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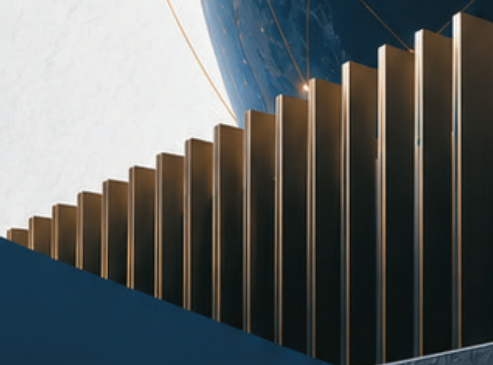
WHITEPAPER

Data and Digital Credit

Unlocking Innovative
Data Analytics Tools to Power
Financial Solutions

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**FINTECH
PRACTICE GROUP**



List of Abbreviations & Defined Terms

Abbreviations & Defined Terms	Full Form & Meaning
AA	Account Aggregator
AI	Artificial Intelligence
AMS Amendments 2026	The Amendment Directions issued by the RBI listed below, in relation to advertising, marketing and sale of financial products and services by REs, amending the Responsible Business Conduct Directions 2025 (as applicable to an RE based on the category of institution under which it is regulated by the RBI): 1. RBI (Non-Banking Financial Companies – Responsible Business Conduct) Second Amendment Directions, 2026 2. RBI (All India Financial Institutions – Responsible Business Conduct) Second Amendment Directions, 2026 3. RBI (Rural Co-operative Banks – Responsible Business Conduct) Second Amendment Directions, 2026 4. RBI (Urban Co-operative Banks – Responsible Business Conduct) Second Amendment Directions, 2026 5. RBI (Regional Rural Banks – Responsible Business Conduct) Second Amendment Directions, 2026 6. RBI (Local Area Banks – Responsible Business Conduct) Second Amendment Directions, 2026 7. RBI (Payments Banks – Responsible Business Conduct) Second Amendment Directions, 2026 8. RBI (Small Finance Banks – Responsible Business Conduct) Second Amendment Directions, 2026 9. RBI (Commercial Banks – Responsible Business Conduct) Second Amendment Directions, 2026
API	Application Programming Interface
APR	Annual Percentage Rate
Bank Mitras	Bank Mitras/ Business Correspondents are banking correspondents who provide financial services in rural and remote areas, promoting financial inclusion. They assist with account openings, cash deposits, withdrawals, loans, and government subsidy disbursements using digital banking tools. Appointed by banks, they bridge the gap between formal banking services and underserved communities.
BNPL	Buy Now, Pay Later
CFPA	Consumer Financial Protection Act
CFPB	Consumer Financial Protection Bureau
CIC	Credit Information Companies
CIC Act	Credit Information Companies (Regulation) Act, 2005
CJEU	Court of Justice of the European Union
CMP	Compliance Management Program
Credit Facilities Directions 2025	The RBI Master Directions listed below (as applicable to an RE based on the category of institution under which it is regulated by the RBI): 1. RBI (Commercial Banks – Credit Facilities) Directions, 2025 2. RBI (Small Finance Banks – Credit Facilities) Directions, 2025 3. RBI (Local Area Banks – Credit Facilities) Directions, 2025 4. RBI (Non-Banking Financial Companies – Credit Facilities) Directions, 2025 5. RBI (Regional Rural Banks – Credit Facilities) Directions, 2025



Abbreviations & Defined Terms	Full Form & Meaning
	6. RBI (Urban Co-operative Banks – Credit Facilities) Directions, 2025 7. RBI (Rural Co-operative Banks – Credit Facilities) Directions, 2025 8. RBI (All India Financial Institutions – Credit Facilities) Directions, 2025
Draft Data Governance Directions	RBI Draft Guidance on Regulatory Expectations for Data Governance, 2026
Draft MRM Guidance	RBI Draft Guidance on Regulatory Principles for Model Risk Management, 2026
DEPA	Data Empowerment and Protection Architecture
DIGITA	Digital India Trust Agency
Digital Lending Directions	Credit Facilities Directions 2025 and Responsible Business Conduct Directions 2025
Digital Payment Security Controls Directions 2026	The RBI Master Directions listed below (as applicable to an RE based on the category of institution under which it is regulated by the RBI): 1. Reserve Bank of India (Commercial Banks – Digital Payment Security Controls) Directions, 2026 2. Reserve Bank of India (Small Finance Banks – Digital Payment Security Controls) Directions, 2026 3. Reserve Bank of India (Payments Banks – Digital Payment Security Controls) Directions, 2026 4. Reserve Bank of India (Urban Co-operative Banks – Digital Payment Security Controls) Directions, 2026 5. Reserve Bank of India (Non-Banking Financial Companies – Digital Payment Security Controls) Directions, 2026
DLA	Digital Lending Apps
DLG	Default Loss Guarantee
DORA	Digital Operational Resilience Act
DPD	Days Past Due
DPDP Act	Digital Personal Data Protection Act, 2023
DPI	Digital Public Infrastructure
EBA	European Banking Authority
ECOA	Equal Credit Opportunity Act
EIOPA	European Insurance and Occupational Pensions Authority
ESMA	European Securities and Markets Authority
ETB	Existing to Bank
EU	European Union
FCRA	Fair Credit Reporting Act
FDIC	Federal Deposit Insurance Corporation
Federal Reserve	Board of Governance of the Federal Reserve System
Final Rule	Required Rulemaking on Personal Financial Data Rights - Final Rule - (CFPB) [12 CFR Parts 1001 and 1033] [Docket No. CFPB-2023-0052] RIN 3170-AA78
FIP	Financial Information Provider
FIU	Financial Information User



Abbreviations & Defined Terms	Full Form & Meaning
FLDG	First Loss Default Guarantee
FREE-AI Committee	Framework for Responsible and Ethical Enablement of Artificial Intelligence Committee
GDPR	General Data Protection Regulation
IFSCA	International Financial Services Centres Authority
IoT	Internet of Things
IRDAI	Insurance Regulatory and Development Authority
KFS	Key Fact Statements
KYC	Know Your Customer
LSP	Lending Service Provider
Malegam Committee	The Sub-Committee of the Central Board of Directors of Reserve Bank of India to Study Issues and Concerns in the MFI Sector (2011)
Managing Risks in Outsourcing Directions 2025	The RBI Master Directions listed below (as applicable to an RE based on the category of institution under which it is regulated by the RBI): 1. RBI (Commercial Banks – Managing Risks in Outsourcing) Directions, 2025 2. RBI (Small Finance Banks – Managing Risks in Outsourcing) Directions, 2025 3. RBI (Payments Banks – Managing Risks in Outsourcing) Directions, 2025 4. RBI (Local Area Banks – Managing Risks in Outsourcing) Directions, 2025 5. RBI (Urban Co-operative Banks – Managing Risks in Outsourcing) Directions, 2025 6. RBI (Rural Co-operative Banks – Managing Risks in Outsourcing) Directions, 2025 7. RBI (All India Financial Institutions – Managing Risks in Outsourcing) Directions, 2025 8. RBI (Non-Banking Financial Companies – Managing Risks in Outsourcing) Directions, 2025
MeitY	Ministry of Electronics and Information Technology
MFI	Micro-Finance Institutions
ML	Machine Learning
MSME	Micro, Small and Medium Enterprise
NABARD	National Bank for Agriculture and Rural Development
NASSCOM	National Association of Software and Service Companies
NBFC	Non-Banking Financial Companies
NBFC-AA Directions	RBI (Non-Banking Financial Companies - Account Aggregator) Directions, 2025
NBFCs-MFI	Non-Banking Financial Company – Microfinance Institutions
NBO	Next Best Offer
NCUA	National Credit Union Administration
NTB	New to Bank
NTC	New To Credit
OCC	Office of the Comptroller of the Currency
OCEN	Open Credit Enablement Network
OECD	Organisation for Economic Co-operation and Development



Abbreviations & Defined Terms	Full Form & Meaning
OECD AI Recommendations	The Recommendation of the OECD on Artificial Intelligence, adopted in May 2019
OECD genAI-Finance Report	OECD's report on Generative Artificial Intelligence in Finance
PSOs	Payment System Operators
RBI	Reserve Bank of India
REs	Regulated Entities
Responsible Business Conduct Directions 2025	The RBI Master Directions listed below (as applicable to an RE based on the category of institution under which it is regulated by the RBI): 1. RBI (Commercial Banks – Responsible Business Conduct) Directions, 2025 2. RBI (Small Finance Banks – Responsible Business Conduct) Directions, 2025 3. RBI (Payments Banks – Responsible Business Conduct) Directions, 2025 4. RBI (Local Area Banks – Responsible Business Conduct) Directions, 2025 5. RBI (Regional Rural Banks – Responsible Business Conduct) Directions, 2025 6. RBI (Urban Co-operative Banks – Responsible Business Conduct) Directions, 2025 7. RBI (Rural Co-operative Banks – Responsible Business Conduct) Directions, 2025 8. RBI (All India Financial Institutions – Responsible Business Conduct) Directions, 2025 9. RBI (Non-Banking Financial Companies – Responsible Business Conduct) Directions, 2025
SEBI	Securities and Exchange Board of India
SEWA	Self-Employed Women's Association
SHG	Self-Help Groups
SMEs	Small & Medium Enterprises
SPDI Rules	Information Technology (Reasonable Security Practices and Sensitive Personal Data or Information) Rules, 2011
SRO	Self-Regulatory Organisation
TSP	Technology Service Provider
UDAAP	Prohibitions on Unfair, Deceptive, or Abusive Acts or Practices
UIDAI	Unique Identification Authority of India
UK PRA	United Kingdom Prudential Regulation Authority
ULI	Unified Lending Interface
UPI	Unified Payments Interface
U.S.	United States of America
WG	Working Group
WGDL	Working Group on Digital Lending



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1. Foreward

Digital lending is transforming credit access across India. Policymakers, financial institutions, fintech platforms, and market participants have recognised the efficiency and inclusivity that data-driven technologies can bring to the lending ecosystem. Alternative data analytics and artificial intelligence can enable faster credit decisions, more accurate risk assessments, lower operational costs, and broader reach to underserved segments of the population. These technologies hold particular promise for bringing new-to-credit borrowers such as gig workers, rural entrepreneurs, small businesses, and informal sector employees into the fold of formal financial services.

The underlying technology can seem complex. However, at a functional level, alternative data credit scoring and AI-driven underwriting represent an extension of familiar principles: assessing a borrower's ability and willingness to repay. What has changed is the breadth of information available, the speed at which it can be processed, and the precision with which risk can be evaluated. Seen this way, innovative data analytics tools become a natural evolution of credit assessment rather than an entirely new paradigm.

Although the digital lending ecosystem has matured significantly in recent years, the regulatory landscape continues to evolve. The RBI's Digital Lending Directions, the Account Aggregator framework, the Unified Lending Interface, and recent guidance on model risk management and data governance represent important steps. Yet significant questions remain around the ethical use of alternative data, algorithmic fairness, consumer protection, and the governance of AI in credit decision-making. For India, this presents an opportunity to develop a thoughtful and comprehensive framework through the active participation of regulators, industry stakeholders, and civil society.

Shardul Amarchand Mangaldas & Co. (SAM & Co.) is pleased to present this whitepaper, titled '*Data and Digital Credit: Unlocking Innovative Data Analytics Tools to Power Financial Solutions*', at the India FinTech Conclave 2026, hosted by the **Unified Fintech Forum (UFF)**. We are grateful to UFF for the opportunity to present this paper. This paper is intended to support the ongoing national conversation on responsible innovation in digital credit and to contribute meaningfully to the policy discourse on financial inclusion through technology.

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Through this paper, we aim to guide the reader through the conceptual, regulatory, and policy questions that India's digital credit ecosystem must address. The paper traces the historical evolution of credit systems and digital lending in India, examines the regulatory framework governing digital lending platforms, explores the role of alternative data and artificial intelligence in credit underwriting, and undertakes a cross-jurisdictional analysis comparing India's approach with those of the United States and the European Union. It concludes with policy recommendations on strengthening consumer protection, promoting ethical AI deployment, enhancing regulatory sandbox ecosystems, leveraging Self-Regulatory Organisations, and developing a governance framework for the responsible use of alternative data.



2. Executive Summary

India's digital lending market has grown rapidly driven by fintech innovation, widespread digital payment infrastructure, and the deployment of data-driven credit models. This paper examines how that transformation has unfolded, tracing India's credit history from microfinance roots through to modern digital lending, and assessing the regulatory frameworks that shape the sector today.

Central to this transformation is the use of alternative data and artificial intelligence in credit underwriting. By drawing on mobile transaction records, utility payments, and behavioural analytics, lenders can now assess creditworthiness for borrowers who lack formal credit histories, meaningfully expanding financial inclusion. But these advances carry risks: data privacy vulnerabilities, algorithmic bias, consumer protection gaps, and the prospect of digital over-indebtedness all demand regulatory attention. The RBI has responded with a series of directions: most recently the Credit Facilities Directions 2025, the Responsible Business Conduct Directions 2025, and the Draft Guidance on Model Risk Management alongside enabling infrastructure such as the Account Aggregator framework and the Unified Lending Interface.

Regulation however is evolving to address certain risks that remain. AI credit models trained on historically skewed data risk may perpetuate systemic bias. There is no comprehensive framework governing the collection and use of alternative data

in credit scoring. The RBI's June 2026 Draft Guidance on Model Risk Management which proposes board-level governance, risk-tiered model inventories, explainability standards, and AI-specific controls including kill switches and bias testing signals that stricter oversight of AI in lending is imminent. Striking the right balance between enabling innovation and protecting borrowers is the central regulatory challenge.

The paper draws on cross-jurisdictional analysis comparing India's regulatory landscape with those of the United States and the European Union to identify policy lessons. The US Consumer Financial Protection Bureau's personal financial data rights framework and the EU AI Act, which classifies credit scoring AI as high-risk, both offer instructive models as India develops its own approach to AI governance in financial services.

Against this backdrop, the paper makes a series of policy recommendations: strengthening consumer protection mechanisms; creating an ethical AI deployment framework; expanding the regulatory sandbox ecosystem; leveraging Self-Regulatory Organisations to bridge industry and regulator; and developing a robust governance framework for alternative data use. Getting this right will allow India to unlock the full potential of fintech-driven credit access while protecting the borrowers it is designed to serve.



3. Introduction

India's digital lending sector has been transformed. Fintech innovation, ubiquitous digital payment infrastructure, and the rise of data-driven credit models have together dismantled the traditional approach to credit assessment, one that relied on standardised credit scores, collateral, and documented financial histories, and that systematically excluded gig workers, rural borrowers, MSMEs, and first-time credit users. Digital lenders now reach these segments by drawing on alternative data: mobile transaction records, e-commerce activity, utility payments, and behavioural analytics.

The integration of AI and alternative data has expanded financial inclusion in meaningful ways. It has also created new regulatory pressure. Data privacy, consumer protection, algorithmic fairness, and the risk of digital over-indebtedness are all live concerns. The RBI has responded with a layered framework: the Digital Lending Directions, the Account Aggregator framework, the Unified Lending Interface, and the Open Credit Enablement Network designed to ensure transparency, consent-based data sharing, and responsible lending.

The growing reliance on AI-driven credit underwriting raises fundamental questions about transparency and fairness. Models trained on historical data can perpetuate bias, and the opacity of algorithmic decision-making makes it difficult for borrowers or regulators to interrogate outcomes. The RBI's June 2026 Draft Guidance on Model Risk Management addresses these concerns directly, proposing board-approved model risk frameworks, enhanced controls for AI and ML models, and full regulated-entity accountability for third-party credit models. Translating these proposals into effective supervision will be the next challenge.

Regulatory approaches internationally vary. The US CFPB has championed open banking through secure API-based data sharing while enforcing strict data privacy norms. The EU's GDPR constrains automated credit decision-making, and the EU AI Act which classifies credit scoring systems as high-risk demands

rigorous governance, human oversight, and transparency. India is charting its own course, seeking to draw on global best practice while preserving space for innovation. In India, regulatory focus areas are likely to be:

1. Consumer protection mechanisms, including disclosure norms, grievance redressal systems, and regulations on the use of borrower data.
2. Guidelines for ethical AI deployment, ensuring that machine learning models used in lending do not reinforce discrimination or opacity in credit decisions.
3. A standardized governance framework for alternative data, specifying what types of non-traditional credit data can be used and under what conditions.
4. Encouraging responsible innovation by promoting regulatory sandboxes that allow fintech firms to test new credit models while maintaining oversight.
5. Leveraging the SRO framework to serve as an important link between industry and the regulators to create a fintech ecosystem that builds consumer trust and fuels innovation.

The paper proceeds as follows. Section 4 traces the evolution of credit systems and digital lending in India. Section 5 surveys the regulatory framework governing digital lending. Section 6 examines the role of alternative data in credit assessment focussing on its implementation through India's digital public infrastructure, and the risks it creates. Section 7 analyses AI's role in digital lending, covering the regulatory landscape including the FREE-AI Report and the Draft MRM Guidance, and the practical benefits and challenges of AI deployment. Section 8 offers a cross-jurisdictional comparison with the US and EU. Section 9 sets out policy recommendations.

India has a genuine opportunity to build a digital credit ecosystem that is both inclusive and well-governed. Realising it will require regulatory frameworks that keep pace with technology and that keep borrower protection at their centre.

4. Evolution of Credit Systems & Digital Lending In India

India's credit system has evolved significantly, transitioning from traditional lending models to a digitally driven credit ecosystem.

Micro-Finance Institutions

India's journey towards digital lending has its roots in the microfinance sector, which has played a crucial role in providing financial services/ small-ticket loans to the underserved and low-income segments of society. It serves as an essential tool for financial inclusion by offering small loans, savings accounts, insurance, and other financial products to those who lack access to formal banking. The concept of microfinance in India traces back to the 1970s when organizations such as SEWA began offering small loans to women entrepreneurs. However, the real impetus came in the 1990s with the introduction of the SHG model, promoted by NABARD and commercial banks. By the early 2000s, microfinance witnessed rapid growth, with numerous NBFCs entering the sector. Organizations such as SKS Microfinance, Bandhan Bank, and Ujjivan Financial Services emerged as significant players. However, this expansion also led to issues of over-indebtedness, aggressive loan recovery practices, and lack of regulatory oversight, culminating in the 2010 Andhra Pradesh crisis¹. Reports surfaced of coercive recovery tactics and high-interest rates, prompting regulatory intervention and stringent state government restrictions on MFIs. This crisis highlighted the need for better governance, transparency, and borrower protection.

In response to these challenges, RBI established the Malegam Committee in 2011 to assess the microfinance sector and propose regulatory measures. The committee recommended creation of a separate category of NBFCs known as NBFC-MFIs². This led to a shift from an unregulated microfinance landscape to a more structured one, with RBI subsequently issuing comprehensive guidelines defining NBFC-MFIs³ and setting operational parameters, including

minimum net owned funds, borrower eligibility criteria, loan amount caps, and interest rate regulations. Additional provisions included a minimum Capital Adequacy Ratio of 15%, transparency in interest rate calculations, and strict fair-practice norms to prevent coercive recovery methods.⁴ Further, the Government of India introduced the Microfinance Institutions (Development and Regulation) Bill, 2012⁵, to establish a central regulatory authority and enhance governance in the sector – however, it was not enacted. Recognizing the need for a more comprehensive approach, the RBI revised its regulatory framework in 2022, introducing uniform regulations for all entities engaged in microfinance, including banks and NBFCs.⁶ Subsequently, as part of RBI's November 2025 consolidation exercise - which reorganized over 9,000 circulars into 238 function-wise Master Directions issued separately for each category of RE, the 2022 unified microfinance framework was disaggregated into the Credit Facilities Directions 2025 and the RBI (Non-Banking Financial Companies – Microfinance Institution) Directions, 2025⁷. The Credit Facilities Directions 2025 read with the Responsible Business Conduct Directions 2025 remove interest rate and margin caps, introduce a common definition for microfinance loans, and emphasize responsible lending and borrower protection. As the sector evolved, SROs emerged as an intermediary framework to oversee compliance, promote ethical lending practices, and serve as a bridge between regulators and the industry.

