Balancing Innovation and Prudence- AI's Role in India's Financial Future[1]

Distinguished guests, participants, ladies and gentlemen, a very good evening.

I am delighted to address this august gathering of distinguished persons, and key stakeholders across the financial spectrum in the banking transformation summit on the theme of 'Banking That Builds Bharat: AI-Powered, Credit-Driven', which is extremely contextual and relevant and encapsulates the spirit of *Viksit Bharat*.

Introduction

2. The Indian banking system has time and again exhibited its capability to embrace and adapt to newer technologies. Beginning from the early days of computerization in the 1980s, to spread of ATMs in the 1990s, the expansion of internet and mobile banking in the 2000s, interoperable infrastructure for payments, data repositories and data sharing since 2010s, the banking sector has adapted successfully to the requirements of the changing times and has over the period made banking more efficient and inclusive. Banking has now entered into a new phase of evolution driven by digital democratization. A prime example is the homegrown Unified Payments Interface (UPI), which has made India a global leader in digital payments which reinforces our belief that responsible innovation can be a powerful driver of progress.

3. The Government of India has articulated an ambitious vision of *"Viksit Bharat"* i.e., transforming India into a developed country by 2047. This sets the tone for the next step in our technological journey of financial sector and more specifically, in the banking sector. Under Viksit Bharat, the goal is for every adult to not only have a bank account, a target largely achieved under Jan Dhan Yojana[2], but also have access to affordable credit, insurance, and investment options. The endeavour of banking sector should be to ensure that benefits of banking, more so of credit accessibility, is made available to customers across all segments on a fair, transparent and affordable basis.

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[1] Keynote Address delivered by Shri M Rajeshwar Rao, Deputy Governor, Reserve Bank of India on September 16, 2025 at 3rd edition of the CNBC-TV18 Banking Transformation Summit on 'Banking That Builds Bharat: AI-Powered, Credit-Driven' in Mumbai. Inputs provided by Chandni Trehan Saluja and Abhishek Kumar Narwal are gratefully acknowledged.

[2] Accounts have grown from 14.72 crore in 2015 to over 56.16 crore by August 2025, with around 67% in rural/semi-urban areas and 33% of Jan Dhan accounts were opened in urban/ metro - https://www.pib.gov.in/PressNoteDetails.aspx?NoteId=155102&ModuleId=3 areas.

Measures taken by RBI

4. In last five years, between 2019-20 to 2024-25, the bank credit growth has been averaging around 10.5 percent[3]. It is also seen that the share of retail credit has grown to 33 per cent[4] while the share of credit to Micro, Small & Medium Enterprises (MSME) sector has been growing steadily, forming 18 per cent of total bank credit as of March 2025. Before delving into the role of new technologies, let me briefly first touch upon the steps taken by RBI over the years to increase flow of credit.

5. The RBI has undertaken several measures to expand both the reach and depth of credit by reducing friction, increasing access points, and lowering the cost of financial service delivery. Key initiatives include Aadhaar-based KYC, the Central KYC Registry, the revised Priority Sector Lending norms, Partial Credit Enhancement Guidelines, and the Account Aggregator framework[5]. In response to the growing digitalisation of credit, the Digital Lending Guidelines[6] were introduced to ensure transparency, fairness, data privacy, while enabling fund flow to wider sectors. The RBI has also enabled formal credit access through frameworks like Trade Receivables e-Discounting System (TReDS) for MSMEs, co-lending models between banks and NBFCs, and targeted refinancing schemes.

6. More recently, the RBI has, in collaboration with its subsidiary RBI Innovation Hub (RBIH), tested a prototype of the Public Tech Platform for Frictionless Credit[7] to enable seamless digital data flow to lenders. Building on this, the Unified Lending Interface (ULI)[8] is being developed to transform credit delivery by integrating access to both financial and non-financial data such as digitised land records, Goods and Services Tax Network (GSTN) data, property records, and satellite data along with services like e-KYC, the Account Aggregator framework, and Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE). This ecosystem aims to make lending faster,

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[3] Handbook of Statistics on the Indian Economy, 2024-25 - Table 44 - Scheduled Commercial Banks - Select Aggregates - Adjusted Bank Credit (excluding the impact of a merger of non-bank with a bank since July 28, 2023).
[4] Handbook of Statistics on the Indian Economy, 2024-25 - Table 45 - Sectoral Deployment of Non-Food Gross Bank Credit - Share of Non-Adjusted Personal Loans
[5] https://rbi.org.in/web/rbi/-/notifications/master-direction-non-banking-financial-company-account-aggregator-reserve-bank-directions-2016-updated-as-on-december-29-2022-10598
[6] https://rbi.org.in/web/rbi/-/notifications/reserve-bank-of-india-digital-lending-directions-2025
[7] https://rbi.org.in/web/rbi/-/press-releases/reserve-bank-of-india-to-launch-the-pilot-project-for-public-tech-platform-for-frictionless-credit-56200
[8] https://rbihub.in/unified-lending-interface/

cheaper, and more accessible to underserved segments. Together, this digital public infrastructure and an enabling regulatory framework would help to drive inclusive credit growth.

