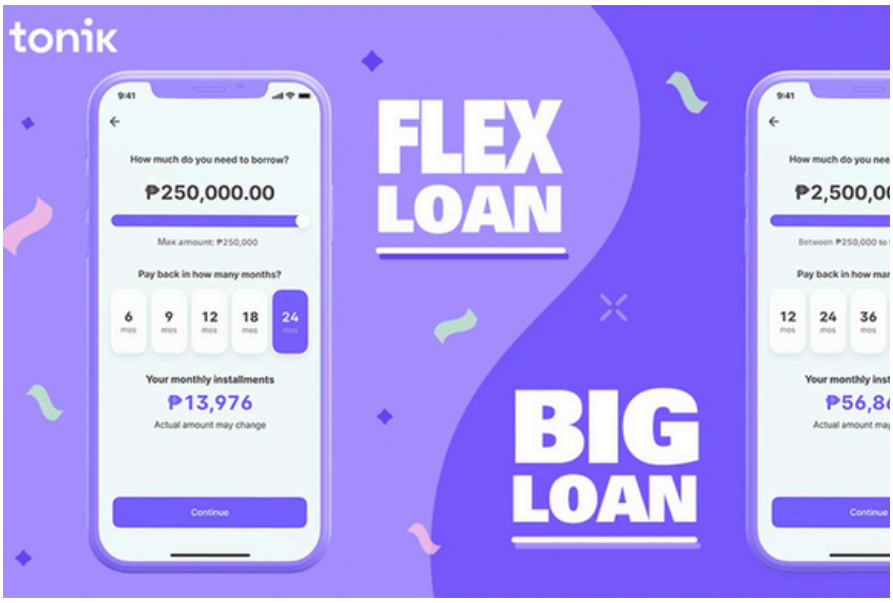
Tonik Bank, Philippines – Digital-first AI models

The Philippines is one of the fastest-growing digital economies in Southeast Asia, characterized by a mobile-first population where smartphones are the primary means of accessing the internet. Despite this digital adoption, a large portion of the population remains unbanked or underbanked, with limited access to traditional financial services.

Tonik Bank, a neobank, sought to address this gap by providing accessible financial products, such as personal loans and savings accounts, to underserved segments. However, the lack of traditional credit histories and reliance on cash-based transactions posed a significant challenge. Scaling a credit scoring solution that could accurately assess the creditworthiness of these individuals was critical to expanding financial inclusion.

- **Challenge:** Scaling credit scoring for a mobile-first population with limited access to traditional banking.
- **Solution:** AI-based dynamic risk analysis integrating e-commerce and telecom data for personalized credit scoring.
  - **E-Commerce data:** Purchasing patterns, transaction volumes, and payment histories from online shopping platforms. Regularity of payments and cart abandonment rates to gauge financial behavior and reliability.
  - **Telecom data:** Mobile phone usage, such as call and text frequency, prepaid balance top-ups, and data consumption trends. Bill payment histories for postpaid users, providing insight into financial discipline and stability.

Tonik also partnered with telecom providers to access scalable data pipelines, ensuring that even individuals in rural or semi-urban areas could be assessed using reliable data. This mobile-first approach aligned with the digital habits of the population, making the process seamless and accessible for users.



Source:prnasia

Tonik Bank collaborated with FinScore, a leading credit scoring company in the Philippines. Since its launch, FinScore's technology has powered credit assessments for over 3.5 million Filipinos and facilitated the disbursement of more than $500 million in loans.

- **Outcome:**
  - **Increased financial inclusion:** By leveraging FinScore's telco data credit scoring, Tonik has been able to extend credit to previously underserved populations, including those without traditional credit histories.
  - Tonik has built a $20 million USD lending portfolio, demonstrating the effectiveness of FinScore's credit scoring technology.
- **Lessons learned:**
  - Mobile-first strategies are highly effective for reaching digitally native populations, particularly in emerging markets.
  - Collaborations with telecom companies can provide a scalable and accessible data pipeline for real-time credit scoring.