Self-Regulatory Organizations

SROs were particularly critical in ensuring responsible lending behaviour among microfinance players while maintaining financial discipline. In March 2024, RBI issued an Omnibus Framework for recognizing SROs and REs of RBI (Omnibus SRO Framework). The framework provides a comprehensive regulatory framework for establishing SROs in India, defining their role, governance, and

1 Shruti Saxena, 'The 2010 Microfinance Crisis in Andhra Pradesh, India and its Implications for Microfinance in India' (Reconsidering Development, University of Minnesota Libraries Publishing - Volume 3, Issue 1, Article 1) <<http://pubs.lib.umn.edu/reconsidering/vol3/iss1/1>> accessed 01 April 2025.

2 See, Pg. 4, Recommendation 3 – Para 3.8 of the Report of the Sub-Committee of the Central Board of Directors of Reserve Bank of India to Study Issues and Concerns in the MFI Sector (Reserve Bank of India, 2011) <[Malegam Report.pmd](#)>.

3 RBI Master Circular- Introduction of New Category of NBFCs - 'Non-Banking Financial Company-Micro Finance Institutions' (NBFC-MFIs) – Directions [RBI/2012-13/31 DNBS.(PD)CC.No.293/03.10.38/2012-13, dated 02 July 2012] <[RBI/2012-13/31](#)>.

4 Provided in Part II – Direction 4(B)(a) – RBI Master Circular on NBFCs-MFI (2012).

5 The Micro Finance Institutions (Development and Regulation) Bill, 2012 [Lok Sabha, Bill No. 62 of 2012] <[1241LS_2.p65](#)>.

6 RBI Master Direction – Reserve Bank of India (Regulatory Framework for Microfinance Loans) Directions, 2022 [RBI/DOR/2021-22/89 DoR.FIN.REC.95/03.10.038/2021 (dated 14 March 2022 & updated as on 10 October 2024)] <[Reserve Bank of India - Notifications](#)>.

7 RBI (Non-Banking Financial Companies – Microfinance Institution) Directions, 2025 [RBI/DOR/2025-26/371 DOR.FIN.REC.290/ 03-10-038/2025-26 (dated 28 November 2025)] <<https://rbidocs.rbi.org.in/rdocs/notification/PDFs/371MD93444E1CFB2749C6A9F8F0182794522B.PDF>>.



operational mechanisms. It refers to SROs as independent entities designed to oversee industry participants, ensuring compliance with ethical, operational, and regulatory standards while serving as intermediaries between businesses and statutory regulators like the RBI, SEBI, and IRDAI.⁸ The framework highlights the necessity of SROs in reducing regulatory burdens while fostering transparency, accountability, and consumer protection. SROs are expected to create industry-wide best practices, particularly in sectors like digital credit and fintech, where rapid technological advancements require adaptive regulatory frameworks. Governance structures⁹ for SROs must include legally registered entities with independent oversight, a diverse representation of industry stakeholders, and a transparent operational model that prevents conflicts of interest. Their functions¹⁰ include setting compliance norms, monitoring industry practices, resolving disputes, and ensuring ethical business conduct. While SROs operate autonomously, they remain under the supervision of statutory regulators and are required to submit regular compliance reports and undergo audits.

In addition to the Omnibus Framework, in May 2024, RBI issued a specific Framework for Self-Regulatory Organisation(s) in the FinTech Sector (SRO-FT Framework), recognizing the unique characteristics of the fintech industry and the need for a tailored self-regulatory approach. Unlike the Omnibus SRO Framework which applies broadly to all REs of RBI, the SRO-FT Framework specifically addresses the diverse and rapidly evolving nature of fintech entities encompassing entities that provide technological solutions for delivery of financial products and services to businesses and consumers, or encompass regulatory and supervisory compliance, in partnership with traditional financial institutions or otherwise¹¹. The SRO-FT Framework sets out detailed characteristics that a FinTech SRO must possess, including true representation of the FinTech sector, a development-oriented approach, independence from influence of any single member or group of members, the capacity to serve as a legitimate arbiter

of disputes, and the function of a repository of information for industry research, trend analysis, and policy making¹². On eligibility, the SRO-FT Framework mandates that the SRO-FT must be set up as a not-for-profit company registered under Section 8 of the Companies Act, 2013, with sufficiently diversified shareholding (no entity holding 10% or more of paid-up share capital, singly or in concert), and a minimum net worth of INR 2 crore within one year of recognition¹³. Further the governance standards under the SRO-FT Framework require that at least one-third of Board members, including the chairperson, be independent and without any active association with a FinTech entity, and that a majority of non-independent directors be representative of FinTechs that are currently not directly regulated¹⁴.

Despite its advantages, the implementation of the SRO model faces challenges, such as resistance from industry players due to compliance costs, lack of uniform industry standards, and enforcement difficulties. To address these concerns, the document suggests a phased approach where voluntary compliance is initially encouraged before transitioning into mandatory membership for regulated entities.

The future outlook envisions SROs as a long-term regulatory solution for India's financial sector, leveraging technology to enhance compliance monitoring, prevent fraudulent practices, and promote financial inclusion. The RBI Framework advocates for a collaborative approach, urging regulators, industry leaders, and consumer protection organizations to work together in refining the SRO framework and ensuring that it evolves alongside advancements in digital financial services. Ultimately, the SRO model aims to create a balanced regulatory environment that fosters innovation while safeguarding consumer interests. The framework acknowledges the potential of SROs to shape the future of digital lending by establishing a regulatory ecosystem that combines self-governance with stringent oversight. If effectively

⁸ See, Paragraph 06 - RBI Omnibus Framework for recognising SROs and REs of RBI (2024).

⁹ See, Paragraph 12 - RBI Omnibus Framework for recognising Self-Regulatory Organisations (SROs) for Regulated Entities (REs) of the Reserve Bank of India (issued by Department of Regulation on 21 March 2024) <<https://www.rbi.org.in/Scripts/NotificationUser.aspx?id=12636&Mode=0>>.

¹⁰ See, Paragraphs 7 to 10 - RBI Omnibus Framework for recognising SROs and REs of RBI (2024).

¹¹ See, Paragraphs 1 to 4 - Framework for Self-Regulatory Organisation(s) in the FinTech Sector (issued by Department of Regulation, RBI on 30 May 2024).

¹² See, Paragraph 5 - Framework for Self-Regulatory Organisation(s) in the FinTech Sector (issued by Department of Regulation, RBI on 30 May 2024).

¹³ See, Paragraphs 6 to 10 - Framework for Self-Regulatory Organisation(s) in the FinTech Sector (issued by Department of Regulation, RBI on 30 May 2024).

¹⁴ See, Paragraph 14 - Framework for Self-Regulatory Organisation(s) in the FinTech Sector (issued by Department of Regulation, RBI on 30 May 2024).



implemented, SROs could play a crucial role in ensuring that India's digital credit market remains fair, transparent, and sustainable in the long run.

The digital lending ecosystem, which has grown rapidly over the past decade, has mirrored a similar trajectory.

Growth in Digital Lending

Historically, lenders relied on credit scores, collateral, and formal income statements to assess borrower creditworthiness. While effective for established individuals and businesses, this approach excluded new-to-credit borrowers and small enterprises, restricting their access to formal financial services. As seen above, in the 2000s, MFIs and SHG - Bank Linkage Programs emerged as crucial models for small-scale lending. More recently, digital lending platforms and FinTech companies have revolutionized credit distribution, using AI and data analytics to provide quick, customized loans. However, the rapid rise of digital lending has also raised regulatory concerns, signalling the government's push for stricter oversight. The continuous evolution reflects an ongoing effort to balance financial stability with the need for inclusive economic growth.

In January 2021, RBI constituted a dedicated WG¹⁵ to comprehensively study digital lending, encompassing activities through online platforms and mobile applications. This initiative acknowledged the transformative potential of digital lending to enhance fairness, efficiency, and inclusivity in accessing financial products and services. While FinTech innovations have shifted from peripheral roles to being integral to the design, pricing, and delivery of financial solutions, their rapid adoption has also introduced systemic risks, including concerns around data security, consumer protection, and unregulated entities. The WG

had been tasked with evaluating the penetration and standards of digital lending activities among regulated entities, identifying risks posed by unregulated players, and recommending regulatory changes to promote orderly growth. Key areas of focus included developing robust Fair Practices Codes, enhancing consumer protection frameworks, and establishing stringent standards for data governance, privacy, and security. By balancing innovation with safeguards, the Group aimed to ensure that digital lending evolved as a secure and inclusive financial tool.

The WG Report

The WG published its report¹⁶ in November 2021– highlighting the rapid growth of the digital lending sector in India, emphasizing the need for a robust regulatory framework to address risks posed by unregulated entities, shadow lending, and unethical practices. The WG Report, **first**, recommended a *robust regulatory framework for digital lending*, ensuring transparency, oversight, and consumer protection. It suggested that lending should be restricted to regulated entities¹⁷, with direct loan disbursements to borrower accounts¹⁸. It recommended that all digital lending transactions must be reported to CICs¹⁹ and that DIGITA should verify lending apps²⁰, while a harmonized framework for Short-Term Consumer Credit must be put in place.²¹ The WG Report recommended that a SRO should enforce industry codes, and a “Banning of Unregulated Lending Activities Act” should curb unauthorized lending.²² Additionally, it suggested that push-marketing of pre-approved loans should be limited and a framework for BigTech and DeFi lending risks should be developed.²³

Second, the WG Report called for an *adaptive regulatory framework for digital lending*, emphasizing technology standards, consumer data protection, and ethical practices. It recommended that digital-only NBFCs and banks should be

15 RBI Press Release: 2020-2021/934 – Reserve Bank constitutes a Working Group on digital lending including lending through online platforms and mobile apps (13 January 2021) <<https://rbidocs.rbi.org.in/rdocs/PressRelease/PDFs/PR934F55DABF67F394027993675719ABDD9FC.PDF>>.

16 RBI Report of the Working Group on Digital Lending including Lending through Online Platforms and Mobile Apps (18 November 2021) (WG Report 2021) <<https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/DIGITALLENDINGF6A90CA76A9B4B3E84AA0EBD24B307F1.PDF>>.

17 See, Recommendation 3.4.1.1 – WG Report 2021.

18 See, Recommendation 3.4.1.2 – WG Report 2021.

19 See, Recommendation 3.4.1.4 – WG Report 2021.

20 See, Recommendation 3.4.2.1 – WG Report 2021.

21 See, Recommendation 3.4.2.2 – WG Report 2021.

22 See, Recommendations 3.4.2.4, 3.4.2.5 – WG Report 2021.

23 See, Recommendations 3.4.4.1, 3.4.4.2 – WG Report 2021.



encouraged, with clear guidelines for FinTech partnerships and neo-banks under RBI regulations.²⁴ Further, verified apps must meet trust-centric verification standards²⁵, and they must adhere to baseline digital hygiene guidelines, covering cyber security, digitally signed documents, and nodal officers for FinTech-related issues²⁶. A need for a comprehensive data protection framework was felt to safeguard consumer privacy²⁷, while the ethical AI principles and secure data storage within India were highlighted as priorities.²⁸ It was further recommended that data must be stored in India, and DLAs must take necessary steps to prevent identity fraud and unauthorized access.²⁹ DLAs must also obtain explicit, auditable consent for data collection and offer borrowers the right to revoke consent and delete their data.³⁰ Finally, the WG Report suggested that DLAs should notify consumers about privacy breaches, ensure minimal data access permissions, and maintain clear data destruction protocols – raising the need for regulatory focus to shift toward responsible data usage rather than collection.³¹

And **third**, on *financial consumer protection*, the WG Report highlighted concerns over unethical practices such as excessive interest rates and harassment by unregulated digital lending apps. It suggests that DLAs must adopt *opt-in* marketing strategies, avoid misleading claims, and adhere to standards set by a SRO.³² Measures to prevent borrower distress include restrictions on short-term, high-cost loans, simplified loan products, mandatory consumer education, and a cooling-off period for penalty-free loan exits.³³

Transparency is prioritized through standardized KFS, simplified loan agreements in local languages, and feedback mechanisms.³⁴ To curb predatory lending, lenders must assess creditworthiness in an auditable manner, avoid excessive refinancing, and adopt anti-predatory policies supported by financial literacy drives.³⁵ Further, the WG Report suggests that pricing transparency must be ensured through comprehensive Annual Percentage Rate disclosures³⁶ and that debt recovery must be ethical, with enhanced due diligence for LSPs and a negative list for unethical entities³⁷. It suggests that borrowers should access credit data freely, with disputes clearly recorded in credit reports.³⁸

In August 2022, RBI approved and implemented³⁹ certain recommendations made in the WG Report in phases. Matters relating to credit information access notification; digital lending awareness programs; payment transaction rules; baseline technology standards; ethical AI standards; data security for SMS gateways; FLDG arrangements; regulation of loan aggregators; review of NBFCs with inactive digital lending licenses; reporting of digital lending data; and SROs were accepted in principle but required further examination.⁴⁰

The matters which required broader engagement with the government and other stakeholders were primarily related to regulatory oversight, fraud prevention, and consumer protection in digital lending. For instance, restriction on unregulated lenders; banning illegal lending apps; verification of DLAs; fraud intelligence

²⁴ See, Recommendation 4.4.1.1 – WG Report 2021.

²⁵ See, Recommendation 4.4.1.2 – WG Report 2021.

²⁶ See, Recommendation 4.4.1.3 – WG Report 2021.

²⁷ See, Recommendation 4.4.1.4 – WG Report 2021.

²⁸ See, Recommendation 4.4.2 – WG Report 2021.

²⁹ See, Recommendation 4.4.2.2 – WG Report 2021.

³⁰ See, Recommendation 4.4.3.1 – WG Report 2021.

³¹ See, Recommendation 4.4.3.2 – WG Report 2021.

³² See, Recommendation 5.4.1.1 – WG Report 2021.

³³ See, Recommendation 5.4.1.2 – WG Report 2021.

³⁴ See, Recommendation 5.4.1.3 – WG Report 2021.

³⁵ See, Recommendation 5.4.2.1 – WG Report 2021.

³⁶ See, Recommendation 5.4.3.1 – WG Report 2021.

³⁷ See, Recommendation 5.4.4.3 – WG Report 2021.

³⁸ See, Recommendation 5.4.4.4 – WG Report 2021.

³⁹ RBI Press Release: *Recommendations of the Working group on Digital Lending – Implementation* (10 August 2022) <<https://rbidocs.rbi.org.in/rdocs/PressRelease/PDFs/PR689DL837E5F012B244F6DA1467A8DEB10F7AC.PDF>>.

⁴⁰ See, Annex II: RBI Press Release: *Recommendations of the Working group on Digital Lending – Implementation* (10 August 2022).



& tracking; sharing fraud intelligence; strengthening KYC for sim cards; and shell company monitoring, etc.⁴¹

Pursuant to this, RBI issued the guidelines on digital lending⁴² in September 2022, with the aim to establish a regulatory framework for digital lending activities conducted by commercial banks, co-operative banks, and NBFCs. In May 2025, the 2022 digital lending guidelines were replaced by the Reserve Bank of India (Digital Lending) Directions, 2025⁴³. Subsequently the 2025 directions were replaced by the Credit Facilities Directions 2025 and Responsible Business Conduct Directions 2025. These directions introduce a robust regulatory framework aimed at fostering transparency, ensuring consumer protection, and promoting ethical lending practices. By mandating direct loan disbursements, enhancing borrower disclosures, strengthening grievance redressal mechanisms, and enforcing stringent data privacy measures, these guidelines create a safer and more accountable digital lending ecosystem in India.

The global shift towards digital lending has enabled fintech-driven solutions that leverage alternative data sources, such as transaction history, behavioural analytics, and digital footprints, allowing lenders to assess risk beyond conventional credit metrics. India has been at the forefront of this transition, with

major technological advancements driving financial inclusion. Aadhaar-based e-KYC⁴⁴ has simplified digital identity verification, while UPI has revolutionized real-time payments. The JAM Trinity⁴⁵ (Jan Dhan, Aadhaar, Mobile) has further enhanced access to banking, identity authentication, and mobile-based transactions, forming the foundation of India's digital financial infrastructure.

Additionally, IndiaStack and Sahamati have introduced seamless and consent-based financial data sharing, empowering consumers with greater control over their credit history. Recognizing the potential of alternative data in underwriting, RBI also introduced ULI to standardize and optimize digital lending. By integrating non-traditional credit assessment methods, India is fostering a more inclusive, efficient, and technology-driven credit system, enabling millions of underserved individuals and businesses to access formal credit.

This evolution represents a paradigm shift, redefining lending practices while ensuring regulatory oversight and consumer protection. With this background, let us now look at the policy perspectives and regulatory landscape governing digital lending in India.

⁴¹ See, Annex III: RBI Press Release: *Recommendations of the Working group on Digital Lending – Implementation* (10 August 2022).

⁴² RBI *Guidelines on Digital Lending* (RBI/2022-23/111 – DOR.CRE.REC.66/21.07.001/2022-23) dated 02 September 2022 <<https://rbidocs.rbi.org.in/rdocs/notification/PDFs/GUIDELINESDIGITALLENDINGD5C35A71D8124A0E92AEB940A7D25BB3.PDF>>.

⁴³ RBI (Digital Lending) Directions, 2025 (RBI/2025-26/36 – DOR.STR.REC.19/21.07.001/2025-26) dated 08 May 2025 <<https://rbi.org.in/Scripts/NotificationUser.aspx?Id=12848&Mode=0>>.

⁴⁴ Unique Identification Authority of India - Aadhaar Paperless Offline e-KYC <<https://uidai.gov.in/en/ecosystem/authentication-devices-documents/about-aadhaar-paperless-offline-e-kyc.html>>.

⁴⁵ JAM (Jan Dhan, Aadhaar, Mobile) TRINITY and digital revolution: A Decade of Financial Inclusion, Transparency and Corruption Free India (Press Information Bureau – Press Release) dated 20 December 2024 <<https://pib.gov.in/PressReleasePage.aspx?PRID=2086611>> accessed 15 March 2025.



5. Digital Lending In India: Regulatory Framework

The regulatory landscape governing digital lending in India is shaped by multiple legislations and regulatory bodies, primarily led by RBI. Digital lending, which is a remote and automated lending process, largely by use of seamless digital technologies for customer acquisition, credit assessment, loan approval, disbursement, recovery, and associated customer service⁴⁶ (through online platforms and mobile applications), falls within the purview of various laws, including the Companies Act, 2013, Banking Regulation Act, 1949, RBI Act, 1934, State Money Lenders Acts, and Chit Funds Act, 1982, etc. These laws collectively regulate different entities engaged in digital lending, ensuring financial stability, consumer protection, and responsible credit practices.

RBI derives its authority to regulate the credit system from the RBI Act, 1934, which mandates that all NBFCs engaged in financial activities, including digital lending, must be registered with the RBI and adhere to prudential norms. Under this Act, the RBI introduced several guidelines and directions, including the Credit Facilities Directions 2025 and the Responsible Business Conduct Directions 2025, which establish compliance requirements for banks, NBFCs, and their LSPs. These guidelines emphasize direct loan disbursements between lenders and borrowers, mandatory disclosure of the APR, strict data privacy measures, and compulsory reporting of digital loans to CICs.

RBI Guidelines on Digital Lending (2022):

As discussed above, on 10 August 2022, RBI released a press statement outlining its stance on the recommendations of the Working Group on Digital Lending and its proposed implementation roadmap. This press release categorized digital lenders into three groups:⁴⁷

- Entities regulated by the RBI and authorized to lend.
- Entities permitted to lend under other statutory provisions but not regulated by the RBI.

- Entities operating outside any statutory or regulatory framework.

Reiterating the WG recommendations, the RBI emphasized that lending in India should only be conducted by the first two categories of entities. Following this, on 02 September 2022, RBI issued the erstwhile *Guidelines on Digital Lending*, implementing the recommendations that were deemed suitable for immediate adoption. These guidelines applied to all commercial banks, primary urban cooperative banks, state cooperative banks, district central cooperative banks, and NBFCs, including housing finance companies.⁴⁸ In May 2025, the 2022 digital lending guidelines were replaced by the Reserve Bank of India (Digital Lending) Directions, 2025⁴⁹. Subsequently the 2025 directions were subsumed by the Credit Facilities Directions 2025 and Responsible Business Conduct Directions 2025.