Gaps in access to formal credit

7. Having said that, a lot of distance still needs to be traversed, as the gap in credit penetration persists. Even today, only around 25 per cent of India's adult population have formal access to institutional credit[9] while in the MSME sector (which forms ~30 per cent of GDP)[10], only part of their credit needs is met by formal institutions[11]. While the Financial Inclusion Index developed by RBI has shown steady improvement, rising from 53.9 in March 2021 to 67.0 in March 2025[12] reflecting the growth in account ownership and credit access, scope remains in effecting improvement in the usage and quality of services delivered. The gap between inclusion and credit access is a challenge and an opportunity to banking fraternity. The credit needs to not only grow in terms of volume and numbers but also needs to be directed towards productive, sectors that deliver higher multipliers such as MSMEs, infrastructure, informal sectors, and rural population, to achieve not just the goal of "*Viksit Bharat*" but to have a "*Samaveshi Viksit Bharat"*.

The new wave in banking- Artificial Intelligence

8. Driving the next credit revolution will require harnessing new technologies. Over time, the role of technology in finance has shifted from improving operational efficiency to fully automating and centralizing previously manual, fragmented processes. Among emerging technologies, Artificial Intelligence (AI) stands out for its vast potential from strengthening internal operations and risk management to delivering faster, more seamless customer experiences. Reports indicate that nearly 70% of Banking, Financial Services, and Insurance (BFSI) organisations in India have an enterprise level AI strategy in FY 2024[13]. An RBI study of banks' annual reports also shows a

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[9] https://newsroom.transunioncibil.com/more-than-160-million-indians-are-credit-underserved/

[10] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2142170

[11] https://www.sidbi.in/uploads/Understanding_Indian_MSME_sector_Progress_and_Challenges_13_05_25_Final.pdf

[12] https://rbi.org.in/web/rbi/-/press-releases/financial-inclusion-index-for-march-2025 dated July 22, 2025

[13] NASSCOM AI Adoption Index – India]

sharp rise in references to AI, underscoring its growing strategic importance[14]. While both demand-side factors (profitability, competition, compliance efficiency) and supply-side drivers (tech advances, data growth, new business models) influence AI adoption, supply-side forces remain the primary catalyst.

9. AI as a discipline has evolved over decades and has seen rise of machine learning systems which can learn from historical data to make decisions, often with high accuracy. Indian banks and non-banks, embarked on AI journey nearly a decade ago, mainly handling at that time, large volume of information and supplementary analysis which added value without displacing established systems. The adoption has since moved from deployment of AI for back-office functions for efficiency enhancements to more varied use cases such as in the areas of fraud risk management, optimising IT operations, facial recognition for KYC, credit scoring, claim processing, and customer focused services. As observed in the surveys conducted by RBI in 2023 and 2024[15], more than three-fourth of the banks have deployed AI-powered chatbots for customer service. This marks a fundamental shift in which AI is no longer just an enabler but a part of the decision-making process, product design, and customer engagement.

AI across the credit lifecycle

10. Though, the banks have been using AI in some areas of lending, there is potential use cases for its usage across other areas of the credit lifecycle. I would like to highlight a few of them:

(i) Credit Inclusion

11. An important use case would be in the way credit is assessed and distributed. This would require supplementing existing assessment methods with broader data based and more refined analysis, whereby financial institutions could gain additional perspectives on risk and capability of the potential borrowers. This would be a significant game changer to address the credit requirement of the millions of “credit invisibles”, i.e., people with no formal credit history or new to credit customers. Given the availability of a variety of digital footprints which customers have, AI can be leveraged to peruse alternative data sets, to assess their creditworthiness. This would

[14] RBI Bulletin – How Indian Banks are Adopting Artificial Intelligence? [https://rbi.org.in/web/rbi/-/publications/rbi-bulletin/how-indian-banks-are-adopting-artificial-intelligence-27941]
[15] RBI Trends and Progress of banking in India – 2023-24 (Para 10 under Chapter IV)

mean a paradigm shift from asset-based lending to cash-flow and alternate data-based lending, promoting a journey towards inclusive digital finance. Government of India also has recognised the potential of alternate data to drive financial inclusion and has started initiatives such as the "Grameen Credit Score"[16] which aims to provide underserved communities with formal credit access by analyzing alternative financial data, including UPI transactions, government subsidy receipts, and utility payments.