Tonik Bank's innovative use of AI-driven credit scoring showcases how alternative data and mobile-first strategies can transform financial inclusion in emerging markets like the Philippines. By integrating e-commerce and telecom data, Tonik was able to overcome the limitations of traditional credit scoring systems, enabling access to credit for underserved populations.

CASE STUDY 4

Kredivo, Indonesia – AI-driven credit for digital purchases

In Indonesia, e-commerce has become one of the most dynamic sectors, with millions of consumers shifting to online platforms for their purchasing needs. However, a significant portion of these consumers lacks access to formal credit systems due to the absence of traditional credit histories. This gap makes it challenging for e-commerce platforms and financial institutions to offer credit-based services, such as **buy now, pay later (BNPL)** or personal loans, without incurring high risks.

For Kredivo, a leading fintech company in Indonesia, the primary challenge was to create a system that could assess the creditworthiness of these consumers quickly and accurately.

- **Challenge:** Offering credit to consumers with little or no traditional credit history, particularly in the e-commerce space.
- **Solution:** Implemented an AI-based platform using real-time data, including online shopping behavior, payment histories, and mobile phone activity, to assess creditworthiness.
- **Outcome:** Approved loans for over 2 million users, with a 20% month-on-month increase in approvals for individuals with no formal credit history.
- **Lessons Learned:**
  - E-commerce platforms can serve as rich data sources for credit scoring, reflecting a customer's reliability based on their purchasing patterns and payment behavior.
  - AI algorithms must be tailored to assess unique consumer behaviors in fast-paced, digitally driven sectors like online shopping.

By leveraging e-commerce behavior, payment histories, and mobile activity, Kredivo successfully bridged the gap between digital consumers and formal credit systems, enabling millions of underserved users to access credit safely and responsibly.

Source: asiatechdaily

Kredivo's game-changing algorithm approves loans of up to 30 million rupiah ($2,100) in just two minutes, bypassing traditional credit scores in favor of innovative data insights like smartphone type. With 90% of Indonesian customers paying on time—matching traditional credit card repayment rates—Kredivo proves that smarter, faster lending is not only possible but highly effective.

This case study underscores the importance of tailoring AI models to specific industries, such as e-commerce, to maximize their effectiveness. For other fintechs looking to enter similar markets, Kredivo's approach offers a blueprint for leveraging data partnerships, dynamic risk assessment, and real-time decision-making to create inclusive, scalable, and sustainable credit solutions.

CASE STUDY 5

Timo Bank, Vietnam – AI-powered credit scoring for freelancers and gig workers

Vietnam's gig economy has grown exponentially, with a large number of workers in freelancing, ride-hailing, delivery services, and other flexible employment sectors.

For Timo Bank, Vietnam's first digital bank, this presented a critical challenge:

1. **How to assess the creditworthiness of gig workers and freelancers whose income varies month-to-month.**
2. **How to offer customized financial solutions that align with the financial realities of this growing segment.**

- **Challenge:** Scoring freelancers and gig workers, who typically have irregular income and no formal credit history.
- **Solution:** Timo implemented AI algorithms that utilized data from social media activity, online purchases, and mobile transaction history to predict repayment behavior.

The AI models incorporated machine learning (ML) algorithms that dynamically adjusted to reflect changes in gig workers' income and behavior. For instance:

  - Seasonal variations in income were factored into risk assessment for freelancers with irregular projects.
  - Borrowers with increasing activity on professional platforms were flagged for potential credit line expansions.

- **Outcome:** AI model will help Timo scale its business and acquire 5 million new customers over the next three years. Timo offers personalized financial services to customers meeting their individual financial needs in a secure and compliant manner.

- **Lessons learned:**
  - Data points beyond traditional financial records, such as social media activity or e-commerce purchases, can offer valuable insights into a borrower's reliability.
  - AI models must be flexible enough to account for the fluctuating income streams common to gig workers, allowing for dynamic loan terms that fit their financial cycles.