Key Regulatory Provisions - Credit Facilities Directions 2025 and Responsible Business Conduct Directions 2025

- Accountability of REs:** REs retain full responsibility for ensuring compliance with digital lending norms, even when outsourcing services to LSPs and DLAs. They must ensure that third-party entities also comply with these directions as per the Managing Risks in Outsourcing Directions 2025.
- Loan Disbursement, Servicing, and Repayment:** The Credit Facilities Directions 2025 require that loan funds must be disbursed directly into borrowers' accounts, without intermediaries handling transactions.⁵⁰ Further, any fees or charges payable to LSPs must be borne by REs and not passed on to borrowers and penal interest or charges must be applied only on outstanding loan amounts and disclosed in advance.⁵¹
- Data Privacy and Security:** The Credit Facilities Directions 2025 mandate that data collection must be minimal and limited to what is necessary for lending processes & that borrowers must provide explicit and auditable consent for data collection,

⁴⁶ See, Guideline 2.3 – Annex 1: RBI Guidelines on Digital Lending [RBI/2022-23/111 DOR.CRE.REC.66/21.07.001/2022-23 dated 02 September 2022] <<https://rbidocs.rbi.org.in/rdocs/notification/PDFs/GUIDELINESDIGITALLENDINGD5C35A71D8124A0E92AEB940A7D25BB3.PDF>>.

⁴⁷ See, Paragraph 3: RBI Press Release: *Recommendations of the Working group on Digital Lending – Implementation* (10 August 2022) <<https://rbidocs.rbi.org.in/rdocs/PressRelease/PDFs/PR689DL837E5F012B244F6DA1467A8DEB10F7AC.PDF>>.

⁴⁸ See, Guideline 1 – Annex 1: RBI Guidelines on Digital Lending [RBI/2022-23/111 DOR.CRE.REC.66/21.07.001/2022-23 dated 02 September 2022].

⁴⁹ RBI (Digital Lending) Directions, 2025 (RBI/2025-26/36 - DOR.STR.REC.19/21.07.001/2025-26) dated May 8, 2025. < <https://rbi.org.in/Scripts/NotificationUser.aspx?Id=12848&Mode=0>>

⁵⁰ See, Paragraph 10(1), RBI (Non-Banking Financial Companies – Credit Facilities) Directions, 2025.

⁵¹ See, Paragraph 10(4), RBI (Non-Banking Financial Companies – Credit Facilities) Directions, 2025.



processing, and sharing.⁵² Further, all REs and LSPs are prohibited from storing biometric data unless permitted by law and the guidelines mandate that all personal data must be stored on servers located in India.⁵³

- d. Transparency in Pricing and Loan Terms:** As per the Responsible Business Conduct Directions 2025, REs must disclose the APR as the all-inclusive cost of credit and loan documentation, including a KFS detailing fees, repayment schedules, and grievance redressal mechanisms, must be provided to borrowers.⁵⁴ Borrowers must be given a cooling-off period to exit digital loans without penalty: at least three days for loans exceeding seven days and at least one day for shorter-term loans.⁵⁵
- e. Credit Information Reporting:** All digital lending transactions must be reported to CICs, ensuring transparency and enabling better credit risk assessment.⁵⁶
- f. Consumer Protection and Grievance Redressal:** The Credit Facilities Directions 2025 mandate that REs must conduct due diligence on LSPs to ensure compliance with fair lending practices.⁵⁷ Borrowers must be informed of the LSP or recovery agent responsible for loan servicing.⁵⁸ A nodal grievance redressal officer must be designated⁵⁹ to handle borrower complaints within 30 days and if grievances are not resolved, borrowers can escalate complaints to the RBI's Integrated Ombudsman Scheme.⁶⁰

Other RBI Guidelines/ Directions:

In addition to the WGD, Credit Facilities Directions 2025, and Responsible Business Conduct Directions 2025, other concerned RBI regulations were aimed at mitigating fraud, mis-selling, and

data misuse in digital lending platforms.

For instance, RBI introduced the *Digital Payment Security Controls Directions 2026*, which established minimum security standards for digital payments, mandating multi-factor authentication, fraud risk monitoring, and secure software development for banks and NBFCs. It strengthens transaction security for digital lending, ensuring safe loan disbursements and repayments while preventing fraud through real-time risk monitoring and customer authentication. By enforcing secure data handling and online dispute resolution, these norms enhance the cyber resilience of digital credit platforms, ensuring that borrowers' financial data remains protected in an increasingly digital lending environment.

RBI also introduced the *DLG Guidelines*⁶¹ that regulate risk-sharing in digital lending, ensuring that REs can enter into DLG arrangements only with authorized LSPs or other REs under a legally enforceable contract. The DLG Guidelines were subsequently subsumed under the Credit Facilities Directions 2025.⁶² The directions cap DLG cover at 5% of the loan portfolio, require strict due diligence, and prohibit its use to circumvent credit risk norms or NPA recognition. By enhancing transparency, consumer protection, and financial stability, these measures ensure responsible lending in India's digital credit ecosystem while mitigating risks associated with unregulated FLDG models. Further, to set cyber resilience and digital payment security standards for non-bank PSOs, including payment aggregators, wallets, and card networks, RBI issued Master Directions⁶³ which mandate robust governance, risk management, encryption, fraud detection, and real-time transaction monitoring to protect digital

52 See, Paragraph 13(1), RBI (Non-Banking Financial Companies – Credit Facilities) Directions, 2025.

53 See, Paragraph 14(4), RBI (Non-Banking Financial Companies – Credit Facilities) Directions, 2025.

54 See, Paragraph 29, RBI (Non-Banking Financial Companies – Responsible Business Conduct) Directions, 2025.

55 See, Paragraph 11, RBI (Non-Banking Financial Companies – Credit Facilities) Directions, 2025.

56 See, Paragraph 17, RBI (Non-Banking Financial Companies – Credit Facilities) Directions, 2025.

57 See, Paragraph 6(6), RBI (Non-Banking Financial Companies – Credit Facilities) Directions, 2025.

58 See, Paragraph 4, RBI (Non-Banking Financial Companies – Credit Facilities) Directions, 2025.

59 See, Paragraph 12, RBI (Non-Banking Financial Companies – Credit Facilities) Directions, 2025.

60 RBI (Non-Banking Financial Companies - Internal Ombudsman) Directions, 2026 [RBI/CEPD/2025-26/384 CEPD.PR.D.No.S1030/13.01.019/2025-26 (dated 14 January 2026)].

61 RBI Guidelines on Default Loss Guarantee in Digital Lending [RBI/2023-24/41 DOR.CRE.REC.21/21.07.001/2023-24] dated 08 June 2023 <<https://rbidocs.rbi.org.in/rdocs/notification/PDFs/NT4142A9CBCE6AC04882AD2C3B1E8718965C.PDF>>.

62 RBI (Non-Banking Financial Companies – Credit Facilities) Directions, 2025 [RBI/DOR/2025-26/347 DOR.CRE.REC.No.266/07-01-008/2025-26 (dated 28 November 2025 & updated as on 15 July 2026)] <<https://rbidocs.rbi.org.in/rdocs/notification/PDFs/347MD5CC21D3597C04354B67A42A1A4CB439C.PDF>>.

63 RBI (Non-Banking Financial Companies – Digital Payment Security Controls) Directions, 2026 [RBI/DoS/2026-27/462 DoS.CO.CSITEG.56/31.01.015/2026-27



payments. By enforcing multi-factor authentication, data security, and incident reporting, these directions strengthen trust in India's digital credit ecosystem, making digital payments & lending operations more resilient to cyber threats and financial fraud.

Upcoming frameworks

The RBI has issued the *AMS Amendments 2026* on 'Advertising, Marketing and Sale of Financial Products and Services by Regulated Entities' to amend the Responsible Business Conduct Directions 2025⁶⁴ which introduce new chapters to the Responsible Business Conduct Directions 2025 governing advertising, marketing and sale, and obliging REs to adopt a comprehensive policy addressing suitability, appropriateness, feedback mechanisms and customer compensation for mis-selling. The AMS Amendments 2026 will come into effect on 1 January 2027.

The AMS Amendments establish governance requirements in respect of Direct Selling Agent (DSAs) and Direct Marketing Agents, including obligations of empanelment disclosure, prescribed qualification standards and identifiable presence at points of customer interface. The consent-related safeguards in the AMS Amendments mandate the procurement of affirmative, product-specific and revocable consent, prohibit default opt-in mechanisms, and require prominent disclosure of key product features analogous to a Key Facts Statement. It also prohibits the misrepresentation of third-party products as an NBFC's own offerings and mandate factual and transparent promotional content.

Further to the prevention of mis-selling, the AMS Amendments disallow compulsory bundling and incentive-linked cross-selling, and the deployment of dark patterns within user interfaces, including false urgency, basket sneaking, confirm shaming, forced action, subscription traps, interface interference, bait-and-switch, drip pricing, disguised advertisement, nagging and trick wording. Notably, periodic solicitation of customer feedback is mandated, and REs are obligated to refund and compensate customers

obligations in established instances of mis-selling.

In addition, RBI also issued the *Draft Directions for Aadhaar Enabled Payment System – Due Diligence of AePS Touchpoint Operators*⁶⁵, for public comments. RBI issued these draft directions to enhance the security of AePS transactions by strengthening due diligence requirements for AePS touchpoint operators. AePS facilitates financial transactions through Aadhaar authentication using Business Correspondents or Bank Mitras. The draft directions define AePS as a system enabling banking transactions such as cash withdrawal, balance inquiry, mini statements, and fund transfers via biometric or OTP authentication, with acquiring banks responsible for onboarding AePS touchpoint operators and ensuring compliance with due diligence norms. To mitigate fraud risks, acquiring banks must conduct thorough customer due diligence in line with RBI's KYC norms before onboarding operators, update KYC for inactive operators after six months, and ensure each operator is onboarded by only one acquiring bank to prevent multiple affiliations. Additionally, acquiring banks must continuously monitor operator activities, define transaction limits based on risk profiles, and ensure transactions align with location-based risk parameters.

In July 2026, RBI issued the *Draft Guidance on Regulatory Expectations for Data Governance*⁶⁶, applicable to REs comprising commercial banks, small finance banks, payments banks, local area banks, regional rural banks, urban and rural co-operative banks, NBFCs across all layers, all-India financial institutions, asset reconstruction companies, and credit information companies. The framework draws upon supervisory observations and international practices, including the Basel Committee's BCBS 239 principles. Under this draft guidance note, each RE is required to establish a Data Governance Framework (DGF), proportionate to its size and complexity, addressing organisational structure, data lifecycle, quality, classification, Single Source of Truth (SSOT) arrangements, metadata, lineage, and third-party arrangements, and complying with the Digital Personal Data Protection Act, 2023. Governance

(dated 31 July 2026)] <<https://rbidocs.rbi.org.in/rdocs/notification/PDFs/462MD7323FF342D124FAF9BC3B3F7E4F837A5.PDF>>.

64 RBI (Non-Banking Financial Companies – Responsible Business Conduct) Second Amendment Directions, 2026 [RBI/2026-27/123 DOR.MCS.REC.No.102/01-01-039/2026-27 (dated 15 June 2026)] <[RBI/2026-27/123 DOR.MCS.REC.No.102/01-01-039/2026-27](https://rbidocs.rbi.org.in/rdocs/notification/PDFs/150720269AC6EBB8C8A84C9D902EF886D9219AA9.PDF)>.

65 RBI Draft Directions Aadhaar Enabled Payment System – Due Diligence of AePS Touchpoint Operators – [CO.DPSS.POLC.No. S **/ 02-01-001 / 2024-2025].

66 RBI Draft Guidance on Regulatory Expectations for Data Governance [DoR.ORG.REC.XXXX/XX-XX-XXXX/2026-27 (dated 15 July 2026)] <<https://rbidocs.rbi.org.in/rdocs/Content/PDFs/DATAGOVERNANCE150720269AC6EBB8C8A84C9D902EF886D9219AA9.PDF>>.



is anchored in Board oversight, a Board-level Data Governance Committee, and an executive Data Governance Committee responsible for implementation and remediation. Accountability is distributed among the data function, data owner, data steward, and data custodian, each bearing defined responsibilities across the data lifecycle. Data risk management principles include accountability, integrity, auditability, transparency, traceability, proportionality, and standardisation. Further, third-party arrangements require access controls, non-disclosure obligations, and periodic audit, with compliance subject to ongoing internal and external audit oversight.

While the regulatory framework for digital lending in India has seen significant evolution, the treatment of alternative data i.e. non-traditional sources of financial information such as telecom usage, e-commerce transactions, and utility bill payments, remains a developing area. The RBI's Digital Lending Directions primarily focus on borrower protection, data privacy, and transparency, but they do not comprehensively regulate the collection, processing, and usage of alternative data. Existing provisions under the IT Act,

2000, and the forthcoming Digital Personal Data Protection Act, 2023, provide broad data protection measures, but sector-specific guidelines on the use of alternative data for credit assessment remain limited. Recent initiatives, like RBI's ULI, aim to streamline credit access for small and rural borrowers by facilitating the digital flow of information, including alternative data, based on borrower consent. Additionally, fintech companies are leveraging alternative data analytics to offer tailored financial products, further democratizing access to credit. These developments underscore a significant shift towards more inclusive and data-driven lending practices in India.

As digital lenders increasingly rely on alternative data to enhance credit access, particularly for underserved segments, regulatory oversight will likely evolve to balance innovation with consumer protection. The next few sections of this paper will explore the role of alternative data in digital lending, its potential for financial inclusion, and the regulatory challenges surrounding its ethical and responsible use in India's credit ecosystem.



6. Role of Alternative Data in Digital Credit

The Inadequacies of Traditional Data in Credit Scoring

Banks and lenders have always engaged in a detailed level of decision-making when determining whether an individual was likely to return the money that they were lent. However, historically, such due diligence often relied on a loan officer's subjective judgment, which opened the doors to both inaccuracies and prejudice in determining creditworthiness. Credit scoring emerged in response to the increasingly significant role of credit in society. Further, the shortcomings of these methods warranted a standardised and scientifically-driven process of determining the credit-worthiness of an individual.⁶⁷ Banks' decision-making today thus primarily relies on a standardised set of traditional data sources such as the core banking system, cards and credit bureaus in order to arrive at this credit score.⁶⁸

However, traditional datasets have been recognised to provide limited insights into overall financial behaviour, particularly in the case of prospective borrowers who have a thin credit file or no credit history at all. Borrowers new to the credit system, such as, farmers, youth, and small businesses, will not have generated enough traditional credit data since they may be unbanked or new to the banking and credit system, and thus may find it difficult to access credit or receive favourable terms conducive to their circumstances, should lenders rely solely on traditional datasets.⁶⁹

Moreover, even where prospective borrowers may have bank accounts, they may still be unacquainted with credit. Data from the World Bank Database shows that, as of 2021, while the percentage of respondent Indians who reported having an account at a bank of financial institution stood at 77.5%, the percentage of respondent Indians who reported borrowing any money from a bank or financial institution, or using a credit card or mobile money account, stood at a mere 12.8%.⁷⁰

Such numbers should not be taken to indicate that Indians are

credit-averse overall – it simply means that Indians are either distrusting of or not adequately served by the formal credit system. As discussed, this is due to the self-reinforcing issue of exclusion from the formal credit system due to lack of insight on credit habits. This is further highlighted by findings of RBI in 2024 that 31 per cent of total outstanding loans among the sizeable population in rural households is sourced from informal lenders.⁷¹ Accordingly, there is a need to find ways to bring such borrowers into the formal credit system, away from the dangers posed by the informal lending system, which is plagued by exploitative practices such as exorbitant interests, in the absence of regulatory supervision.

The promise of alternative data – what does it entail?

As a result of a broader understanding of the inadequacies of traditional data sources, banks and fintech companies are increasingly relying on alternative datasets to gain a more holistic understanding of the creditworthiness of NTC borrowers – and turning to alternative data. While traditional datasets include trade lines, active loans, credit card usage, DPD across multiple loans and credit cards, alternative data (interchangeably referred to by some as alternate data) has come to refer to a wide range of financial and non-financial information that falls outside the ambit of the traditional credit reporting system.

Broadly, alternative data can be classified into two categories: other financial data and non-financial data. Other financial data could include financial information generally not considered in traditional credit assessment such as bank account balances; assets; rent, utility and subscription service payments; and non-traditional information from use of fintech services such as BNPL (such as repayment records). Non-financial information could include a wide variety of information such as public records, educational history, employment history, digital footprints and social media history (which may indirectly provide information

67 Nicholas Pell, 'A Secret History of Credit Scores: Who Determined What Matters and Why' (*TheStreet*, 13 April 2015) <<https://www.thestreet.com/personal-finance/a-secret-history-of-credit-scores-who-determined-what-matters-and-why-13097739>> accessed 28 February 2025.

68 'A History of Credit Scores' (Begini) <<https://www.begini.co/a-history-of-credit-scores/>> accessed 28 February 2025.

69 'The Future of Credit? Traditional Credit Data Meets Alternative Credit Data' (CRS, 29 June 2023) <<https://crscreditapi.com/traditional-credit-data-meets-alternative-credit-data/>> accessed 28 February 2025.

70 'Databank | Global Financial Inclusion' (World Bank Group) <<https://databank.worldbank.org/source/global-financial-inclusion>> accessed 28 February 2025.

71 Department of Economic and Policy Report, Reserve Bank of India, *Report on Currency and Finance 2023-24* Reserve Bank of India (2024) <<https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/RCF29072024D5F1960668724737AD152F783DB63F10.PDF>> accessed on 07 March 2025.



about ability to make payments, spending habits, personality traits, location, *inter alia*).⁷²

The promise of alternative data in credit scoring has led to efforts by credit institutions to better incorporate such data into their credit risk underwriting models. However, an understanding of the scope of insights that can be gained from such analysis and of the technological infrastructure that is required to extract the best use of such alternative datasets has also spawned fintech platforms which are developing software-based solutions to harness the power of alternative datasets and working with credit institutions to provide a more rounded, inclusive understanding of risk presented by borrowers.

Partnership models between credit institutions and fintech platforms

Credit institutions like banks and NBFCs are increasingly attempting to rely on credit scores generated based on both traditional and alternative datasets. However, credit information companies, which have historically provided credit scores for prospective borrowers, are not permitted to use alternative data in their credit scoring, since the definition of “credit information” which CICs are authorised to collect and process, does not bring within its ambit such alternative data.

Thus, in order to supplement the findings of CICs, credit institutions are entering into arrangements with fintech platforms offering alternative credit scoring, which may collect data from a variety of sources, both alternative and traditional (including financial data stored with CICs, access to which may be provided by the credit institution, or by the CIC itself, if the CIC recognises

the fintech platform as a ‘specified user’ under the CIC Act and regulations).⁷³ The platform may then aggregate the information from both traditional and alternative datasets, process such aggregated data using its algorithm and generate a credit score in respect of the applicant.⁷⁴ The credit institution subsequently relies on this credit score to decide the terms of credit product offered to the prospective borrower.⁷⁵

Fintech platforms can also act as technology service providers in co-lending models between banks and NBFCs, utilizing their access to alternative datasets to undertake credit assessment and provide co-lenders with a holistic understanding of customer creditworthiness. Where banks and NBFCs in co-lending models have unique criteria for screening candidates and assessing creditworthiness, fintech platforms can aggregate these criteria from both lenders, analyse multiple datapoints across various datasets and build a better risk profile of potential borrowers. Such arrangements are recognized in the RBI’s digital lending framework,⁷⁶ which describe an LSP as agents of an RE who carry out one or more of lender’s functions or part thereof in customer acquisition, underwriting support, pricing support, *inter alia* on behalf of REs.⁷⁷

While many credit institutions are engaging in partnerships with fintech platforms for better credit underwriting, some banks and NBFCs are also developing more detailed in-house credit underwriting models that take into account a more varied range of alternative sources of customer data, such as telecom, UPI, satellite farmland information, geocoding, and spending data from online store partners.⁷⁸

72 Terri Bradford, “Give Me Some Credit!”: Using Alternative Data to Expand Credit Access’, *Federal Reserve Bank of Kansas City* (28 June 2023) <<https://www.kansascityfed.org/research/payments-system-research-briefings/give-me-some-credit-using-alternative-data-to-expand-credit-access/>> accessed 28 March 2025.