(ii) Turnaround Time

12. AI enables banks to process large volumes of customer data quickly, accelerating credit decisions and service delivery. This is especially valuable in time-sensitive sectors like MSME working capital, where AI can analyse diverse datasets like bank statements, payment histories, GST filings, e-invoices, TReDS receivables, and public records. It also aids lenders in assessing seasonality, supply chains, inventory cycles, customer concentration, and overall creditworthiness of MSMEs.

(iii) Credit Appraisals

13. The banks can embrace AI algorithms for leveraging behavioural analytics by analysing vast amounts of transactional data for detecting patterns indicative of creditworthiness and stable financial behaviour, leading to more accurate credit assessments and improved decision-making processes.

(iv) Customized Credit Solutions

14. AI's ability to dynamically assess customer preferences and behaviour can empower banks to offer customized credit solutions tailored to an individual's financial capacity. This not only improves loan accessibility but also ensures that borrowers receive fair and structured financial products that align with their needs.

(v) Early Warning Signals and Provisioning

15. AI-based early warning systems can help lenders monitor credit portfolios more effectively through dynamic risk scoring and real-time default probability tracking. By flagging early signs of financial stress, these systems protect the lender's balance sheet while giving borrowers a chance to course-correct. The goal, ultimately, is not just to lend more but to lend better.

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[16] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2112198

(vi) Document Management

16. AI also plays a key role in automating document verification by using techniques like Optical Character Recognition (OCR) to read and process information from documents – especially handwritten documents which are generally unstructured, allowing for automated extraction of data thus reducing rejections. It can also examine the visual characteristics of the documents to detect forgery, tampering, or modifications and accurately process large volumes of records, classifying, extracting, and validating key data, thereby improving efficiency and minimizing errors in the lending process.

(vii) Customer Support and Grievance Redress

17. One promising use case of AI is the development of multilingual chatbots and voice assistants which enable customers to interact with banks in their native language. This is a revolutionary change as by localizing the user experience, the AI can enable more people across different languages, literacy levels, and abilities to confidently use formal banking services.

18. Banks are also experimenting with using AI powered virtual assistants to enable staff to respond to customer queries which can enhance customer experience. Timely resolution of customer queries boosts trust in the banking system and encourages deeper engagement, furthering financial inclusion. As digital access has expanded, so has customer complaints. This highlights another use case for AI. It can efficiently categorize, prioritize, and route complaints, enabling faster, proactive resolution by detecting patterns and addressing root causes before issues escalate into grievances.

(viii) Loan Servicing

19. AI-powered loan servicing platforms can create personalised repayment solutions and reduce operational errors across servicing and portfolio management. They can also provide new ways of loan servicing by supporting collections and recovery through prioritised outreach strategies. AI can help to strengthen compliance with auditable trails of measures initiated for recovery.

(ix) Fraud Risk Management and Cyber Security

20. AI also holds potential in safeguarding the financial system itself. As cybercriminals increasingly use AI for sophisticated attacks, Regulated Entities (REs) can leverage

AI-driven tools to protect customers and detect threats. AI can monitor large transaction volumes in real time, flagging anomalies that may assist in detecting fraud or money laundering.

Collaboration for Credit Revolution

21. With fintechs advancing rapidly, REs are increasingly partnering with them across the credit lifecycle. A key model—Digital Lending, involves embedding processes like KYC, credit assessment, and collection directly into fintech platforms. While such collaborations enhance financial inclusion and innovation, they also bring risks such as blurred accountability, data misuse, inadequate grievance redressal, and potential mis-selling. The guiding principle to address this remains the premise that regardless of the model used, accountability ultimately rests with the regulated entity.