By leveraging social media activity, e-commerce behavior, and mobile transactions, Timo created a credit assessment system that not only expanded access to credit but also maintained low default rates.

Source: Timo

"Our ultimate mission is to enable financial inclusion for everyone – not just for those who are 'unhappily banked' or those who are currently 'unbanked', but inclusion across our entire society. Utilizing Mambu's cloud banking platform allows us to build a bank that is truly accessible to everybody. We want to become a financial partner to our customers and provide services that enhance our customers' lives, and with Mambu we've found a technology partner that allows us to do that."

Henry Nguyen, CEO, Timo.

With its innovative approach, Timo Bank has set a benchmark for how digital-first financial institutions can empower underserved segments while fostering financial inclusion in the gig economy.

CASE STUDY 6

DBS Bank, Singapore – AI industrialization in credit scoring

In Singapore, DBS Bank sought to leverage AI across its banking operations to address challenges in credit scoring and enhance customer experiences. As a leading financial institution in Asia, DBS needed to ensure its AI-driven initiatives were scalable and impactful across diverse banking functions.

- **Challenge:** Integrating AI into credit scoring to enhance accuracy and decision-making, while also improving operational efficiency and customer engagement.

- **Solution:** DBS deployed over 800 AI models across 350 use cases, encompassing areas such as credit risk assessments, customer personalization, and predictive analytics. For credit scoring specifically, AI models were used to analyze an extensive range of data points, including:
  - **Transactional histories:** Analysis of account inflows and outflows.
  - **Behavioral patterns:** Insights into spending habits, repayment behaviors, and lifestyle indicators.
  - **Alternative data sources:** Information from digital footprints, social data (where compliant with regulations), and economic indicators.

Generative AI tools are being explored to automate and refine critical processes like credit approval memos and risk analysis.

- **Outcome:** The AI implementation resulted in reduced non-performing loans (NPLs), improved customer engagement, and significant operational efficiencies. DBS anticipates over SGD 1 billion in economic impact by 2027, driven by AI-led cost savings and increased revenue streams.

The bank developed over 100 algorithms analyzing 15,000 customer data points for personalized financial advisory. DBS's AI initiatives generated SG$370 million in economic value in 2023, more than doubling from the previous year.

- **Lessons learned:**
  - Diversifying data sources, including transactional and behavioral data, is essential for robust credit scoring models.
  - Generative AI offers potential in automating complex decision-making processes, such as credit approvals.
  - Scaling AI across operations requires a clear strategy for model deployment and integration into existing workflows.

By industrializing AI, DBS Bank has positioned itself as a leader in innovation, demonstrating how financial institutions can leverage AI to transform risk management and customer engagement while achieving substantial economic gains. Other banks can adopt DBS's approach to harness AI for comprehensive, scalable, and sustainable digital transformation.

Source: Bloomberg

CASE STUDY 7

MYBank, China – AI-powered inclusion for SMEs

In China, small and medium enterprises (SMEs) face significant challenges in accessing traditional credit due to limited credit histories, inadequate documentation, and high risk perceptions from lenders. MYBank, an affiliate of Ant Group, recognized this gap and sought to address it using artificial intelligence (AI). Their innovative approach revolutionized SME lending, making credit more accessible and inclusive.

- **Challenge:** In China, SMEs play a crucial economic role yet struggle to access credit due to insufficient credit histories, high-risk perceptions, and resource-intensive traditional evaluation methods.

- **Solution:** MYBank harnessed AI-driven innovations to transform SME lending:
  - **AI-powered credit scoring:** Leveraged transactional data, such as sales volumes and payment behaviors.
  - Integrated supply chain data, including vendor relationships and payment cycles.
  - Used alternative data points, such as inventory levels and business activity on e-commerce platforms, to create a more comprehensive credit profile.