73 See Credit Information Companies Regulations, 2006 r 6, read with RBI (Credit Information Companies) Directions, 2025 [RBI/DOR/2025-26/378 DOR.FIN.REC.No.297/2016.056/2025-26 (dated 28 November 2025 & updated as on 01 July 2026)] <<https://rbidocs.rbi.org.in/rdocs/notification/PDFs/378MD65D46FCCF0C34491B34505C6E1DACFFE.PDF>>.

74 Shobhit Shukla, ‘Credit-scoring in India’ (2021) *Indian Journal of Law and Technology* <<https://www.ijlt.in/post/credit-scoring-mechanisms-in-india-evaluating-the-suitability-of-the-regulatory-framework-under-the>> accessed 30 March 2025.

75 Priyadarshini Maji, ‘Alternative Credit Scoring: Now avail loans even with a low CIBIL score’ *Financial Express* (23 June 2021) <<https://www.financialexpress.com/money/alternative-credit-scoring-now-avail-loans-even-with-a-low-cibil-score-2276764/>> accessed 28 February 2025.

76 Credit Facilities Directions read with Responsible Business Conduct Directions.

77 RBI Guidelines on Digital Lending (RBI/2022-23/111 – DOR.CRE.REC.66/21.07.001/2022-23) dated 02 September 2022 <<https://rbidocs.rbi.org.in/rdocs/notification/PDFs/GUIDELINESDIGITALLENDINGD5C35A71D8124A0E92AEB940A7D25BB3.PDF>>.

78 Sauradeep Bag, ‘Beyond credit scores: Redefining creditworthiness for financial empowerment’, (Observer Research Foundation, 28 September 2024) <<https://www.orfonline.org/expert-speak/beyond-credit-scores-redefining-creditworthiness-for-financial-empowerment>> accessed 30 March 2025.



Whether in partnership with fintech platforms or as part of an in-house effort, alternative datasets are being used for a variety of purposes such as customer profiling, sensing customer behaviour, combating fraud, running effective targeted marketing campaigns and refining decision-making processes. It is however worthwhile to focus on the role of alternative datasets in improving financial inclusion by allowing better profiling of new-to-credit borrowers and allowing better risk analysis for imposing fairer costs on such borrowers.

The benefits of use of alternative data in credit underwriting

The use of alternative datasets holds much potential to revolutionise digital credit but is especially promising in pursuit of the goal of financial inclusion – an important catalyst for economic growth across all strata of society, especially in developing countries such as India.⁷⁹

Benefits to lenders

By integrating alternative data into their decision-making process, lenders can offer credit to individuals who traditional credit models might otherwise overlook. This approach helps identify creditworthy individuals among underserved populations, promoting financial inclusion.

Lenders can leverage alternative sources like telecom, social network and transaction data for ETB customers to understand their needs and behavioural traits to offer a personalised NBO. Lenders can also use alternative sources when serving NTB customers, based on the perceived risk of the customer, for better underwriting. Depending on the credit history and customer persona, Lenders could use a combination of alternative and traditional data points to provide a holistic solution. Ultimately, this has the potential to help lenders expand the reach of their services to a wider section of the population without the increased risk of credit default and loss that the information asymmetry

arising from use of traditional data would generally entail.

Benefits to borrowers

Such use of alternative datasets could also immensely benefit potential borrowers. An adjustment in perceived risk level of borrowers would lead to a lowering of the interest charged to the borrower – high interest rates are typically charged to offset the risks arising from loan default, so lenders can afford to charge borrowers lower rates since the small percentage of bad risks will be better separated from the good risks than is possible with traditional scores, when using alternative data.⁸⁰

The broader base of objective parameters afforded by the use of alternative data could also reduce the overreliance by lenders on bias-inducing demographic and socioeconomic data such as age, education, race, etc. typically relied upon in the absence of credit history data. For instance, retail spending behaviour has proven to be a useful alternative dataset in this regard – among applicants without a credit history, it has been found that higher-risk applicants tend to allocate a smaller share of their spending to sale items, suggesting that prioritising discounted purchases is associated with lower default risks.⁸¹

The use of alternative datasets to bring more potential borrowers within the net of the credit system would have the impact of lessening reliance of borrowers on the informal credit system, which thrives on lack of regulation by imposing exploitative practices, exorbitant interest rates and coercive recovery methods, while also allowing them to build credit histories and eventually qualify for better loan products with lower interest rates.

Implementations of alternative data credit scoring in India's digital public infrastructure

Account Aggregator framework

AAs, as per the NBFC-AA Directions issued by the RBI (2025),

79 Pradhan RP and others, 'Sustainable Economic Development in India: The Dynamics Between Financial Inclusion, ICT Development, and Economic Growth' (*Technological Forecasting and Social Change*, 28 April 2021) <<https://www.sciencedirect.com/science/article/abs/pii/S0040162521001906>> accessed 28 February 2025.

80 Mohit Arora, 'Empowering Alternate Data Collection for Digital Lending with Account Aggregator Framework - Challenges & Solutions: PART – 1' (*Sahamati*, 20 April 2021) <<https://sahamati.org.in/empowering-alternate-data-collection-for-digital-lending-with-account-aggregator-framework-introduction/>> accessed 28 February 2025.

81 Jung Youn Lee, Joonhyuk Yang *et al*, 'Who Benefits from Alternative Data for Credit Scoring? Evidence from Peru' (2024) SSRN <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4852032> accessed 28 February 2025.



are NBFCs engaged in the business of providing the service of retrieving or collecting financial information⁸² pertaining to customers,⁸³ which can connect providers of alternative data in lieu of credit history data for credit risk analysis,⁸⁴ to streamline the loan application process of banks and glean more rounded insights on credit history using such alternative datasets.

Financial information, as per the NBFC-AA Directions, is defined as, with respect to a financial information provider, information ranging from bank and NBFC deposits to mutual fund and alternative investment fund units, insurance policies and National Pension System balances, *inter alia*, thus encompassing a range of alternative data not typically used in credit scoring.

The AA framework, laid out in the NBFC-AA Directions, envisages three primary stakeholders:

- **FIPs** (institutions such as banks and NBFCs that hold and share user data, usually financial information),
- **FIUs** (lenders, wealth managers, etc. who use data from FIPs to provide various services to the consumer such as loans, insurance, etc.), and
- the **AA** themselves (NBFCs that act like a bridge to deliver data from FIPs to FIUs in a privacy-respecting manner).⁸⁵

Currently, only players who are registered and regulated by either of the four financial service regulators – RBI, SEBI, IRDAI, PFRDA, are allowed to be FIPs and FIUs.⁸⁶ However, the AA framework also envisions entities called TSPs, who collaborate with FIUs and FIPs to deliver AA products and services such as data analytics, credit underwriting using traditional and alternate financial data.⁸⁷ TSPs

do not need an NBFC-AA license and are otherwise unregulated entities – the onus is on the FIU to ensure that regulations are being adhered to by such TSPs.⁸⁸

The AA framework in turn is an implementation of DEPA which is a framework developed by the NITI Aayog to enable secure and consent-based data sharing between individuals and financial institutions and other service providers. In the AA implementation of the DEPA, an individual grants encrypted, explicit consent via an AA to FIUs to fetch data pertaining to said individual from FIPs for specific use cases, as consented to by the individual.⁸⁹

According to Sahamati, an industry alliance for the AA ecosystem in India, as of December 2024, more than 143.61 million successful consent-based data-sharing transactions have taken place through the AA framework, and 212 crore financial accounts are connected to the AA facility.⁹⁰ FIUs across multiple industries, notably loan underwriting, KYC procedures, loan monitoring and collecting, *inter alia*, have been onboarded onto the AA framework. Financial information providers across multiple sectors, providing data on deposits, demat accounts, investments (such as mutual funds, exchange-traded funds, etc.), goods and services tax returns, *inter alia*, which can be considered alternative data, have been onboarded onto the AA framework.

This availability of financial data has enabled more robust credit underwriting and risk analysis, and led to respectable increases in loan disbursements via AAs across sectors, with INR 45 billion in unsecured business loans and INR 381 billion in personal and consumer durable loans disbursed using the AA framework in the

82 RBI (Non-Banking Financial Companies - Account Aggregator) Directions, 2025 [RBI/DoR/2025-26/368 DoR.FIN.REC.No.287/03-10-123/2025-26 (dated 28 November 2025)] <<https://rbidocs.rbi.org.in/rdocs/notification/PDFs/368MDA3A72C813679452CB0A291E6B300DB59.PDF>>.

83 'Account Aggregator Framework' (Department of Financial Services, Government of India) <<https://financialservices.gov.in/account-aggregator-framework>> accessed 01 August 2026.

84 Arora, (n 80).

85 'What are account aggregators?' (Sahamati) <<https://sahamati.org.in/what-is-account-aggregator/>> accessed 28 February 2025.

86 'How to join the Account Aggregator Network to share and access financial data' (Sahamati) <<https://sahamati.org.in/how-to-join-the-account-aggregator-network-to-share-and-access-financial-data/>> accessed 31 March 2025.

87 'Technology Service Provider (TSP)' (Sahamati) <<https://sahamati.org.in/tsp/>> accessed 31 March 2025.

88 Kamya Pandey, 'Interview: CAMSfinserv CEO explains the role of Technology Service Providers in the Account Aggregator ecosystem' (MediaNama, 13 August 2024) <<https://www.medianama.com/2024/08/223-role-of-tech-providers-in-account-aggregator-ecosystem-explained/>> accessed 31 March 2025.

89 'Data Empowerment And Protection Architecture' (NITI Aayog) <<https://www.niti.gov.in/sites/default/files/2023-03/Data-Empowerment-and-Protection-Architecture-A-Secure-Consent-Based.pdf>> accessed 28 February 2025.

90 'Account Aggregator Ecosystem: Transforming India's Financial Services' (Sahamati, December 2024) <<https://sahamati.org.in/wp-content/uploads/2025/01/Account-Aggregator-Adoption-update-31st-Dec-2024.pdf>> accessed 28 February 2025.



first half of FY2025.⁹¹

Unified Lending Interface

ULI is a program developed by the Reserve Bank Innovation Hub and co-conceptualised with the RBI, currently envisaged as a backend platform to facilitate easy access to authenticated data from various sources, through standardised APIs to which all lenders can connect seamlessly through a 'plug and play' model, to ease credit assessment. The ULI envisages the usage of a range of alternative datasets in order to ease credit-related decisions for new-to-credit borrowers, such as land record systems, GSTN data, satellite data, verified documents through DigiLocker, house/property search data, *inter alia*. The ULI is primarily targeted at new-to-credit gig workers, informal sector employees, farmers and rural entrepreneurs, SMEs and MSMEs.⁹²

The primary stakeholders within the ULI ecosystem typically include borrowers, lenders, regulated entities and data repositories providing access to data sources to lenders, and regulators like the RBI. As the ecosystem develops, it may provide ripe opportunities for TSPs like fintech companies to offer ancillary services such as alternate credit assessment algorithms, *inter alia*.

ULI is designed to provide broad financial inclusion while keeping in mind the tenets of data privacy. The ULI stack is based on standardised open APIs to ensure a seamless integration with multiple stakeholders such as financial and non-financial entities, and data sources. The plug-and-play model envisaged will allow financial institutions to effortlessly connect to the central ULI system and reduce the overall time and complexity involved in credit decisioning and processing. It aims to dismantle the 'silos' around which alternative datasets are surrounded, across different entities like the central and state government authorities and their constituent departments, fintech platforms, CICs and so on, and connect lenders with alternative data offered by such entities that is useful for credit scoring. The ULI aims to improve financial inclusion by making alternative data more easily accessible for a wider range of service providers and lenders. This is done through the use of standardised data formats that are easily recognisable and interpretable and open API which facilitate easy access to

authenticated data. The centralised nature of the service also allows synergies across multiple stakeholders, reducing the time taken to collect requisite alternative data and improving efficiency of loan disbursement.

The synergies unlocked by the ULI also may reduce the dependence of lenders on traditional datasets (which are difficult to build in the context of the consumers, small businesses, farmers and other like entities that the ULI targets). It will allow lower interest rates to such borrower segments by reducing the perceived risk arising from information asymmetry through analysis of alternative data. Finally, increased competition among lenders on the platform will allow more borrowers with limited credit history to qualify for loans at terms more favourable to them.

While both the AA framework and ULI are concerned with data-sharing, their purpose, structure and ambit vary. AA is built as a framework which involves multiple organisations acting as AAs to facilitate one-to-one sharing between different financial institutions of only financial data across multiple domains of fintech. On the contrary, the ULI is a platform itself that is focused on many-to-many data sharing, i.e., across all regulated banking and financial entities within the lending industry and provides access to both financial and non-financial databases. In this regard, while AAs and ULI are two standalone, unique concepts, they may work together, through AAs being an entity which can provide consolidated financial data to ULI in context of the lending industry, adding to the amount of data available for credit assessment and increasing accuracy and efficiency of lending decisions.

Open Credit Enablement Network (OCEN)

The OCEN is a set of open standards envisioned to facilitate the various aspects of the lending value chain by introducing new touchpoints for the distribution of financial services.⁹³ OCEN contains an API for each step of the lending lifecycle, whereby digital platforms can seamlessly integrate such APIs as defined in the specification for the OCEN into their flows. This enables the digital platforms to integrate with multiple lenders in digitising the lending lifecycle and offering credit on their platform.

⁹¹ *Ibid.*

⁹² 'Unified Lending Interface (ULI)' (Reserve Bank Innovation Hub) <<https://rbihub.in/unified-lending-interface/>> accessed 28 February 2025.

⁹³ 'Open Credit Enablement Network' (ISPIRT/OCEN) <<https://ocen.dev/>> accessed 28 February 2025.



OCEN focuses on cash flow-based lending to MSMEs.⁹⁴ The easy integration of OCEN and open nature of the platform allows seamless interoperability with other infrastructures such as the AA framework, which can be used within OCEN to streamline loan applications and improve credit risk insights. This is done through gaining access to a host of financial information providers through the AA framework that can give access to valuable alternative datasets in lieu of credit history.

The OCEN ecosystem integrates the services of the following entities:

- i. LSPs - customer-facing digital platforms (web apps, mobile apps, etc.) that source borrowers;
- ii. TSPs - fintech companies that work with lenders and platforms to onboard such entities onto the OCEN protocol;
- iii. Lenders - banks/NBFCs/small finance banks providing capital and access to core banking networks for TSPs to build on;
- iv. Borrowers – MSMEs or individual consumers who leverage credit options available within the LSP's platform through a secure digital process.

While OCEN was initially released for use on the government e-marketplace (GeM) SAHAY and other pilots, the latest iteration of the platform has expanded its scope and partnered with loan agents (like Spice Money, Vivifi, etc.), lenders (like Aditya Birla Capital, Axis Bank, ICICI Bank, etc.), TSPs (such as Ignosis, Niti.ai, *inter alia*) and credit guarantee partners (such as the Credit Guarantee Fund Trust for MSEs).⁹⁵ Being an open DPI, there is also scope for integration of OCEN into other DPIs like ULI to widen the underlying data pool for credit decisioning and disbursement.

OCEN's inherently open infrastructure has the potential to improve upon the experience and costs associated with digital lending across the value chain. The democratisation of credit data and credit services is aimed at encouraging new players to play crucial roles in the delivery of credit (credit disbursement,

ancillary services such as technology and platform provision, underwriting, *inter alia*), making the credit disbursement pipeline more efficient and reducing costs of disbursement, and also introducing more competition within the ecosystem.⁹⁶ The various connected entities on OCEN can stand to, for instance, provide valuable granular alternative data pertaining to MSMEs, which ultimately has the knock-on effect of reducing costs across the board for consumers such as MSMEs looking for cheap loans to scale up businesses.

Issues associated with alternative dataset use

The increased use of alternative data, and the increased amount of data relied on by such alternative data scoring systems, raises concerns about the quality and veracity of such data, uncertainty on the use of the data, opacity of scoring methodologies, the ability of such data to predict creditworthiness of a person, and its potential to discriminate.

Bias and discrimination:

Where alternative data scoring models rely on multiple data points for assessing creditworthiness, the correlation between such datapoints and creditworthiness may be misleading. This is exacerbated by the fact that alternative datasets can tend to be unstructured, i.e., incapable of being organised in a specific manner. This necessitates novel forms of processing and standardisation, which are both more expensive and complicated to adopt and also more prone to introducing biases, errors and inconsistencies.⁹⁷ A driving force behind calls for the wider implementation of alternative datasets is the hope that the use of a system that uses multiple datapoints with minimal human intervention would reduce the incidence of bias that may be considered intrinsic to evaluation by a human loan officer. However, it is still possible that such a system could perpetuate discrimination by defining target variables (i.e., outcomes that define the outcomes of interest of a specific task) in a discriminatory manner, relying on inaccurate or incomplete sample data, or permitting the use of proxy variables for sensitive characteristics such as race or

⁹⁴ Devashish Mulye 'What is OCEN and what it means for Digital Lending' (FinBox, 27 July 2021) <<https://finbox.in/blog/what-is-ocen-embedded-credit-digital-lending/>> accessed 28 February 2025.

⁹⁵ OCEN, (n 93).

⁹⁶ 'How will Open Credit Enablement Network (OCEN) Accelerate Lending for MSMEs?' (Kinara Capital, 06 August 2024) <<https://kinaracapital.com/how-open-credit-enablement-network-ocen-will-accelerate-digital-lending-for-msmes/>> accessed 28 February 2025.

⁹⁷ Nikolaas Kost, 'The Role of AI in Unstructured Data Mining: Challenges and Opportunities' (DataSource.ai, 24 December 2023) <<https://www.datasource.ai/en/data-science-articles/the-role-of-ai-in-unstructured-data-mining-challenges-and-opportunities>> accessed 28 February 2025.



gender. For instance, zip codes in the United States perceived as predominantly dominated by certain races have been used as a proxy for determining the race of prospective borrowers, even where such borrower has not explicitly provided details relating to their race. Since developers are required to define target variables in a manner that can be parsed by computers, there continues to be an element of subjectivity even at this stage.⁹⁸

Aside from actually defining target variables, there is also human input in training data used to train credit scoring algorithms before they are employed to solve problems. If an algorithm is fed data that predominantly pertains to one class of borrowers (for instance, predominantly belonging to one race, gender, etc.) whether deliberately or inadvertently (for instance, simply because more data is available pertaining to one such class), it may exhibit bias in lending to a different class of the population. For instance, using sample data of women in India, nearly 20% of whom don't have access to a bank account and thus lack access to savings and credit, for predicting loan default behaviour to all women would produce biased results.⁹⁹

Data privacy and agency:

Credit rating necessarily requires the use of vast amounts of financial and personal data to assess an individual's creditworthiness. Fundamental changes in the way Indians have gained access to the internet, *inter alia*, over the past few years, have meant that Indians have become (or are on their way to becoming) "data-rich" before they can become economically rich,¹⁰⁰ generating vast amounts of data from their usage of smartphones, computing devices and the world-wide-web. The generation and cheap availability of this data is what has enabled many businesses to come up with innovative ways to come up with more holistic and extensive ways to assess credit risk. However, it has also raised questions about how much agency prospective

borrowers – especially those who may not be sufficiently educated to understand the implications of misuse of data – would have in the collection and use of their personal data. Questions have also been raised about the lack of transparency in the usage of such data.

The CIC Act of 2005, the primary legislation governing CICs in India, addresses the use of personal data by CICs. CICs for the purposes of the CIC Act are companies registered under the Indian Companies Act, 2013 which have specifically granted a certificate of registration under the CIC Act,¹⁰¹ and include companies like TransUnion CIBIL, Equifax, Experian, etc.

The CIC Act and the regulations thereunder incorporate necessary safeguards for processing of credit information by CICs, credit institutions and specified users (a term which now includes companies running the business of processing information for the support or benefit of credit institutions, which must then apply to CICs for obtaining the membership of said CICs as a specified user) fintech service providers who provide alternative data credit assessment services, pursuant to an amendment to the CIC Regulations, 2006). "Credit information", as per the CIC Act, means, *inter alia*, any information relating to the credit worthiness of any borrower of a credit institution. However, the CIC Act was enacted at a time when such use of alternative data for credit scoring was not envisioned, and it is thus unclear whether CICs are permitted to use alternative data in credit scoring at all.¹⁰² Though the CIC Act and regulations state that CICs, credit institutions and specified users must ensure that data relating to credit information maintained by them is accurate and complete, and to adopt privacy principles in collecting, processing, collating, preserving, etc. credit information obtained, it is unclear whether such regulations extend to the use of alternative data.¹⁰³ Additionally, the CIC Act or regulations do not stipulate consent requirements from prospective borrowers when

98 Shehnaz Ahmed, 'Alternative Credit Scoring – A Double Edged Sword' (Vidhi Centre for Legal Policy, 2020) <https://vidhilegalpolicy.in/wp-content/uploads/2020/12/AlternativeCS_ShehnazA-1.pdf> accessed 28 February 2025.