Risks and challenges of AI - New dimensions and the Ethical imperative

22. Technological advancements come with challenges that REs must recognize, as these risks can undermine the benefits of innovation. For example, the recent Supreme Court ruling[17] on video-based e-KYC highlighted that mandatory automated processes may create barriers for people with disabilities, underscoring the need for fairness and accessibility in technology adoption to avoid exclusions. AI, without proper controls, can introduce risks like algorithmic bias, lack of transparency, ethical concerns, and systemic vulnerabilities. It can also amplify existing risks such as third-party dependencies, concentration, model, cyber, and data privacy risks. Let me highlight a few:

(i) Third-party dependency

23. As AI adoption grows, financial institutions increasingly rely on complex networks of external providers, cloud platforms, AI vendors, and data aggregators. These interdependencies create vulnerabilities where a disruption or breach in one link can cascade across multiple institutions, disrupting critical services. The complexity and opacity of these layers makes it difficult to identify risks, which may accumulate unnoticed and spread rapidly during shocks.

[17] https://api.sci.gov.in/supremecourt/2024/17879/17879_2024_13_1501_61229_Judgement_30-Apr-2025.pdf

(ii) Market Correlation

24. A critical vulnerability of AI is its potential to synchronize behaviors across the financial system. When institutions use similar models trained on overlapping data, their decisions on asset pricing, credit assessment, trading, and others may align, creating hidden linkages. This can amplify market stress, spread shocks rapidly, worsen liquidity shortages, increase asset price volatility, and trigger sharp, self-reinforcing market swings.

(iii) Cyber Risk

25. The integration of AI into financial systems—especially through new interaction methods and increased reliance on specialized providers expands the cyber threat landscape in unpredictable ways. AI's strengths, such as reliance on large datasets, open interfaces, and automated decisions, also create vulnerabilities. Malicious actors can exploit these through adversarial attacks or compromised training data, potentially corrupting AI outputs. Even a single breach can disrupt critical operations across multiple REs and undermine trust in AI across the sector.

(iv) Model Risk

26. Unlike traditional models built on clear rules and well laid out assumptions, AI models operate through dense, opaque algorithms, which we also refer to as "black boxes" and evolve with the data they consume. This introduces the risk of prejudice within models where biased data, opaque design, or untested assumptions may lead to biased outcomes of model. Such distortions can lead to unfair credit assessment, excluding deserving segments, or conversely extending credit where risks are understated.

(v) Data Risk

27. AI is only as strong as the data that shapes it and this leads to a host of vulnerabilities emanating from data quality. Currently, while most of the financial data is structured, much of it is fragmented across systems, often in inconsistent formats, sometimes incomplete or outdated, or skewed by historical biases. When such data flows into AI models, it can produce results that may appear authentic, but suboptimal and in some cases may produce wrong outputs. Over-reliance on such models can quietly turn data gaps into large-scale misjudgments and wrong business decisions.

(vi) Legal Certainty and Intellectual Property Right issues

28. AI models are often trained on publicly available data, like news stories, articles, and explainer videos, etc., and may lead to intellectual property and copyright infringements.

(vii) Concentration Risk

29. Reserve Bank's Financial Stability Report[18] has pointed out the high market concentration in critical third-party providers of cloud/ AI services, noting that heavy reliance on a small number of tech players could create single points of failure. Such concentration risks are compounded by the vertical integration of certain providers, who supply not just models but also the underlying infrastructure and datasets.

(viii) Frauds and disinformation

30. While AI is transforming many of the processes of financial institutions, the rise of Generative AI has also lowered the barriers for fraud, putting powerful deception tools in the hands of malicious actors. Deepfakes can mimic voices, faces, and documents with unsettling accuracy, while AI-generated phishing lures, fake identities, and forged credentials can slip past traditional checks.

31. In light of these multi-faceted risks, some of which I have touched upon, it becomes crucial that adoption of AI in banking sector must be done in a responsible and measured manner. The excitement around AI's benefits should not overshadow prudent risk management. In this context, the following aspects become even more crucial.

(i) Governance

32. A robust governance is indispensable for ensuring the integrity of data, the reliability of models, and mitigating the risks associated with adoption of AI. The financial institutions should have in place a comprehensive strategy for AI adoption. It should be accompanied by clear policies, risk appetites, criticality, and impact assessments as well as ethical standards that cascade through the organisation. Robust monitoring and reporting mechanisms should be put in place to ensure alignment between

[18]RBI FSR - June 2025 (Para 1.42 under Chapter 1)
https://rbi.org.in/documents/87730/39711208/FSR_JUNE_2025.pdf

innovation goals and institutional stability. Further, in a regulated industry like banking, it is essential to understand how a model arrives at its decisions, making explainability a critical requirement. Thus, there is a need for financial institutions to invest in Explainable AI frameworks that provide clear, auditable reasons for loan decisions. Strong governance is central to managing AI-driven model risk.