- **Real-time loan approvals:**
  - AI algorithms process millions of loan applications in real-time.
  - Loan approvals occur in seconds, with disbursements completed in under 3 minutes, offering SMEs instant access to working capital.

MYBank utilizes the "Zhima credit evaluation system," an automated, AI-powered credit scoring system that analyzes over 3,000 variables to assess an applicant's ability to repay within three minutes.

Source: qorusglobal

MYBank pioneered the "310 model" for SME financing: loans take less than three minutes to apply on a mobile phone, less than one second to approve, and require zero human interaction.

- **Scalable technology infrastructure:**
  - Built a robust digital lending platform that could support high transaction volumes without compromising accuracy or speed.
  - Emphasized accessibility through mobile platforms, ensuring inclusivity for SMEs in remote areas.

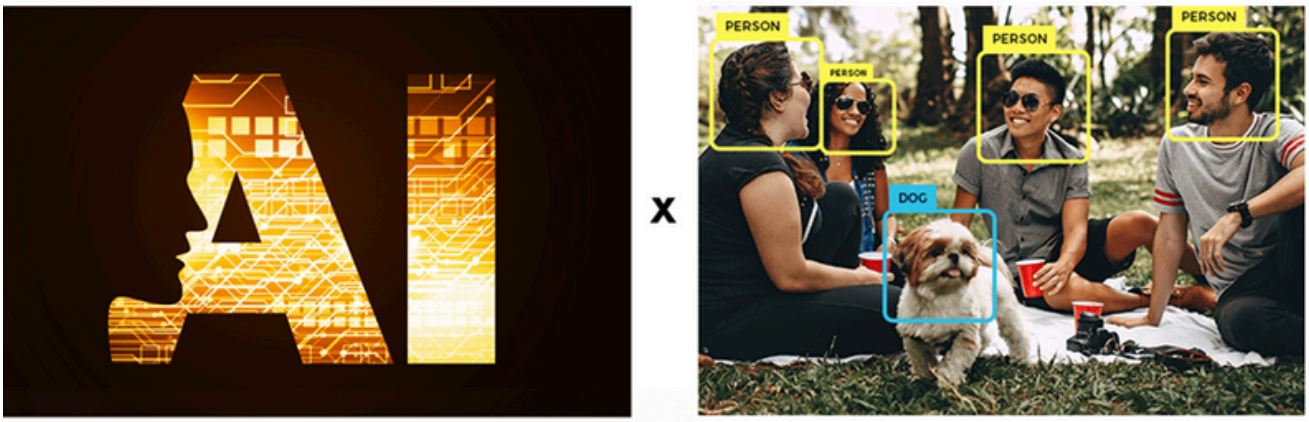
By the end of 2023, MYBank had served over 53 million SMEs cumulatively, demonstrating the scale of its impact on financial inclusion. Despite serving high-risk segments, MYBank maintains a default rate of just 1%, showcasing the effectiveness of its AI-driven credit assessment.

CASE STUDY 8

UnionBank, Philippines – AI for gender-inclusive lending

UnionBank of the Philippines has been at the forefront of using technology to drive innovation in financial services. Recognizing the challenges faced by women entrepreneurs in accessing credit, the bank leveraged artificial intelligence (AI) to create a more inclusive lending ecosystem.

- **Challenge:** Women entrepreneurs in the Philippines play a vital role in driving economic growth but encounter systemic barriers to accessing credit, such as biases in traditional scoring methods that undervalue their businesses, underserved financial needs due to a lack of tailored products, and the absence of alternative data in credit assessments. UnionBank's challenge was to address these issues by designing a credit system that promotes inclusivity and fairness while maintaining efficiency and scalability.