99 Sunaina Kumar, 'Financial Inclusion of Women: Current Evidence from India' (Observer Research Foundation, 17 August 2023) <<https://www.orfonline.org/research/financial-inclusion-of-women-current-evidence-from-india>> accessed 28 February 2025.

100 Prabhjote Gill, 'Indians will be data rich before they're economically rich, said Nandan Nilekani' *Business Insider* (03 October 2019) <<https://www.businessinsider.in/business/news/indians-will-be-data-rich-before-theyre-economically-rich-said-nandan-nilekani/articleshow/71425155.cms>> accessed 28 February 2025.

101 See, Section 2(e): Credit Information Companies (Regulation) Act, 2005.

102 See, Section 2(d): Credit Information Companies (Regulation) Act, 2005.

103 See, Regulations 10, 11: Credit Information Companies Regulations, 2006.



collecting personal data for credit scoring.

Data processing by alternative credit scorers is also governed by the Information Technology Act, 2000 and the SPDI Rules. The SPDI Rules mandate that collection of 'sensitive personal data' as defined under the said rules (which includes 'financial information') should be done upon receiving consent of the provider of such information 'in writing', for a lawful purpose, and only to the extent necessary for the fulfilment of that purpose.¹⁰⁴ However, the inability of the SPDI Rules to keep up with the pace of the digital economy (as evinced by issues with the unduly narrow definition of sensitive personal information and ambiguities in terms such as 'financial information'), a surface-level drafting of data protection and agency provisions (due to the lack of clarity on opt-out mechanisms, standards for safeguarding data, etc.) *inter alia* have rendered it an inadequate means to provide an individual with agency over how their credit information is collected, used and shared.

The DPDP Act of 2023, India's yet-to-be-enforced general purpose digital data protection regulation, is the legislature's answer to the inadequacies of the extant regime. The DPDP Act stipulates that a person may only process (i.e., collect, record, use, *inter alia*) the personal data (any data about an individual who is identifiable by or in relation to such data) of a data principal (i.e., the individual to whom the personal data relates), for a lawful purpose to which the data principal has given free, specific, informed, unconditional and unambiguous consent.¹⁰⁵ Thus, the implication here is that, before any firm can use a prospective borrower's personal data (which may include both credit information and alternative datasets, as long as they can be used to identify such borrower), they must obtain such borrower's consent to collect and use in any way such personal data. However, ensuring meaningful consent in cases where the prospective borrowers and the credit institution do not enjoy the same bargaining power is difficult for credit institutions, especially where the said borrowers may not be sufficiently aware of their privacy rights, or even sufficiently literate.

The Digital Lending Directions also stipulate that REs shall ensure that any collection of data by their DLAs and DLAs of their LSPs is need-based and with prior, explicit and revocable consent of the borrower having audit trail. The purpose of the collection of data should also be disclosed at each stage of interface with the borrowers. Consent should also be taken for sharing of such data with third parties, and borrower should have the option to cause the deletion of their data from the records of the LSP. In this sense, the Digital Lending Directions carry forward many of the baseline principles espoused by the DPDP Act – however, the issue of ensuring meaningful consent, as discussed above, remains to be adequately addressed.

The AA framework, with its privacy-by-design approach and accessibility features, may be helpful in this instance. AAs are implementations of the concept of consent managers discussed in the DPDP Act and its rules, that provide a platform through which data principals can give, manage, review and withdraw consent for processing of personal data, ensuring data portability across various financial information users and providers.¹⁰⁶ The AA system requires explicit user consent (which is granular and revocable) before data is shared, and consent screens use simple, clear language to explain the nature of data being shared, purpose, recipient and duration of sharing of data. The AA system also offers multi-language support and voice assistance to assist borrowers who are uneducated or have difficulty reading. Many lenders using the AA framework also provide educational content explaining the process of data collection, credit assessment, etc.

Thus, the wider adoption of the AA framework in the context of alternative dataset sharing for credit scoring could be one solution to help provide prospective borrowers with more agency and control over how their data is being used, alleviating data privacy and misuse concerns.

¹⁰⁴ See, Regulation 5: Information Technology (Reasonable Security Practices and Sensitive Personal Data or Information) Rules, 2011.

¹⁰⁵ See, Section 4: Digital Personal Data Protection Act, 2023.

¹⁰⁶ Rahul Matthan, 'Consent Managers' (Ex Machina, 26 February 2025) <<https://exmachina.in/26/02/2025/consent-managers/>> accessed 28 February 2025.

7. Navigating the AI Revolution In Digital Lending

AI Regulatory Framework in India

India's regulatory approach to artificial intelligence (AI) is evolving, balancing the need for innovation with risk mitigation. While the government has yet to introduce a dedicated AI law, multiple entities, including government ministries, sectoral regulators, and industry bodies, are shaping AI governance through policies, guidelines, and proposed legislative changes.

Ministry of Electronics and Information Technology

MeitY plays a central role in India's AI regulation, overseeing policy formulation and emerging technology governance. In 2019, in order to develop a policy framework for AI, MeitY constituted four committees¹⁰⁷ focusing on key aspects:

- a. AI platforms and data,
- b. AI-driven national missions,
- c. technological capabilities and skill development, and
- d. cybersecurity, legal, and ethical issues.

These committees conducted research, analysed sector-specific challenges, and submitted reports outlining recommendations for AI adoption in India. The reports are publicly available and provide guidance on AI infrastructure, policy enablers, sectoral AI applications, and regulatory frameworks to ensure responsible AI development.

In February 2023, the Draft Digital India Act, proposed by the MeitY, (which is expected to replace the Information Technology Act, 2000), delved into explicit AI regulations, risk categories, and safeguards against algorithmic bias and discrimination.¹⁰⁸ The proposed Act¹⁰⁹ introduced a regulatory framework for AI, emphasizing risk categorization, safeguards, and accountability. It aimed to define and regulate high-risk AI systems through a legal and institutional quality testing framework, ensuring algorithmic

transparency, risk assessments, and AI-based content moderation. The Act mandated privacy safeguards for AI-driven technologies, including stricter KYC requirements for devices like spy cameras and wearable tech. Additionally, it proposes a tiered classification of AI risks, addressing bias, misinformation, deepfakes, and automated decision-making accountability. The act also outlined a structured adjudicatory mechanism to resolve AI-related disputes while ensuring ethical AI deployment and digital rights protection for users. However, as of January 2025 a MeitY spokesperson stated that the government is not in a rush to introduce the legislation as the current framework is 'satisfactory' at the moment.¹¹⁰

In March 2024, MeitY issued an advisory on 'Due diligence by Intermediaries / Platforms under the Information Technology Act, 2000 and Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021'.¹¹¹ This advisory required AI developers to obtain government clearance before launching certain models and implement safeguards against algorithmic bias and deepfakes. However, due to industry pushbacks, this advisory was revised, highlighting the ongoing debate between innovation and regulatory control. The Office of the Principal Scientific Advisor was then tasked with consolidating diverse regulatory perspectives to formulate a cohesive AI strategy - which was released in January 2025.

This AI Governance Guidelines Report¹¹² released by the MeitY along with an inter ministerial group in January 2025 provides a principle-based framework for responsible AI deployment in India. Covering a wide range of issues, it emphasizes transparency, requiring AI systems to disclose their processes and limitations and emphasizes on accountability, ensuring that developers and deployers take responsibility for AI outcomes. Further, it proposes mandating regular monitoring to mitigate risks; privacy

107 Ministry of Electronics and Information Technology, 'Artificial Intelligence Committees Reports' <<https://www.meity.gov.in/artificial-intelligence-committees-reports>> accessed 28 February 2025.

108 Press Information Bureau, 'Presentation by Hon'ble Minister of State for Electronics and Information Technology on the Proposed Digital India Act 2023'. <<https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1926711>> accessed 28 February 2025.

109 Ministry of Electronics and Information Technology & Digital India, 'Proposed Digital India Act, 2023' (Digital India Dialogues, dated 09 March 2023). <https://rajeev.in/wp-content/uploads/2023/03/dia_presentation-09-03-2023-final.pdf> accessed 31 March 2025.

110 'Technology Will Not Rush in Bringing Digital India Act: MeitY Secretary' (Jatin Grover, Financial Express) 07 January 2025 <<https://www.financialexpress.com/life/technology-will-not-rush-in-bringing-digital-india-act-meity-secretary-3708673/>> accessed 28 February 2025.

111 Companies hail tweaked advisory easing AI model rollout (Suraksha P, Economic Times) 18 March 2024 <<https://www.meity.gov.in/writereaddata/files/Advisory%2015March%202024.pdf>>.

112 'Report on AI governance guidelines development'(AI Governance – IndiaAI) 06 January 2025 <<https://indiaai.gov.in/article/report-on-ai-governance-guidelines-development>>.

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and security and enforcing compliance with data protection laws. It recognizes fairness and non-discrimination as essential principles to prevent bias advocating human oversight to address ethical dilemmas. The report recommends a lifecycle approach to AI governance, covering 'development', ensuring early ethical and technical risk assessments; 'deployment', operationalizing AI with safeguards against misuse; and 'continuous monitoring' to ensure compliance, security, and risk mitigation. The report also proposes a 'whole of government' approach to regulating AI - advocating for the creation of an inter-ministerial committee and a 'technical secretariat' within the MeitY.

Reserve Bank of India

The RBI has been actively engaged in regulating and promoting the responsible use of AI in digital lending. The Digital Lending Directions govern digital lending in India. *Inter alia*, the directions mandate direct transactions between borrowers and lenders, prohibit third-party pass-through accounts, and require standardized 'Key Fact Statements' for transparency. Further, borrowers must provide explicit consent for data collection and credit limit increases, with data stored in India and comprehensive privacy policies made public. Lastly, the directions strengthen grievance redressal systems and ensure compliance with cybersecurity standards.

In December 2023, RBI Governor Shaktikanta Das¹¹³ advised banks, NBFCs, and fintech firms to periodically recalibrate AI-driven algorithms to address evolving financial dynamics and prevent risks from information gaps or diluted underwriting standards. Speaking at a public event the Governor highlighted the importance of robust and tested AI models while cautioning against biases in machine decision-making. He also noted the rise of partnerships between fintech platforms and banks for innovative products like cash flow lending and credit assessment for 'new to credit' customers, though concerns remain about the limitations of AI models relying on historical data without timely updates.

In December 2024, RBI established a high-level FREE-AI Committee

to develop a framework for the responsible and ethical use of artificial intelligence in the financial sector.¹¹⁴ This eight-member panel, chaired by IIT Bombay's Pushpak Bhattacharyya, includes experts from academia, industry, and regulatory bodies like NITI Aayog, HDFC Bank, and Microsoft India.

On 13 August 2025, the FREE-AI Committee released the "Framework for Responsible and Ethical Enablement of Artificial Intelligence in the Financial Sector" (FREE-AI Report), which examines the evolution of artificial intelligence and its growing deployment across financial services, from simple rule-based systems to generative AI and increasingly autonomous agents. The FREE-AI Committee identified substantial opportunities, including expanded credit access, enhanced fraud detection, and improved financial inclusion through multilingual and voice-enabled AI tools. It equally catalogued significant emerging risks, namely algorithmic bias, model opacity or the "black box" problem, cybersecurity vulnerabilities such as data poisoning and prompt injection, third-party and concentration risk, liability ambiguity in probabilistic systems, and threats to financial stability arising from herding and procyclicality. The FREE-AI report further surveys global regulatory approaches, ranging from the European Union's centralised omnibus model to China's vertical, type-specific legislation and the guidance-based approaches adopted by the U.S, United Kingdom, and Singapore, before analysing India's own technology-agnostic regulatory posture under existing statutes such as the Information Technology Act 2000 and the Bharatiya Nyaya Sanhita 2023.

Drawing on stakeholder consultations and two dedicated surveys of REs, the FREE-AI Committee observed that AI adoption in India's financial sector remains nascent, concentrated among larger institutions, and constrained by talent gaps, data quality issues, and governance deficits, with only a minority of entities maintaining board-level oversight or formal incident-response mechanisms. The FREE-AI Committee accordingly proposed seven guiding principles, termed '*Sutras*', namely trust as the foundation, people first, innovation over restraint, fairness and equity, accountability, understandability by design, and safety,

¹¹³ Milin Stanly, 'RBI Governor flags concern about the use of AI in the consumer loan landscape', (IndiaAI, 05 December 2023) <<https://indiaai.gov.in/article/rbi-governor-flags-concern-about-the-use-of-ai-in-the-consumer-loan-landscape>> accessed 10 February 2025.

¹¹⁴ Press Trust of India, 'RBI sets up 8-member panel to develop framework for ethical use of AI', (Business Standard, 27 December 2024) <https://www.business-standard.com/finance/news/rbi-sets-up-8-member-panel-to-develop-framework-for-ethical-use-of-ai-124122600606_1.html> accessed 20 February 2025.

resilience and sustainability. Building on these Sutras, the FREE-AI Report sets out a unified vision structured around six pillars, comprising infrastructure, policy and capacity under an innovation enablement framework and governance, protection and assurance under a risk mitigation framework. These pillars underpin twenty-six recommendations, including the establishment of a financial sector data infrastructure and AI innovation sandbox, development of indigenous financial-sector-specific AI models, a board-approved AI policy and graded liability framework, a dedicated AI standing committee, mandatory AI inventories and audit frameworks, and enhanced consumer protection and incident-reporting mechanisms.

Key Recommendations of the FREE-AI Report

The FREE-AI Report structures its twenty-six recommendations around six pillars: three under an innovation enablement framework (infrastructure, policy, and capacity) and three under a risk mitigation framework (governance, protection, and assurance). Key recommendations of particular relevance to digital lenders include:

(i) A financial sector data infrastructure and dedicated AI innovation sandbox, to enable REs to test AI models in a supervised environment before full deployment; (ii) a Board-approved AI policy as a mandatory governance instrument across all REs; (iii) a graded liability framework, apportioning responsibility based on the degree of human oversight and decision materiality; (iv) mandatory AI inventories and third-party audit frameworks to ensure accountability across the AI value chain; (v) enhanced consumer protection mechanisms, including mandatory disclosure of AI use in lending decisions and accessible human escalation pathways; and (vi) an AI incident-reporting mechanism to facilitate supervisory oversight of AI-related failures.

The FREE-AI Report, while non-binding, is expected to inform RBI's supervisory approach and upcoming guidance on AI governance. Regulated entities would be well-advised to conduct gap assessments against its recommendations in parallel with compliance work on the Draft MRM Guidance.

The RBI's draft *Guidance on Regulatory Principles for Model Risk*

*Management, 2026*¹¹⁵ establishes a comprehensive regulatory framework for model risk management applicable to commercial banks, small finance banks, payments banks, local area banks, regional rural banks, urban and rural co-operative banks, non-banking financial companies across all layers, all-India financial institutions, asset reconstruction companies, and credit information companies. REs are held accountable for outcomes of all models, whether developed internally, sourced from third parties, or a combination thereof. Central to the framework is the requirement for a Board-approved Model Risk Management Framework ("MRMF"), encompassing model taxonomy, governance structure, risk tiering methodology, and lifecycle policies. Governance responsibilities are distributed across the Board, which approves risk appetite and MRMF policies; the Risk Management Committee of the Board, which reviews validation reports and oversees high-risk models; and Senior Management, which operationalises the framework. This guidance requires a three-lines-of-defence model, risk-based model tiering based on materiality and complexity, and maintenance of an accurate model inventory with defined documentation and retention standards. Data quality obligations require adherence to data governance processes during development, alongside ongoing monitoring for data drift and representativeness in AI/ML contexts. Additional provisions addressing third-party model due diligence include contractual audit rights, and enhanced controls, explainability, human oversight, and bias mitigation for AI and ML models.

Key Provisions of the Draft MRM Guidance and Their Implications for Digital Lending

The Draft MRM Guidance introduces several provisions with direct implications for AI-driven digital lending. Regulated entities engaged in credit underwriting using AI or ML models will be required to satisfy enhanced obligations across several dimensions.

First, the broad definition of "model" captures not only sophisticated ML credit scorecards but also rules engines, pricing algorithms, and any computational tool that materially influences business decisions, irrespective of whether the RE labels it a "model". Many digital lenders may discover that their existing decision systems require governance uplift to meet the new requirements.

115 RBI Draft Guidance on Regulatory Principles for Model Risk Management, 2026 [DoR.ORG.REC.XXXX/XX-XX-XXXX/2026-27 (dated June 2026)] <<https://rbidocs.rbi.org.in/rdocs/Content/PDFs/DRAFTGUIDANCE24062026FF12A4FF7BC84E8887009D5C5365F8BF.PDF>>.

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Second, the Board-approved Model Risk Management Framework (MRMF) must cover model taxonomy, risk-based tiering, lifecycle policies, and a complete model inventory. High-risk models, which will typically include credit underwriting and pricing models, must obtain Risk Management Committee of the Board (RMCB) approval and be subject to periodic independent validation.

Third, for AI and ML models specifically, the Draft MRM Guidance mandates: (i) kill-switch mechanisms enabling human override or shutdown; (ii) explicit disclosure to customers when they are interacting with an AI/ML system; (iii) the right for customers to request human assistance; (iv) red-teaming and adversarial testing; (v) bias and fairness assessments to identify discriminatory outputs; (vi) controls against hallucination in generative AI applications; and (vii) monitoring for data drift and representativeness.

Fourth, accountability for third-party model outcomes remains squarely with the RE. Where digital lenders rely on vendor-supplied AI credit scoring models, they must conduct independent validation regardless of any certification provided by the vendor, maintain contractual audit rights, and ensure access to technical documentation. This significantly raises the compliance bar for bank-fintech co-lending arrangements where credit assessment is outsourced to the fintech partner.

Fifth, explainability thresholds are calibrated to the materiality of decisions. Credit underwriting decisions, which directly affect borrowers' access to finance, require higher explainability standards. Where a black-box ML model cannot fully explain its outputs, the RE must compensate through enhanced validation, output verification, and usage restrictions.

Securities and Exchange Board of India

The SEBI has recently introduced significant regulatory measures to govern the use of AI and ML by intermediaries. Through the SEBI (Intermediaries) (Amendment) Regulations, 2025,¹¹⁶ SEBI has established a new chapter dedicated to AI usage, emphasizing that regulated entities are solely responsible for ensuring data privacy, security, and integrity, as well as the accuracy of AI-generated outputs and compliance with applicable laws.¹¹⁷ This framework aims to address concerns related to data security and investor protection as AI adoption increases in the financial sector. SEBI's approach involves assigning full responsibility to entities using AI tools, whether developed in-house or sourced from third parties, for any consequences arising from their deployment.¹¹⁸

NASSCOM

NASSCOM released the Responsible AI Guidelines which emphasize conducting research, development, and deployment in a manner that fosters trust and mitigates risks across industries¹¹⁹. These guidelines were developed through consultations with industry experts, researchers, and practitioners, aiming to create a common understanding of normative obligations among stakeholders.¹²⁰ Additionally, NASSCOM has launched a Responsible AI Resource Kit,¹²¹ providing self-regulation guidance and tools to help businesses adopt responsible AI practices. This kit is part of NASSCOM's broader efforts to balance AI innovation with public safety concerns and ethical considerations.

The Future of AI Regulation in India

Despite these regulatory developments, India lacks a unified AI law, leading to fragmented oversight across multiple agencies. The competing regulatory perspectives - MeitY's light-touch approach versus calls for a more interventionist framework continue to

116 Securities and Exchange Board of India (Intermediaries) (Amendment) Regulations, 2025 <https://www.sebi.gov.in/legal/regulations/feb-2025/securities-and-exchange-board-of-india-intermediaries-amendment-regulations-2025_91809.html> accessed 28 February 2025.

117 Kriti, 'SEBI introduces the concept of AI vide its amendment in Intermediaries Regulations', (SCCOnline, 11 February 2025) <<https://www.sconline.com/blog/post/2025/02/11/sebi-introduces-concept-of-ai/>> accessed 28 February 2025.