(ii) Human-in-the-loop

33. While AI can automate and recommend, the humans should be responsible for the decisions. The financial institutions while adopting AI for business processes should implement the principle of human-in the-loop to ensure that AI is leveraged as a tool to support and enhance human decisions and not replace them.

(iii) Maintaining Data quality and security

34. High-quality data is the backbone of safe and effective AI in finance. While the RBI already collects data through supervisory reports, regulatory returns, and surveys, the introduction of model risk guidelines, aligned with global best practices, will soon extend this scope to include data on AI models used by regulated entities. Financial institutions should therefore adopt robust data strategies, incorporating diverse, reliable indicators that reflect both the scale of AI adoption and associated vulnerabilities.

35. When AI is used for credit decisioning or financial inclusion, especially through alternative data, customer data becomes central, making privacy and security paramount. The Digital Personal Data Protection (DPDP) Act, 2023 provides the legal framework for responsible data use, and financial institutions must ensure compliance through consent-based, privacy-first data handling practices.

(iv) Research and Development

36. Continued investment in research and development is critical for advancing the capabilities of AI in lending lifecycle for unlocking new opportunities. Research efforts of the financial institutions should focus on improving data quality and accessibility, developing novel AI algorithms for enhancing credit inclusion, and addressing key challenges related to bias, fairness, and interpretability in credit evaluation as well as enhancement of in-house capabilities to manage concentration risk of providers.

(v) Industry Collaborations

37. Collaboration and knowledge-sharing among industry stakeholders, including financial institutions, fintech companies, and academic institutions is essential for driving innovation and addressing common challenges in AI-driven credit processes. This can foster the development of best practices, standards, and frameworks for responsible AI use, promoting transparency, fairness, and accountability in credit evaluation. Some of the initial areas where the industry can collaboratively work is harmonising AI taxonomies and developing common benchmarks and metrics.

Regulatory guardrails for new technologies

38. As AI adoption gains traction, regulatory oversight is crucial in ensuring an efficient, responsible and fair adoption. Recognising the increasing usage of model-driven credit assessments and decision-making in REs, the RBI had issued a draft circular on model risk management in credit[19], setting out expectations on governance, validation, monitoring, and accountability. Building on this foundation and recognising the increasing usage of models by the REs, not only for credit functions but also for wide spectrum of processes across functional and operational domains, the Bank is in the process of expanding the scope of these guidelines and would be issuing overarching Model Risk Management Guidelines applicable across all models. As technologies like AI are generally not adopted uniformly across the sector and owing to presence of a varied type of entities with different scales, the principle of proportionality has to be also factored in. The objective would be to ensure that all REs can adopt technologies best suited to their business models and customer needs, while effectively managing risks such as explainability, algorithmic bias, resilience, and over-automation[20]. In continuation of this approach, the recently released report of the Committee on Framework for Responsible, Efficient, and Ethical AI (FREE-AI)[21], has laid out seven guiding sutras for trustworthy AI, and emphasized the need for a robust model risk management framework by REs.

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[19] https://rbi.org.in/en/web/rbi/-/regulatory-principles-for-management-of-model-risks-in-credit

[20] RBI Annual Report 2024-25: VI.19 under Chapter VI (Regulation, Supervision and Financial Stability)

[21] FREE-AI Committee Report [https://rbi.org.in/documents/87730/30842423/RBI+FREE-AI+Committee+Report_13082025.pdf]

Conclusion

39. Over the decades, Indian banking sector has exhibited its ability to integrate meaningful technological advancements. As AI transforms financial services, it's clear this is a development which is not a mere upgrade but a major shift impacting products, processes, and operations. From the risk perspective, the long-term implications of AI adoption on the financial system remain uncertain but exhibit potentially far-reaching consequences. It is therefore imperative for the financial sector to approach AI adoption with foresight, investing not just in innovation, but also in resilience by building strong governance structure, diversifying dependencies, engaging in continual assessment of emerging risks, and ensuring their AI strategies align with long-term safety and sustainability of the financial system. Ensuring that AI-driven decisions are ethical, unbiased, and transparent will be paramount in building a sustainable, AI-powered financial future. This calls for "*optimistic vigilance*" wherein AI and other technologies in banking are neither feared nor embraced blindly but "*navigated"*. The RBI, on its part, will continue to provide an enabling regulatory environment so that together we can build a banking system that truly builds Bharat, and not just builds, but transforms Bharat.

40. Let me sign off with the thought "Trust is the currency of banking". Even as we broaden the credit coverage using algorithms and digital interfaces, maintaining the trust will be our biggest challenge and also our biggest responsibility.

Thank you.