Source: connectedwomen

- **Solution:** UnionBank deployed AI-powered solutions to design gender-sensitive credit scoring algorithms aimed at empowering women entrepreneurs:
  - Alternative data integration: AI models analyzed non-traditional data sources, such as:
    - Business performance metrics: Revenue growth, profit margins, and cash flow stability.
    - Spending patterns: Trends in business-related and personal expenditures.
    - Behavioral data: Transactional behaviors and repayment histories specific to women-led businesses.
- **Outcome:** A significant rise in credit approvals for women-led businesses, enabling them to access the capital needed for growth and expansion. UnionBank's efforts contributed to bridging the gender gap in access to formal financial services in the Philippines.

UnionBank's fintech arm, UBX, partnered with Singapore-based Bixie Pte. Ltd. to create an open finance platform targeting women. This partnership aims to disburse aid funds directly to Filipino women beneficiaries through a "last mile" disbursement network.

- **Solution:**
  - Tailoring AI algorithms to address biases and reflect the unique needs of underserved groups is crucial for equitable credit systems.
  - Understanding gender-specific financial behaviors and needs drives the success of inclusive lending initiatives.

4. Five lessons from emerging markets in SEA

01

Mobile-first strategies cater effectively to digitally native populations:

Emerging markets like SEA have high smartphone penetration but low banking access. Mobile-first credit solutions meet users where they are, offering seamless and inclusive financial services.

02

Partnerships with telecom companies provide a scalable data pipeline for credit scoring:

Telecom companies maintain extensive datasets (e.g., call patterns, bill payments) that serve as reliable indicators for creditworthiness, enabling financial institutions to scale credit scoring efficiently.

03

Leveraging non-traditional datasets in credit scoring:

E-commerce behavior, mobile transactions, and social media activity are transforming credit assessments, making them more inclusive for unbanked populations.

04

Scalability and local adaptability:

Successful institutions prioritize credit models tailored to local economies, integrating region-specific factors like rural income patterns or informal sector dynamics.

05

Government support for fintech collaboration:

Programs like Indonesia's "National Financial Inclusion Strategy" encourage partnerships between banks, fintechs, and regulators, driving innovation and financial inclusion.

5. Three strategic recommendations for banks and fintechs to enhance credit access for the unbanked and underbanked

01 Adopt localized models:

- **Why:** Credit behaviors and economic activities vary significantly across regions, particularly in diverse markets like SEA. Using localized data sources enables institutions to create more accurate and inclusive credit scoring models.
- **How:**
  - Collaborate with telecom companies to analyze call patterns, mobile payments, and data usage for credit scoring.
  - Partner with agricultural cooperatives to incorporate crop yield, market price trends, and seasonal income data into risk assessments for rural borrowers.
  - Use region-specific spending data from local e-commerce platforms to refine credit assessments.

02 Focus on partnerships:

- **Why:** Collaborating with data-rich sectors like telecom, e-commerce, and social media platforms provides fintechs with alternative datasets to refine credit scoring models.
- **How:**
  - Partner with **telecom companies** to analyze mobile usage patterns, bill payments, and prepaid top-ups.
  - Collaborate with **e-commerce platforms** to incorporate purchasing behavior and transaction histories into risk assessments.
  - Explore data-sharing agreements with **payment gateways** and ride-hailing platforms for behavioral insights.

03 Innovate for scalability:

- **Why:** Underserved markets, like rural communities or gig workers, require solutions that are both cost-effective and scalable to reach large populations.

- **How:**
  - Develop AI models that can analyze alternative datasets at scale, ensuring high accuracy for diverse customer segments.
  - Design **mobile-first platforms** that cater to digitally native users with limited access to formal banking.
  - Ensure systems are adaptable to varying income patterns, such as seasonal fluctuations in rural economies or gig worker earnings.

AI-powered credit scoring is reshaping the global financial ecosystem, unlocking opportunities for millions of underserved individuals. Fintechs and financial institutions can drive significant impact by leveraging case study insights, fostering innovation, and collaborating with regulators. This transformative journey offers a roadmap for achieving greater financial inclusion and sustainable growth in the region.

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