118 Anne Florentyna, 'SEBI Says Regulated Entities Will Now Be Responsible For AI Use' (Inc42, 19 December 2024) <<https://inc42.com/buzz/sebi-says-regulated-entities-will-now-be-responsible-for-ai-use/>> accessed 28 February 2025.

119 NASSCOM, 'Progress Responsibly: nasscom Releases Responsible AI Guidelines for Generative AI' <https://nasscom.in/sites/default/files/media_pdf/nasscom-press-release-responsible-ai-guidelines-for-gen-ai.pdf> accessed 28 February 2025.

120 Romita Majumdar, 'Nasscom releases guidelines for responsible AI use' (Economic Times, 06 June 2023) <<https://economictimes.com/tech/technology/nasscom-releases-guidelines-for-responsible-ai-use/articleshow/100801737.cms>> accessed 28 February 2025.

121 Nasscom Responsible AI Resource Kit <<https://indiaai.gov.in/responsible-ai/homepage>> accessed 28 February 2025.

shape AI governance. The proposed Digital India Bill is expected to provide clarity by introducing comprehensive AI regulations. Meanwhile, the RBI, SEBI, and industry bodies are formulating sector-specific AI governance policies, aligning India's regulatory trajectory with global trends.

While India's AI governance currently relies on self-regulation, industry best practices, sectoral guidelines such as the FREE-AI Report and the Draft MRM Guidance and upcoming legislative changes will significantly transform regulatory oversight. The challenge for policymakers will be to balance innovation with responsible AI deployment, ensuring AI's potential is harnessed while mitigating risks.

Role, Benefits, Challenges of using AI in Digital Lending

AI has revolutionized the digital lending landscape by transforming traditional processes into efficient, data-driven, and customer-centric models. This section explores the roles, benefits, and challenges associated with AI in digital lending, providing insights into its transformative impact on the financial sector.

Roles of AI in Digital Lending

This section explores the role of AI in credit solutions, focusing on AI-driven risk assessment models, real-time borrower profiling, enhanced fraud detection, and the integration of IoT, blockchain, and AI.

AI-driven Risk Assessment Models and Predictive Analytics

AI-driven risk assessment models utilize machine learning algorithms to analyse vast datasets, including traditional financial data and alternative sources such as utility payments and social media activities. These models enhance predictive power by identifying patterns that traditional methods might miss, allowing

lenders to assess credit risk more accurately and tailor loan terms to individual borrowers' risk profiles.¹²² Predictive analytics plays a crucial role in forecasting future outcomes based on historical data, enabling lenders to make informed decisions about creditworthiness. This approach helps in identifying potential defaults early, allowing proactive measures to mitigate risks.

For instance, a Brazilian alt data provider RiskSeal's AI-driven system, accelerates credit checks, enabling lenders to process applications in seconds, significantly reducing the time and resources required for manual underwriting.¹²³ Further, several Indian companies offer predictive analytics tools that generate hundreds of millions of score calculations and risk decisions annually, leveraging data analytics to minimize default risks and optimize lending portfolios.¹²⁴

Real-time Borrower Profiling and Dynamic Credit Scoring

AI enables real-time borrower profiling by continuously monitoring financial activity and adjusting credit scores based on changing economic conditions. This dynamic approach allows lenders to offer customized loan terms and interest rates, enhancing customer experience and reducing default risks.¹²⁵ Dynamic credit scoring models use machine learning to analyse vast datasets, including spending patterns and credit history, to provide personalized credit offers. This approach not only improves customer satisfaction but also helps lenders manage risk more effectively by segmenting borrowers based on their risk profiles.¹²⁶

For instance, Federal Bank's SmilePay uses facial authentication for payments. SmilePay is built on the UIDAI's Bhim Aadhaar Pay infrastructure, allowing customers to make transactions without cash, cards, or mobile phones by simply scanning their faces.¹²⁷ While not directly used in lending, this technology demonstrates

122 Dr. Sachin Sharma and Mukesh Ahuja, 'Algorithmic Brilliance: Unveiling the Power of AI in Credit Evaluation' The Journal of Indian Institute of Banking & Finance (January-March 2024) <<https://iibf.org.in/documents/BankQuest/Jan-Mar2024/2.pdf>> accessed 28 February 2025.

123 Anastasiya Shitikova, '10 Reasons to Use AI in Credit Scoring' (Risk Seal) <<https://riskseal.io/blog/reasons-to-use-ai-in-credit-scoring>> accessed 28 February 2025.

124 'Predictive Analytics for Risk Management' (CRIF) <<https://www.crif-jp.com/en/risk-management-predictive-analytics/>> accessed 28 February 2025.

125 Ritesh Shetty, 'The Role Of AI In Transforming Credit Risk Assessment Process' (Arya.ai, 30 May 2024) <<https://arya.ai/blog/ai-in-credit-risk-assessment>> accessed 28 February 2025.

126 Dr. Patrice Latinne, 'How embedded finance and AI impact the lending sector' (EY, 26 January 2024) <https://www.ey.com/en_be/insights/financial-services/how-embedded-finance-and-ai-impact-the-lending-sector> accessed 28 February 2025.

127 Surbhi Gloria Singh, 'No card, phone, or cash needed! This tech lets you pay with just your face' (Business Standard, 30 August 2024) <https://www.business-standard.com/finance/personal-finance/no-card-phone-or-cash-needed-this-tech-lets-you-pay-with-just-your-face-124083000729_1.html> accessed 28 February 2025.

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the potential for facial recognition in financial services, which could be adapted for identity verification in digital lending platforms.

Enhanced Fraud Detection and Mitigation Mechanisms

AI-powered fraud detection systems identify suspicious transactions and alert lenders to potential threats, significantly reducing fraud risks. These systems analyse vast amounts of data to detect anomalies in borrower behaviour that may indicate fraudulent activities.¹²⁸ AI-driven systems also leverage face recognition and name matching to verify identities, reducing the risk of identity theft and ensuring that loan applicants are genuine.¹²⁹ This proactive approach helps lenders prevent financial losses by identifying fraudsters early in the loan application process.

For instance, an Indian startup uses AI and machine learning to analyse vast amounts of call data and identify suspicious patterns, particularly in scenarios where agents might redirect payments to personal accounts. This technology has been instrumental in preventing significant financial losses, such as a potential ₹30 lakh loss, by flagging unusual agent behaviour and providing early warnings to the company's compliance team. Another Indian platform employs machine learning to detect first-party and third-party fraud, flagging income inconsistencies within the automated loan decisioning process.

Integration of IoT, Blockchain, and AI for Adaptive Credit Systems

Newer technologies when working with AI are transforming credit systems by enhancing security, transparency, and efficiency. Blockchain as a technology provides a decentralized and tamper-resistant ledger for financial transactions, ensuring data integrity and security.¹³⁰ AI algorithms can be integrated into blockchain-based smart contracts to automate and enforce contractual agreements. This reduces reliance on intermediaries and minimizes human error. In a similar vein, IoT devices can provide real-time data on borrowers' financial activities, which AI can analyse to

predict repayment probabilities more accurately. This synergy between IoT, Blockchain and AI enables lenders to create adaptive credit systems that adjust to changing borrower profiles and market conditions, optimizing lending decisions and reducing risks.

For instance, certain blockchain-based platforms use AI to evaluate risk and manage investment portfolios, creating a trustless financial environment that is both efficient and secure. Another platform allows users to deposit cryptocurrencies as collateral and borrow other cryptocurrencies, utilizing a token economy based on their token for governance and returns. Such a platform uses AI to assess the creditworthiness of borrowers by analysing transaction history and collateral, enhancing risk management in its lending processes.

In conclusion, AI tools are revolutionizing credit solutions by enhancing risk assessment, borrower profiling, fraud detection, and integrating with emerging technologies like blockchain and IoT. As AI continues to evolve, its role in shaping the future of credit systems will become increasingly pivotal.

Benefits of AI in Digital Lending

The integration of AI in digital lending offers several benefits that transform the financial landscape by enhancing efficiency, inclusivity, and risk assessment - given that AI essentially processes data from various fields at a speed previously unknown, benefits of AI in credit underwriting may overlap with benefits as listed in *Section 6* of this paper.

Financial Inclusion

AI systems gather vast amounts of data from various sources and integrate it using machine learning algorithms. This allows for a more comprehensive assessment of borrowers' financial health, enabling lenders to offer credit to those previously excluded from traditional banking systems. Several Indian fintech firms use machine learning algorithms to assess creditworthiness beyond traditional credit scores, increasing financial inclusion.

¹²⁸ Dr. Sachin Sharma and Mukesh Ahuja, 'Algorithmic Brilliance: Unveiling the Power of AI in Credit Evaluation' The Journal of Indian Institute of Banking & Finance (January-March 2024) <<https://iibf.org.in/documents/BankQuest/Jan-Mar2024/2.pdf>>.

¹²⁹ Anastasiya Shitikova, '10 Reasons to Use AI in Credit Scoring' (Risk Seal) <<https://riskseal.io/blog/reasons-to-use-ai-in-credit-scoring>> accessed 28 February 2025.

¹³⁰ The Rising Significance Of Blockchain In The Banking Sector (Vishal Anand Karvaty, NPCI) <<https://www.npci.org.in/blog/the-rising-significance-of-blockchain-in-the-banking-sector#:~:text=Blockchain%20is%20basically%20a%20distributed,the%20asset%20amongst%20distrusting%20parties>> accessed 28 February 2025.

Improved Credit Underwriting

AI models are trained on historical data to learn patterns and relationships between input features and the target variable (e.g., default risk or credit score). This predictive analytics capability allows for enhanced risk assessment, reducing default rates and improving lending decisions. Additionally, AI-powered creditworthiness assessment goes beyond traditional credit scores by analysing alternative data sources like cash flow patterns and social media activity, reducing the risk of defaults and ensuring more reliable lending decisions.¹³¹ Some companies in India have developed AI-powered tools to improve credit scoring by analysing vast datasets, enabling lenders to make more accurate lending decisions.

Operational Efficiency

AI automates manual processes, reducing loan processing times from weeks to mere seconds. This automation improves operational efficiency and customer satisfaction. Further, AI algorithms continuously learn and improve over time as new data becomes available, ensuring that credit scoring and underwriting remain accurate and up-to-date. This real-time credit evaluation capability enables faster loan approvals and cost reductions in credit assessment processes.

See below a table comparing traditional and AI driven approaches in the lending sector basis our understanding:

Aspect	Traditional Approach	AI-Driven Approach	Benefits of AI Techniques
Data Utilization	Relies primarily on structured data such as credit scores, income statements, and financial histories.	Incorporates both structured and unstructured data, including transaction histories, social media activity, online reviews, and utility payments.	Provides a more comprehensive assessment of creditworthiness, especially for individuals or businesses lacking extensive credit histories.
Risk Assessment Models	Employs static statistical models that may not adapt quickly to new data or changing economic conditions.	Utilizes machine learning algorithms that continuously learn from new data, allowing for dynamic risk assessment.	Enhances predictive accuracy by adapting to emerging patterns and trends in borrower behaviour.
Processing Efficiency	Involves manual processes that can be time-consuming and prone to human error.	Automates data collection, analysis, and decision-making processes.	Significantly reduces processing time and minimizes errors, leading to faster loan approvals.
Decision-Making Process	Decisions are made manually, which can introduce biases and inconsistencies.	Leverages automated decision-making systems that apply consistent criteria across all applications.	Reduces human biases and ensures fairer, more objective lending decisions.
Fraud Detection	Depends on predefined rules and manual reviews to identify fraudulent activities.	Implements advanced anomaly detection techniques using machine learning to identify unusual patterns indicative of fraud.	Improves the ability to detect and prevent fraudulent activities through real-time analysis.
Product Customization	Offers standardized financial products with limited flexibility.	Analyses individual borrower data to tailor financial products to specific needs.	Enables the creation of personalized financial solutions, enhancing customer satisfaction and accessibility.

Table: Comparison of Traditional and AI-Driven Credit Underwriting

¹³¹ Prathiksha Shetty, 'Automated Loan Underwriting [A complete overview]' (Aarya.ai, 05 July 2024), <<https://arya.ai/blog/automated-loan-underwriting>> accessed 10 March 2025.

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In conclusion, AI has transformed digital lending by enhancing efficiency, inclusivity, and risk assessment. Its benefits are evident in faster loan processing, increased financial inclusion, improved credit underwriting, and personalized customer experiences.

Challenges of AI in Digital Lending

The integration of AI in digital lending has transformed the financial sector by enhancing efficiency, reducing costs, and improving risk assessment. However, despite these benefits, AI adoption in digital lending also presents several challenges that must be addressed to ensure equitable and secure lending practices.

Regulatory Gaps

One of the primary challenges is the nascent regulatory framework of AI governance. Existing frameworks often fail to effectively manage the unique characteristics of AI applications, leading to unclear legal circumstances that hinder innovation and increase compliance costs. The Indian regulatory framework for AI in fintech is still evolving, with significant gaps in addressing AI-related challenges, such as data protection and algorithmic bias.

Bias in AI Models

Ethical considerations and bias prevention are critical in AI-driven lending. AI systems can perpetuate biases if trained on biased data, resulting in discriminatory lending practices. For example, studies have shown that biased data and algorithms can disadvantage low-income and minority groups, emphasizing the need for fairer algorithms.¹³² The American Federal Reserve has also warned that AI and machine learning could reinforce bias in lending, highlighting the importance of ensuring fairness in AI decision-making.¹³³ While algorithmic bias is a metric identified by the RBI in its Draft MRM Guidance against which REs are required to validate, audit, and review their models, the effectiveness and implementation of the model risk management framework once finalized and in force remains to be seen.

Transparency and Accountability

The lack of explainability and transparency in AI models poses significant regulatory and compliance challenges. These models often function as “black boxes”, making it difficult to understand the reasoning behind their decisions. This opacity can lead to mistrust and legal issues, as financial institutions must ensure compliance with fair lending requirements.¹³⁴ The need for transparent AI is crucial to prevent discriminatory practices and maintain public trust. As AI adoption expands, financial institutions must address ethical concerns related to AI-driven decision-making, consumer rights, and accountability. Key ethical considerations include¹³⁵: (a) consumer data ownership and consent, (b) liability for AI-driven errors, and (c) AI’s role in debt collection and financial inclusion.

Data Security and Privacy Concerns

AI systems require vast amounts of personal data, which must be protected from unauthorized access and misuse. Data security and privacy concerns are paramount to maintain trust in AI-driven lending. RBI has issued guidelines to protect borrowers’ data privacy, emphasizing the need for consent-based data collection and secure storage as discussed in *Section 6* of this paper.

Limited Availability of Data

The limited availability of data, particularly for minority and low-income groups, can lead to suboptimal AI performance and inaccurate lending decisions. AI systems are only as effective as the data they are trained on, and biased or incomplete data can perpetuate existing inequalities.¹³⁶

Implementation Costs

Finally, implementation costs are a significant barrier for many lenders. Implementing AI solutions requires substantial investments in technology and expertise, which can be challenging for smaller financial institutions. According to Gartner, more

¹³² Michael Akinwumi, ‘An AI fair lending policy agenda for the federal financial regulators’, (John Merrill, et. all., Economic Studies at Brookings, December 2021). <https://www.brookings.edu/wp-content/uploads/2021/12/Akinwumi_Merrill_Rice_Saleh_Yap_12-01-2021-1.pdf> accessed 28 February 2025.

¹³³ Taylor Giorno, ‘Fed watchdog warns AI, machine learning may perpetuate bias in lending’, (The Hill, 18 July 2023). <<https://thehill.com/business/housing/4103358-fed-watchdog-warns-ai-machine-learning-may-perpetuate-bias-in-lending/>> accessed 28 February 2025.

¹³⁴ National Report Emphasizes Accountability in AI Applications’, (Jeremy Werner, BABL) 02 April 2024. <<https://babl.ai/national-report-emphasizes-accountability-in-ai-applications/>> accessed 28 February 2025.

¹³⁵ ‘Embracing generative AI in credit risk’, (McKinsey & Company) 01 July 2024. <<https://www.mckinsey.com/capabilities/risk-and-resilience/our-insights/embracing-generative-ai-in-credit-risk/>> accessed 28 February 2025.

¹³⁶ Olena Domanska, ‘Proper data preparation for AI in financial organizations’, (Banking Dive, 28 May 2024). <<https://www.bankingdive.com/spons/proper-data-preparation-for-ai-in-financial-organizations/716996/>> accessed 28 February 2025.



than half of organizations abandon AI efforts due to missteps in estimating costs.¹³⁷

Integration Challenges with Legacy Financial Systems

Many Indian financial institutions still rely on legacy IT infrastructure, which limits AI adoption and scalability. Traditional banking systems often lack the computational capacity, interoperability, and flexibility required to integrate real-time AI analytics, automated risk modelling, and AI-driven fraud detection.¹³⁸

Cybersecurity Threats and AI Exploitation

While AI enhances cybersecurity through anomaly detection and fraud prevention, it also introduces new attack vectors for cybercriminals. AI-powered financial systems can be targeted by:¹³⁹

- Data poisoning attacks, where hackers manipulate training data to mislead AI-driven fraud detection models.
- Adversarial AI, where cybercriminals use AI-generated deceptive inputs to bypass security controls.
- Deepfake fraud, which exploits AI-generated identities to manipulate KYC and identity verification processes.

In conclusion, AI has transformed digital lending by enhancing efficiency, inclusivity, and risk assessment. However, addressing the challenges associated with AI adoption is crucial to ensure that its benefits are realized while mitigating potential risks. As AI technology continues to evolve, its role in shaping the future of digital lending will only grow more significantly.

¹³⁷ Sander den Hartog, 'Uncover the Hidden Costs of AI: A Bank's Journey' (Cost Perform, 30 May 2024) <<https://www.costperform.com/uncover-the-hidden-costs-of-ai-a-banks-journey/>> accessed 28 February 2025.

¹³⁸ Saurabh Barot, 'Modernizing Legacy Banking Solutions with AI and Data Solutions' (Aglowid, 25 February 2025) <<https://aglowiditsolutions.com/blog/ai-data-modernizing-legacy-banking-system/>> accessed 28 February 2025.

¹³⁹ 'Embracing generative AI in credit risk', (McKinsey & Company) 01 July 2024 <<https://www.mckinsey.com/capabilities/risk-and-resilience/our-insights/embracing-generative-ai-in-credit-risk#/>> accessed 28 February 2025.



8. Cross-Jurisdictional Analysis

United States of America

In December 2019, an Interagency Statement on the Use of Alternative Data in Credit Underwriting¹⁴⁰, was issued by agencies such as the CFPB, FDIC, NCUA and OCC – highlighting the potential benefits and regulatory considerations of using alternative data in credit decisions. Alternative data, such as cash flow information, can enhance credit accessibility, improve underwriting accuracy, lower costs, and support small business lending. However, in USA its use must comply with consumer protection laws, including the ECOA, FCRA, and UDAAPs, ensuring that lending practices remain fair, transparent, and non-discriminatory. The statement emphasized that lenders must implement a robust CMP that included thorough legal analysis, continuous monitoring, strong governance, and clear consumer disclosures. The agencies recognized that responsibly used data, particularly cash flow data, may present lower risks and improve credit assessments, while certain high-risk data sources require stricter compliance measures. Additionally, “Second Look” programs, where alternative data is used to reassess applicants initially denied credit, could expand credit access but needed to comply with fair lending regulations. The agencies stressed that lenders must ensure data accuracy, consumer transparency, and compliance with adverse action notice requirements under ECOA and FCRA. Recognizing the evolving nature of digital lending, regulators encouraged firms to consult with supervisory authorities before implementing alternative data.

Following this statement, CFPB submitted a proposal for a rule-making effort with regards to Section 1033 of the Dodd-Frank Act. This in many ways was considered as the first sign of support for the notion of open banking – since the goal was to accelerate the shift to a more open and decentralized system of consumer data access.¹⁴¹ Consequently, in October 2024, CFPB issued a Final Rule¹⁴² on personal financial data rights, under the CFPA, to enhance

consumer control over financial data. The rule mandates that banks, credit unions, and financial service providers must provide consumers with secure and standardized access to their financial data. Additionally, it defines stringent obligations for third parties accessing consumer data, ensuring robust privacy protections.¹⁴³ A key objective of the rule is to foster a fair, open, and competitive market by setting industry-wide data-sharing standards. The rule is scheduled to be effective 60 days after publication, with compliance deadlines ranging from 01 April 2026, to 01 April 2030, depending on the type of financial institution.¹⁴⁴ This staggered timeline allows for a smoother industry-wide transition. The Final Rule is aimed at establishing a secure and consumer-centric data access framework. While recognizing the benefits of alternative data for credit underwriting, the rule prohibits broad secondary use, mandates strict data retention limits, and eliminates screen scraping. These changes aim to strengthen consumer privacy, encourage financial competition, and enhance security in the U.S. financial system.

Key Provisions of the Final Rule

Consumer Data Access Rights: Under the Final Rule, covered data providers, including depository and non-depository institutions that issue credit cards, maintain transaction accounts, or facilitate payments, must make financial data available to consumers and authorized third parties in a standardized, machine-readable format¹⁴⁵. The rule prohibits data providers from imposing fees for access and restricts the use of outdated credential-based access methods, such as screen scraping, to enhance security. Instead, data access must be provided through secure developer interfaces, ensuring consumers and third parties receive reliable and consistent data.¹⁴⁶ To enhance security, the rule mandates the use of developer interfaces instead of screen scraping to protect against unauthorized data access.¹⁴⁷ Additionally, the CFPB promotes machine-readable

¹⁴⁰ Interagency Statement on the Use of Alternative Data in Credit Underwriting – Financial Institution Letter [FIL-82-2019] dated 13 December 2019 <<https://www.fdic.gov/sites/default/files/2024-03/spdec0319.pdf>> accessed 15 February 2025.

¹⁴¹ Required Rulemaking on Personal Financial Data Rights; Industry Standard-Setting CFPB 12 CFR Part 1033 [Docket No. CFPB–2023–0052] RIN 3170–AA78 <<https://www.govinfo.gov/content/pkg/FR-2024-06-11/pdf/2024-12658.pdf>>.

¹⁴² Required Rulemaking on Personal Financial Data Rights - Final Rule - (CFPB) [12 CFR Parts 1001 and 1033] [Docket No. CFPB-2023-0052] RIN 3170-AA78 – dated 22 October 2024 <https://files.consumerfinance.gov/f/documents/cfpb_personal-financial-data-rights-final-rule_2024-10.pdf>.

¹⁴³ See, Pg. 01 – CFPB Final Rule.

¹⁴⁴ See, Pgs. 01, 441 – CFPB Final Rule.

¹⁴⁵ See, Pg. 06 – CFPB Final Rule.

¹⁴⁶ See, Pgs. 07, 08 – CFPB Final Rule.

¹⁴⁷ See, Pg. 551 – CFPB Final Rule.



formats and standardized data-sharing protocols,¹⁴⁸ ensuring greater efficiency and security.

Alternative Consumer Data & Credit Underwriting: The rule acknowledges the use of alternative data, such as consumer cash flow information, in credit underwriting. Research suggests that cash flow data enhances credit risk assessment, particularly for consumers with limited or no credit history¹⁴⁹. However, lenders utilizing alternative data must comply with consumer protection and fair lending standards¹⁵⁰, ensuring responsible credit decision-making.

Secondary Data Use & Privacy Protections: To protect consumer privacy, third parties are prohibited from reusing consumer data beyond the original purpose unless explicitly allowed.¹⁵¹ The CFPB considered an opt-in mechanism but rejected it due to privacy risks. Additionally, the rule strictly limits the retention of de-identified consumer data, citing re-identification risks.¹⁵²

Prohibition on Screen Scraping: The Final Rule explicitly bans screen scraping, requiring third parties to use secure interfaces for data access. This move is expected to reduce costs and enhance security for both data providers and consumers, ensuring a safer financial data-sharing environment.¹⁵³

Obligations on Third Parties: Authorized third parties must obtain consumer reauthorization annually¹⁵⁴. They are also required to delete consumer data once authorization expires, ensuring strict data retention limits.¹⁵⁵ These measures reinforce consumer control over personal financial data. To qualify as an authorized third party, entities must meet strict requirements, including obtaining

explicit consumer consent, disclosing the scope of data access, and adhering to security obligations under the Gramm-Leach-Bliley Act (GLBA) Safeguards Framework.¹⁵⁶ Third parties must also certify that they will collect, use, and retain only the data necessary to provide the requested service, prohibiting the use of consumer data for targeted advertising, cross-selling, or resale.¹⁵⁷ Data aggregators, which facilitate third-party access, are subject to the same security and compliance obligations as third parties.

Impact on Competition & Market Practices: The rule fosters greater competition by enabling secure data portability between financial institutions¹⁵⁸. Standardized access requirements lower entry barriers for fintech companies and new financial service providers¹⁵⁹, promoting innovation and expanding consumer choice.

The Final Rule aligns with the ongoing evolution of open banking in the United States, where consumer demand for financial data portability has increased. Over 100 million U.S. consumers have authorized third-party access to financial data, often relying on intermediaries for aggregation services. However, screen scraping has been a significant concern due to its security risks and lack of standardization. The Final Rule aims to phase out such practices and replace them with structured, API-based data access, ensuring a safer and more transparent financial ecosystem.¹⁶⁰

Industry reactions to the rule have been mixed. Consumer advocacy groups and fintech companies generally support the rule, viewing it as a mechanism to promote competition, innovation, and consumer empowerment. Many financial institutions, particularly smaller banks and credit unions have expressed concerns regarding the compliance burden and potential security risks associated with

¹⁴⁸ See, Pg. 287 – CFPB Final Rule.

¹⁴⁹ See, Pg. 551 – CFPB Final Rule.

¹⁵⁰ See, Pg. 347 – CFPB Final Rule.

¹⁵¹ See, Pg. 347 – CFPB Final Rule.

¹⁵² See, Pg. 530 – CFPB Final Rule.

¹⁵³ See, Pg. 511 – CFPB Final Rule.

¹⁵⁴ See, Pg. 347 – CFPB Final Rule.

¹⁵⁵ See, Pg. 431 – CFPB Final Rule.

¹⁵⁶ See, Pg. 09 – CFPB Final Rule.

¹⁵⁷ See, Pg. 10 – CFPB Final Rule.

¹⁵⁸ See, Pg. 551 – CFPB Final Rule.

¹⁵⁹ See, Pg. 287 – CFPB Final Rule.

¹⁶⁰ See, Pgs. 13, 14, 15 – CFPB Final Rule.



third-party access. Some banks argue that they will bear increased liability for unauthorized transactions or fraudulent third-party activity.¹⁶¹ In response, the CFPB clarifies that third parties assume full responsibility for data security and that financial institutions complying with the rule will not be held liable for third-party misconduct.

The Final Rule also impacts the regulatory landscape by ensuring that consumer financial data is available in a structured, interoperable format. Under CFPA Section 1033, data providers must enable consumers to access their financial data in a usable electronic format. The rule also emphasizes the importance of standardized data-sharing mechanisms to prevent market fragmentation and reinforce consumer protection. By establishing clear compliance guidelines, the CFPB aims to create a financial ecosystem where consumers can switch providers seamlessly, fostering greater competition and better service offerings.¹⁶²

The CFPB's Final Rule, thus, represents a significant step towards a standardized open banking framework in USA. By balancing consumer access, security, and competition, the rule seeks to modernize financial data-sharing practices while addressing industry concerns. Compliance will be phased in over several years, allowing institutions to adapt to the new requirements gradually. Ultimately, the rule is expected to enhance consumer financial autonomy, reduce market barriers, and ensure data privacy and security in an increasingly digital financial landscape.

Following the return of the Trump administration in 2025, a regulatory freeze¹⁶³ was imposed through an executive memorandum on 20 January 2025, halting all new regulatory actions by executive agencies until reviewed by the administration's appointees. This moratorium affects proposed and unpublished rules, with agencies directed to withdraw pending rules and consider delaying implementation of rules not yet in effect by 60 days.

¹⁶¹ See, Pgs. 24 to 27 – CFPB Final Rule.

¹⁶² See, Pgs. 21, 22 – CFPB Final Rule.

¹⁶³ Presidential Action: Regulatory Freeze (The White House, 20 January 2025) <<https://www.whitehouse.gov/presidential-actions/2025/01/regulatory-freeze-pending-review/>> accessed 27 February 2025.

¹⁶⁴ 'The general data protection regulation', European Council <<https://www.consilium.europa.eu/en/policies/dataprotectionregulation/#:~:text=data%20protection%20rules,What%20is%20the%20GDPR%3F,application%20on%2025%20May%202018>> accessed 28 February 2025.

¹⁶⁵ Catharina Gugla and Steve Wood, 'CJEU rules that a credit score constitutes automated decision making under the GDPR' (A&O Sherman, 10 January 2024), <<https://www.aoshearman.com/insights/ao-shearman-on-data/cjeu-rules-that-a-credit-score-constitutes-automated-decision-making-under-the-gdpr>> accessed 28 February 2025.

European Union

This section looks at the key regulations and guidelines on use of AI and Alternative Data in Credit Underwriting in the European Union.

GDPR and Automated Decision-Making

The General Data Protection Regulation has profound implications for AI-powered credit decisions, as these systems typically process vast amounts of personal data. The regulation imposes strict obligations on companies collecting and processing personal information, directly constraining how credit algorithms can be trained and deployed. GDPR principles of data minimization, purpose limitation, and storage limitation significantly shape how AI lending models must be designed and operated.¹⁶⁴

Article 22 of the GDPR specifically addresses “automated individual decision-making” and profiling, granting individuals the right not to be subject to purely automated decisions that produce legal effects, except under specific circumstances. This provision directly impacts credit underwriting AI, as loan approvals clearly constitute decisions with legal effects. Financial institutions deploying AI credit systems must typically either ensure meaningful human oversight or obtain explicit consent for automated processing. This represents a significant safeguard against purely algorithmic determinations affecting consumers' financial lives.

In a landmark ruling on 7 December 2023, the CJEU clarified the scope of Article 22 GDPR in the context of credit scoring.¹⁶⁵ The case involved SCHUFA, Germany's largest credit bureau, whose automated credit scores were used by banks to deny loans. The CJEU held that such credit scoring constitutes automated individual decision-making under Article 22 when lenders rely heavily on these scores to make decisions significantly affecting individuals. Crucially, the court emphasized that nominal human involvement, such as a bank rubber-stamping an AI-generated score, does not negate the “automated” nature of the decision. The ruling mandates that credit



scoring systems must provide safeguards like human intervention, appeal rights, and transparency about the logic behind decisions. It also strengthens individuals' rights to access information, rejecting trade secret claims as a barrier to transparency.

EU AI Act

The EU AI Act, approved by the European Parliament on 13 March 2024, establishes harmonized rules for AI systems in the EU. It entered into force on 01 August 2024, and will apply from 02 August 2026.¹⁶⁶ AI systems used for credit scoring are classified as “high-risk” under Annex III, Point 5(b) due to their potential impact on fundamental rights and access to essential services. This classification triggers significantly more stringent requirements for risk management, transparency, and human oversight than those applied to lower-risk AI applications.

High-risk AI systems, including those for credit underwriting, must meet rigorous standards under the AI Act as per Article 10. These include demonstrating robust accuracy, operating within comprehensive risk management frameworks, and ensuring meaningful human oversight of system operations and outputs. The regulation requires that new AI credit systems deployed from two years after the AI Act takes effect must comply with these enhanced standards. Financial institutions must establish governance mechanisms ensuring that AI outputs are properly understood and that decisions maintain appropriate human involvement.

Other requirements for high-risk AI systems include numerous technical and organizational measures. Providers must implement quality management systems, maintain extensive documentation, design systems for accuracy and robustness, and establish cybersecurity protections. They must also produce clear technical documentation and maintain automatically generated logs to support compliance verification and oversight. These requirements apply to various operators in the AI value chain,

including providers, deployers, importers, and distributors.

The AI Act establishes a rigorous enforcement mechanism with significant penalties for non-compliance. Organizations violating prohibitions on specified AI practices may face fines up to EUR 35 million or 7% of worldwide annual turnover, whichever is higher. For violations related to high-risk AI systems requirements, penalties may reach EUR 15 million or 3% of worldwide annual turnover. This graduated penalty structure reflects the Act's risk-based approach, with the most severe consequences reserved for the most serious violations.

European Banking Authority and Other Financial Regulators

The EBA and other financial regulators have been proactive in guiding the use of AI in credit underwriting. Their efforts aim to ensure that AI-driven lending practices align with existing financial regulations and consumer protection standards.

EBA Guidelines on Loan Origination and Monitoring

In 2020, the EBA issued guidelines on loan origination and monitoring¹⁶⁷ that, while not specifically focused on AI, set expectations for sound underwriting practices that implicitly cover algorithmic lending.¹⁶⁸ These guidelines emphasize the importance of robust governance of credit scoring models, ensuring data quality, validation of models, and fair treatment of consumers. Lenders are required to base creditworthiness assessments on relevant and accurate information to avoid unjustified denials. This means AI models must be subject to the same rigor as traditional models, including governance committees, testing for bias, and documentation of how decisions are made.

EBA's Work on Machine Learning

The EBA has also explored the use of machine learning in credit risk models through discussion papers in 2021¹⁶⁹ and a follow-up

¹⁶⁶ AI Act, European Commission, <<https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai>> accessed 28 February 2025.

¹⁶⁷ Consultation Paper on draft Guidelines on loan origination and monitoring, EBA Consultation 30 September 2019 <<https://www.eba.europa.eu/publications-and-media/events/consultation-paper-draft-guidelines-loan-origination-and-monitoring>> accessed 28 February 2025.

¹⁶⁸ EBA draft Guidelines on loan origination and monitoring, KPMG October 2019 <<https://assets.kpmg.com/content/dam/kpmg/xx/pdf/2019/11/eba-draft-guidelines-on-loan-origination-and-monitoring.pdf>> accessed 28 February 2025.

¹⁶⁹ EBA Discussion Paper on Machine Learning for IRB Models, EBA 11 November 2021 <https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Discussions/2022/Discussion%20on%20machine%20learning%20for%20IRB%20models/1023883/Discussion%20paper%20on%20machine%20learning%20for%20IRB%20models.pdf> accessed 28 February 2025.



report in 2023.¹⁷⁰ These reports acknowledge the potential benefits of AI, such as enhanced efficiency and accuracy, but also highlight challenges like model opacity and data biases. The EBA supports the goals of the EU AI Act but has called for clarity to reduce overlapping compliance issues with the GDPR.¹⁷¹

Other EU Regulators

Other EU bodies have contributed to the regulatory landscape for AI in financial services:

- **EIOPA (European Insurance and Occupational Pensions Authority):** Issued AI governance principles for insurers in 2021, advocating for fairness, transparency, and human oversight in AI models. These principles are designed to ensure that insurers use AI in a manner that respects consumer rights and maintains trust in the insurance sector.¹⁷²
- **ESMA (European Securities and Markets Authority):** Released guidance on AI in algorithmic trading and investor services, emphasizing risk controls and accountability. While focused on markets rather than credit underwriting, this guidance underscores the importance of robust oversight and ethical AI deployment across financial services.¹⁷³

Additional EU Instruments Impacting AI Underwriting

Beyond the AI Act and sectoral guidelines, several other legal instruments shape AI-driven lending:

- **Consumer Credit Directive:** Recently revised, this directive mandates that lenders assess a borrower's creditworthiness

in a prudent and responsible manner. While not explicitly mentioning AI, it reinforces consumers' right to an explanation if credit is refused due to a database check, implying transparency duties when automated scoring models inform decisions.¹⁷⁴

- **Anti-Discrimination Laws:** EU anti-discrimination laws, such as the Equal Treatment Directives implemented in member states, indirectly constrain AI underwriting by prohibiting discrimination on protected grounds. This means that a biased AI credit model could lead to liability under discrimination law, just as a biased loan officer would.¹⁷⁵
- **Digital Operational Resilience Act:** Focused on ICT risk, this Act¹⁷⁶ complements AI governance by requiring financial firms to manage risks associated with third-party technology providers. For instance, if a bank uses an external AI platform for credit scoring, this Act and the AI Act together demand rigorous oversight of that vendor, including audit rights and ensuring the AI model meets EU standards.¹⁷⁷

In summary, Europe's regulatory framework for AI in credit underwriting is multi-layered, combining data protection, AI-specific regulation, financial supervision guidelines, consumer credit rules, and anti-discrimination law. This comprehensive approach ensures that AI-driven lending practices are transparent, fair, and accountable, aligning with both ethical standards and existing financial regulations.

170 Machine Learning for IRB Models: Follow-Up Report From The Consultation On The Discussion Paper On Machine Learning For IRB Models, EBA August 2023 <https://www.eba.europa.eu/sites/default/documents/files/document_library/Publications/Reports/2023/1061483/Follow-up%20report%20on%20machine%20learning%20for%20IRB%20models.pdf> accessed 28 February 2025.

171 'The EBA publishes follow-up Report on the use of machine learning for internal ratings-based models', EBA Press Release 04 August 2023, <<https://www.eba.europa.eu/publications-and-media/press-releases/eba-publishes-follow-report-use-machine-learning-internal>> accessed 28 February 2025.

172 'AI Act and its impacts on the European financial sector', (Fausto Parente, EUROFI Magazine, EIOPA) February 2024, <https://www.eiopa.europa.eu/publications/ai-act-and-its-impacts-european-financial-sector_en> accessed 28 February 2025.

173 'AIDA Working Paper on 'AI and Financial Services' following the AIDA/ECON Public Hearing on 01 July 2021', 2019-2024 Special Committee on Artificial Intelligence in a Digital Age – European Parliament September 2021 <<https://www.europarl.europa.eu/cmsdata/239712/Working%20Paper%20on%20AI%20and%20Financial%20Services.pdf>> accessed 28 February 2025.

174 Directive 2008/48/EC of the European Parliament and of the Council of 23 April 2008 on credit agreements for consumers and repealing Council Directive 87/102/EEC <<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32008L0048>> accessed 28 February 2025.

175 Acting against discrimination, European Commission, <https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/new-push-european-democracy/equality-and-inclusion/acting-against-discrimination_en#:~:text=In%20the%20EU%2C%20any%20discrimination,disability%2C%20age%20or%20sexual%20orientation> accessed 28 February 2025.

176 Regulation (EU) 2022/2554 of the European Parliament and of the Council of 14 December 2022 on digital operational resilience for the financial sector and amending Regulations (EC) No 1060/2009, (EU) No 648/2012, (EU) No 600/2014, (EU) No 909/2014 and (EU) 2016/1011 <<https://eur-lex.europa.eu/eli/reg/2022/2554/oj/eng>> accessed 28 February 2025.

177 'AI Act and its impacts on the European financial sector', (Fausto Parente, EUROFI Magazine, EIOPA) February 2024, <https://www.eiopa.europa.eu/publications/ai-act-and-its-impacts-european-financial-sector_en> accessed 28 February 2025.



Comparative Cross Border AI and Model Risk Regulations

The pervasive use of AI, ML, and other models in the global credit supply chain requires enhanced scrutiny in the definition of a 'model', which forms the foundation for model risk management frameworks across jurisdictions. The Draft MRM Guidance defines a model as:

"a system, whether developed internally, sourced from third-parties, or a combination thereof, that incorporates data, applies theoretical, empirical, or judgement-based assumptions (input component), uses statistical, mathematical, economic, financial, or such other cognitive techniques (including Artificial Intelligence (AI) / Machine Learning (ML)) to analyse, interpret relationships and process inputs (processing component) and produce results that are used for business or any other operations and decision making (output component). It includes algorithms, analytics, interfaces, applications, decision-based rules, and other computational tools which, by virtue of their use, have a material impact on decision-making in various business processes, irrespective of whether such tools are recognised as models by the RE."

The broad definition of a model in the Draft MRM Guidance does not distinguish between simple, deterministic, heuristic (rule-based), hard-coded business rules (for example, an age-eligibility check), utility components (such as optical character recognition tools) and genuine statistical, econometric or AI/ML-driven predictive models that present material model risk. Without a precise technical boundary, REs may be required to expend disproportionate compliance resources validating and governing basic rule-based logic in the same manner as sophisticated predictive models.

Comparable global frameworks adopt a narrower, materiality-driven approach to the definition of a 'model':

1. The UK PRA confines 'models' to quantitative methods applying statistical, mathematical, economic or financial theories to process inputs into quantitative estimates and deliberately leaves broader AI governance to separate initiatives. The UK PRA also subjects deterministic rules to standard management controls rather than the full model risk management framework unless they are exceptionally complex and have a material bearing on business decisions.¹⁷⁸
2. The Monetary Authority of Singapore distinguishes AI systems from conventional software and carves out tools whose outputs are "solely based on predefined programming logic" and anchors its applicability on risk-based proportionality calibrated to an institution's size, strategy, and operational complexity.¹⁷⁹
3. The U.S. Federal Reserve defines a model as a "quantitative method, system, or approach that applies statistical, economic, financial, or mathematical theories, techniques, and assumptions to process input data into quantitative estimates." Critically, the U.S. Federal Reserve explicitly exempts simple arithmetic calculations and deterministic rule-based processes where no statistical, economic, or financial theories underpin their design. The U.S. approach has matured over more than a decade of supervisory practice, with materiality thresholds refined through examination precedent rather than codified in the guidance itself.¹⁸⁰

Notably, the Financial Stability Board also encourages institutions to identify AI applications based on the materiality of risk posed rather than nomenclature.¹⁸¹

¹⁷⁸ Supervisory statement (SS1/23) on 'Model risk management principles for banks' (April 2023) issued by Prudential Regulation Authority of the Bank of England <<https://www.bankofengland.co.uk/-/media/boe/files/prudential-regulation/supervisory-statement/2026/liaf0126app5.pdf>>.

¹⁷⁹ Consultation Paper on Proposed Guidelines on Artificial Intelligence Risk Management for Financial Institutions dated 13 November 2025, issued by the Monetary Authority of Singapore <<https://www.mas.gov.sg/publications/consultations/2025/consultation-paper-on-guidelines-on-artificial-intelligence-risk-management>>.

¹⁸⁰ Supervisory Guidance on Model Risk Management (SR Letter 26-2) dated 17 April 2026 issued by the Board of Governors of the Federal Reserve System, Office of the Comptroller of the Currency (OCC), and Federal Deposit Insurance Corporation (FDIC) of the U.S <<https://www.federalreserve.gov/supervisionreg/srletters/SR2602a1.pdf>>.

¹⁸¹ Consultation paper on 'Sound Practices for Responsible Adoption of Artificial Intelligence (AI)' dated 10 June 2026 issued by the Financial Stability Board <<https://www.fsb.org/2026/06/sound-practices-for-responsible-adoption-of-artificial-intelligence-ai-consultation-report/>>.

9. Policy Recommendations

Regulating alternative data and AI usage

The next phase of regulation may look at establishing a comprehensive regulatory framework for alternative data & AI usage.

Alternative Data

One way that may be achieved is by amending the CIC Act and RBI's Digital Lending Directions to explicitly cover the use of alternative data. As aforementioned, the CIC Act's definition of "credit information" does not bring within its ambit alternative datasets, and this precludes credit information companies from developing the infrastructure and models they need to process such alternative data and provide more rounded credit scores. Similarly, the Digital Lending Directions do not discuss the nuances of alternative data in their entirety – while they deal with ensuring privacy of data collected by LSPs, they do not adequately safeguard the collection and ethical use of alternative data.

SROs can be considered to further deliberate on these issues. An SRO (comprised of LSPs, stakeholders from the AA system, and other entities involved in the credit risk assessment ecosystem) can focus on the efficient transmission of both financial and non-financial alternative data among holders and users of such data, while ensuring the valid consent of the relevant data principals. The SRO could consider instituting a framework and guidelines for what would be considered alternative data, to what extent such data can be used and how much weightage such alternative data can be given, in order to prevent instances of bias and discrimination that may arise from the misuse of alternative data. An SRO can play a pivotal role in ensuring the standardization and publication of the alternative datapoints used and the particulars of the models used to assess such alternative datapoints, in a move that would lead to more transparency and explainability in the credit scoring process.

AI Usage

In order to ensure effective compliance with the Draft MRM Guidance which mandates explainability and auditability in all

models deployed by REs, the definition of 'model' under the Draft MRM Guidance can be clarified and narrowed to ensure the channelised utilisation of the governance and resources of REs to the salient risks posed by AI models. Regulators may consider narrowing definition of 'model' to focus on tools that apply statistical, mathematical, economic, financial or ML-based techniques and present genuine model risk, while excluding simple, deterministic, heuristic, hard-coded business rules, and utility components from its scope, or alternatively, to expressly clarify the materiality threshold at which a computational tool would be treated as a 'model' for the purposes of the Draft MRM Guidance and its governance, inventory, validation, and manual review requirements.

Further, drawing inspiration from EU's GDPR Article 22, borrowers may be given the right to opt out of fully automated credit decisions and request human intervention. The OECD AI Recommendations,¹⁸² that emphasize transparency and fairness in AI, reinforce the need for human oversight in credit decision-making to prevent bias and discrimination in AI-driven lending can also be evaluated.

Additionally, the FREE-AI Report's recommendation for a graded liability framework warrants careful consideration. Under such a framework, liability for AI-driven credit decisions could be apportioned based on the degree of human oversight, the materiality of the decision, and the sophistication of the AI system employed. This would provide REs with regulatory certainty whilst incentivising the deployment of robust governance mechanisms. The establishment of a dedicated AI standing committee within each RE, as recommended by the FREE-AI Report, could serve as a focal point for AI governance, ensuring continuous monitoring of model performance, bias detection, and incident reporting.

The FREE-AI Report also recommends the establishment of a dedicated AI Standing Committee within each regulated entity, serving as the focal point for ongoing AI governance: monitoring model performance, managing bias detection, and overseeing incident reporting. Digital lenders with material

182 OECD (2019), Recommendation of the Council on Artificial Intelligence, OECD, Paris <<https://oecd.ai/en/assets/files/OECD-LEGAL-0449-en.pdf>> accessed 7 March 2025.



AI exposure should consider implementing this structure proactively, ahead of formal regulatory mandates.

Data Privacy Standards

The approach to regulating alternative data must align with **privacy-first principles**. Drawing from the U.S. FCRA and ECOA & EU's GDPR, and in furtherance of the RBI's Draft Data Governance Directions, India can examine whether to require explicit consumer consent before alternative data is used in credit decisions. The Draft Data Governance Directions' emphasis on data quality, classification, and "Single Source of Truth" arrangements provides a robust foundation for ensuring that alternative data used in credit scoring meets appropriate standards of accuracy, completeness, and relevance. REs should be encouraged to develop internal taxonomies for alternative data that distinguish between high-reliability sources (such as utility payment records and GST returns) and lower-reliability sources (such as social media activity), with commensurate weightage in credit scoring models.

Consumer Data Access Rights and Open Banking Principles

Regulatory frameworks in India should evaluate whether to move towards an open banking framework similar to the CFPB's Final Rule on Personal Financial Data Rights. Recommendations that may be considered are as under:

- Make available digital data in a machine-readable format;
- Introduce secure API-based access to data by consumers and authorized third parties instead of credential-sharing techniques like screen scraping, which pose significant security and fraud risks.
- Encourage lenders to use alternative data to reassess applicants initially denied credit based on traditional metrics. However, lenders must ensure compliance with fair lending laws, ensuring alternative data does not disproportionately disadvantage certain demographics;
- Mandate adverse action notifications, requiring lenders to inform borrowers about the reasons behind credit denials and offer recourse mechanisms.

In addition, the wider adoption of the AA framework for

alternative dataset sharing can be actively promoted. As discussed in *Section 6* of this paper, the AA framework's privacy-by-design approach, multi-language support, and granular consent mechanisms provide a model for ensuring meaningful borrower consent in the digital lending context. Policy interventions to expand the categories of financial information available through AAs, and to encourage integration of AA-based data sharing in credit underwriting workflows, would enhance both financial inclusion and consumer agency.

Fostering innovation through collaboration while ensuring compliance

India's regulatory sandbox ecosystem has emerged as a critical enabler of financial innovation, allowing fintech firms to experiment with novel digital credit models under regulatory oversight. Spearheaded by RBI and other financial regulators, sandboxes provide a controlled environment where fintech companies can test new technologies - such as alternative credit scoring, AI-driven lending, and decentralized finance - while ensuring that consumer protection, data security, and systemic stability remain uncompromised. In its medium-term strategy paper 'Utkarsh 2029', the RBI encourages and supports the use of digital and AI sandboxes 'to promote responsible innovation and mindful use of technology in the financial sector'.

This structured collaboration between regulators and fintech firms fosters a risk-mitigated innovation cycle, helping regulators understand emerging financial models and refine policies accordingly. By balancing regulatory flexibility with compliance requirements, sandboxes reduce time-to-market for disruptive solutions, particularly for digital lenders exploring non-traditional data sources for creditworthiness assessment. This is particularly significant for financial inclusion, as many underbanked and unbanked individuals in India lack conventional credit histories but can be assessed through alternative datasets such as mobile payments, utility bills, and social media behaviour.

India has emerged as a global leader in regulatory sandboxes. However, to strengthen the existing ecosystem of regulatory

sandboxes (to foster usage of AI and alternative data), the integration of open data standards for credit innovation may be considered.

By reinforcing the sandbox ecosystem through better regulatory coordination and structured data access, India can unlock the next wave of responsible digital credit innovation while safeguarding financial stability and consumer rights.

Emerging Trends - Integration of IoT and Blockchain for Credit Assessment

Encouraging IoT and Blockchain Adoption in Credit Assessment

The integration of IoT and blockchain technologies offers significant potential for enhancing credit assessment by providing real-time, granular data and ensuring transparency and security. IoT devices can monitor assets and activities, enabling lenders to make more informed decisions about creditworthiness. For instance, IoT sensors in agriculture can track crop health and yields, allowing for dynamic risk assessment and tailored lending terms. This real-time data can enable risk-adjusted lending – loans tailored to current conditions – enhancing efficiency and reducing the need for traditional collateral. IoT-driven monitoring of financed assets (e.g., vehicles with telematics or machinery with sensors) also improves security, as lenders can track asset usage and maintenance, detect anomalies, and intervene (with appropriate consent and safeguards) if needed to prevent loss.

To leverage these technologies effectively, the government and sectoral regulators should encourage more pilot projects integrating IoT and blockchain for credit assessment, ensuring regulatory oversight to safeguard consumer interests. Developing standards for secure data sharing and interoperability between IoT devices and blockchain platforms is crucial to facilitate seamless integration. Additionally, providing clear guidelines on the use of blockchain for credit data, and ensuring compliance with data localization and retention laws, is essential.

Enhancing Transparency and Security with Blockchain

Blockchain technology complements IoT by providing a tamper-proof, transparent ledger for credit-related data. Once IoT devices collect performance data or payment records, recording this information on a blockchain creates an immutable audit trail that all permitted parties can verify. This decentralized record-keeping boosts transparency by eliminating single points of failure and reducing reliance on any one institution's reporting. Such approaches are being explored globally, such as in the U.S., where blockchain is used to secure and verify asset ownership, enhancing trust in lending transactions.

Role of AI in Building Adaptive and Inclusive Credit Systems

Ensuring Transparency and Fairness in AI-Driven Decisions

To promote AI adoption responsibly, policymakers should encourage fintech platforms and banks to leverage AI for credit underwriting while ensuring that models are regularly updated to reflect changing socio-economic conditions. Mandating regular audits for algorithmic bias and requiring lenders to maintain diverse training datasets can be useful tools to prevent discrimination. Transparency and explainability in AI-driven credit decisions are also essential; lenders should disclose when AI is used and provide understandable explanations for outcomes.

Overhauling the Functioning of Credit Information Companies to Integrate AI and Alternate Datasets

Modernizing Credit Information Companies with AI and Alternative Data

CICs should consider integrating AI and alternative datasets to provide more comprehensive credit assessments. CICs traditionally rely on data from banks and credit institutions but need to expand beyond these traditional datasets to support the new digital credit paradigm. The RBI's vision for a Public Credit Registry aligns with this approach, aiming to



aggregate financial and non-financial information across sources into a unified borrower record. CICs should partner with utilities, telcos, fintech lenders, and government databases to incorporate new data streams, ensuring consumer consent and privacy protection. Broadening the definition of “credit information” under the CIC Act, to enable CICs to use alternative non-financial data, would be a necessary first step.

Integrating AI for Enhanced Risk Analytics

AI can help CICs analyse complex data patterns, providing rich risk analytics to lenders and reducing their burden in credit appraisal. Policymakers should update the CIC Act to explicitly allow CICs to access and share non-traditional data with appropriate safeguards, ensuring privacy and security standards are met. The RBI should provide guidance on using AI in CICs, setting standards for model explainability and

validation. In the U.S., Experian’s Boost program demonstrates how alternative data can be integrated into credit reports, enhancing financial inclusion by allowing consumers to add utility and telecom payment history to their credit profiles. Similarly, Indian CICs could leverage such models to improve credit access for underserved populations.

SRO-Led Standards for Alternative Data

SROs can play a pivotal role in developing industry-wide standards for alternative data usage in credit scoring. Such standards could address the classification of alternative data sources, appropriate weightage methodologies, and minimum data quality requirements. By developing these standards through industry consultation, SROs can ensure that regulations remain responsive to technological developments whilst maintaining consumer protection.



10. Conclusion

India's digital lending sector is at a critical juncture. The transformation of the past decade from microfinance roots through the rise of fintech platforms, the deployment of AI-driven credit models, and the construction of consent-based data infrastructure has been remarkable. Millions of borrowers who were invisible to the formal credit system now have access to credit. But progress has created new challenges: data privacy risks, algorithmic bias, consumer protection gaps, and the risk of over-indebtedness in a market still finding its regulatory footing.

Fintech platforms have fundamentally changed credit access by drawing on alternative data (mobile transactions, behavioural analytics, utility payments) to assess borrowers who lack formal credit histories. For gig workers, rural households, and small businesses, this represents genuine economic opportunity. It also demands a regulatory response commensurate with the risks: AI opacity, the scale of personal data in play, and the potential for technology to entrench rather than reduce financial exclusion.

The RBI has moved purposefully. The Credit Facilities Directions 2025 and the Responsible Business Conduct Directions 2025 establish transparency norms, prohibit predatory lending practices, and mandate direct loan disbursements. The Account Aggregator framework enables consent-based data sharing at scale. The June 2026 Draft Guidance on Model Risk Management is the most significant AI governance development for digital lenders and proposes board-level model risk frameworks, AI-specific controls (including kill switches, explainability standards, and bias testing), and full regulated-entity accountability for third-party AI models. The era of light-touch oversight of AI in lending is ending.

Certain additional measures can be considered. The CIC Act's definition of credit information does not extend to alternative data, creating regulatory ambiguity for a practice that is already widespread. AI governance is fragmented across MeitY, SEBI, and sectoral RBI guidance, without a unified framework. Consumer awareness of how AI-driven lending decisions are made, and what rights borrowers have to contest them, remains low. These are not peripheral concerns; they go to the fairness and legitimacy of the credit system.

1. *AI-Driven Credit Underwriting:* The growing reliance on AI

models raises acute concerns about fairness and transparency. Algorithms trained on biased datasets can perpetuate systemic inequalities, excluding creditworthy borrowers on the basis of demographic proxies rather than actual risk. The Draft MRM Guidance's requirements for explainability and bias testing are a necessary first step.

2. *Alternative Data Governance:* Alternative datasets hold real potential for improving credit access, but their unregulated use creates risks of privacy violations and discriminatory outcomes. A comprehensive governance framework covering what alternative data may be used, how it is weighted, and what consent is required is needed.
3. *Consumer Protection:* Strengthening disclosure norms, adverse action notice requirements, and grievance redressal mechanisms is essential to building and sustaining trust in digital lending platforms.

Cross-jurisdictional comparisons point to concrete solutions. The US requires adverse action notices so borrowers understand why they were denied credit. The EU mandates human oversight for automated credit decisions and classifies AI credit scoring as high-risk under the AI Act. India should draw on both as it develops its own governance architecture.

India's regulatory priorities for the period ahead are clear: regulation of alternative data; adoption of a comprehensive AI governance framework for digital lending that mandates explainability and bias testing; and strengthening of consumer rights including the right to understand and contest AI-driven credit decisions.

The AA framework and ULI have already laid the foundations for open banking in India. Regulators should build on this by mandating secure API-based data access, expanding the categories of financial information available through AAs, and requiring lenders to use alternative data to reconsider applicants initially declined on traditional metrics subject to fair lending safeguards.

India's approach to digital lending regulation must ultimately rest on four pillars: ethical AI deployment, standardised data governance, a well-resourced regulatory sandbox ecosystem, and



a strengthened SRO structure that translates regulatory intent into industry practice. These are not alternatives but are mutually reinforcing.

The path forward requires active collaboration. Regulators must set clear rules and enforce them. Fintech companies must design responsibly for both growth and for the borrowers their products serve.

India's digital lending ecosystem holds real promise. The infrastructure - UPI, Aadhaar, the Account Aggregator framework, the Unified Lending Interface is world-class. The regulatory framework is evolving rapidly. What is needed now is the institutional capacity to ensure that innovation serves inclusion. The digital lending ecosystem in India has the potential to grow into something worth exporting: a model for fair, transparent, technology-driven credit access at scale.

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Shilpa has advised several Indian and global companies on their fintech related investments, product design and entry strategies including Paypal, Razorpay, Whatsapp, Groww, Revolut, Paytm, American Express, Clix Capital, Bharat Pe, Mobikwik, Amazon, Flipkart, Phone Pe, PolicyBazaar, Slice, Bharti Airtel, Facebook, Zeta, One 97 (PayTM), Cred, Tata Sky, LendingKart, Advance AI, WeCash and Oxigen. She writes and comments regularly on FinTech related regulatory issues and has spoken at several Fintech conferences including the Mint Pivot or Perish FinTech Webinar, Global FinTech Fest organized by NPCI, FCC & PCI, VCCircle FinServ Summit, Legal Era GenNext Business & Law Conference, Mint FinTech Conclave, DLAI FinTech Summit, Financial Express Digital Currency Conclave. She has appeared on discussions hosted by the BBC India, Economic Times (Crypto TV), and the Business Standard, on cryptocurrency regulation. Shilpa has also spoken at the ET Tech – Rundown: Regulation Around Crypto and Axie Infinity & Blockchain Gaming hosted by Venture Intelligence on cryptocurrency regulation.

Shilpa supported **Microfinance Institutions Network** in their policy initiative with the RBI re: developing a regulatory framework for MFIs. She was part of the committee that advised the **Ministry of Finance** on the Factoring Act that was notified in 2012. Shilpa has worked with **USISPF** to present before the FinTech Steering Committee, MoF re: impact of data localization requirements in India. She worked with the **Data Governance Network** spearheaded by the IDFC Institute to

study data regulations in India and conduct a series of workshops for the Fintech community. She has conducted training sessions on Fintech law & policy at the **Forum of Indian Regulators**. Shilpa was part of a committee constituted by the **Payments Council of India** to submit recommendations to the RBI on KYC regulation. Shilpa has worked with **iSpirit** (a leading technology think tank) to draft a framework on shared KYC for credit platforms.

Shilpa regularly works with FACE (Fintech Association for Consumer Empowerment) and UFF.

Shilpa authored a paper in collaboration with National Law School, Bangalore to develop an asset tokenization regulatory framework for India.

Shilpa was recognized by **Asian Legal Business** as among **India's top FinTech lawyers**, and as among the **Top 5 FinTech Practitioners in India**, by **Chambers & Partners**. She was ranked as a **Band 1 FinTech lawyer** by Chambers & Partners in 2019-21 & 2023-24 and a **Leading Individual** by Legal 500 in 2024. She was on the **Economic Times 40 under 40 Women Ahead List**. She has received the Legal Era Women Lawyer of the Year. Shilpa was on the **Forbes India Legal Power List** as one of *India's Top 100 Lawyers*. She has been recognized as "Recommended" in the **Who's Who Legal: Fintech & Blockchain 2024 Report**.

Prior to joining the Firm, Shilpa worked with Davis Polk & Wardwell, New York.

Awards and Recognition

Shardul Amarchand Mangaldas & Co. (SAM), founded on a century of legal achievements, is one of India's leading full-service law firms with the ISO/IEC 27001:2022 certification - the latest global benchmark for Information Security Management Systems. The Firm's mission is to enable business by providing solutions as trusted advisers through excellence, responsiveness, innovation, and collaboration.

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