

# The Role of Artificial Intelligence in Financial Regulation and Compliance: Evidence from Indian Financial Institutions

Vertika Goswami<sup>1</sup>, Dr. Arpita Agarwal<sup>2\*</sup>

<sup>1</sup> Manipal University Jaipur, [0009-0005-0573-7217]

<sup>1</sup> Manipal University Jaipur, [0000-0002-3649-4386]

First Author: [vertika.goswami@jaipur.manipal.edu](mailto:vertika.goswami@jaipur.manipal.edu)

\*Corresponding Author: [arpita.agarwal@jaipur.manipal.edu](mailto:arpita.agarwal@jaipur.manipal.edu)

## Abstract

The study examines the transformative role of Artificial Intelligence in financial regulation and compliance within the Indian financial sector, set against the backdrop of the Reserve Bank of India's released Framework for Responsible and Ethical Enablement of Artificial Intelligence (FREE-AI). Through systematic analysis of regulatory developments, corporate implementations, and market data from 2024 to 2026, this paper investigates how Indian financial institutions including scheduled commercial banks, non-banking financial companies (NBFCs), and fintech firms are integrating AI into compliance workflows. The research reveals that Indian Reg Tech market is projected to grow at a CAGR of 30.58% from USD 628.31 million in FY2024 to USD 5.31 billion by FY2032, driven by regulatory complexity and digital transformation. However, this rapid integration occurs within a newly formalized regulatory framework: the RBI's FREE-AI framework, built on seven foundational principles ("Seven Sutras") and six strategic pillars balancing innovation enablement with risk mitigation. Drawing on case studies of Poonawalla Fincorp's five AI compliance tools, Hero Fin Corp's GenAI-powered privacy-first transformation, and Intellect Design Arena's enterprise-wide governed AI deployment, this paper proposes a contextually adapted research model for AI-enabled compliance architecture that aligns with Indian regulatory expectations. The findings indicate that while Indian institutions demonstrate innovation with Poonawalla Fincorp implementing 45 AI projects including Suspicious Transaction Reporting (STR) and Reg Intel tools successful implementation requires adherence to the FREE-AI framework's mandates for board-approved AI policies, explainable models, and robust governance structures.

**Keywords:** Artificial Intelligence, Financial Regulation, Compliance Technology, FREE-AI Framework, Reserve Bank of India, Reg Tech, NBFCs

## 1. Introduction

The Indian financial system stands at a historic crossroads where technological innovation intersects with proactive regulatory foresight. The Reserve Bank of India's (RBI) release of the Framework for Responsible and Ethical Enablement of Artificial Intelligence (FREE-AI) in August 2025 marks a watershed moment, positioning India among the first major economies to establish comprehensive AI governance guidelines for the financial sector. Unlike reactive regulatory approaches observed globally, the RBI's initiative is notably proactive, seeking to establish principles before widespread problems emerge.

The integration of AI into financial regulation and compliance globally termed Reg Tech has gained unprecedented momentum in India. Financial

institutions face mounting compliance costs amidst increasingly complex regulations spanning data protection (Digital Personal Data Protection Act, 2023), anti-money laundering (AML), and know-your-customer (KYC) requirements. Simultaneously, the explosion of digital transactions under the Digital India programme has created both opportunities and vulnerabilities, compelling institutions to adopt automated compliance solutions (Government of India, 2023).

The potential benefits are substantial. AI-enabled compliance systems can process vast quantities of structured and unstructured data in real-time from Aadhaar numbers and PAN details to transaction patterns identifying anomalies indicative of financial crime while adapting to emerging threats. Institutions like Poonawalla Fincorp have deployed 45 AI projects across HR, governance, and

compliance functions, including Suspicious Transaction Reporting (STR) systems that minimize false AML alerts and Reg Intel tools providing real-time compliance support (Arner et al., 2024). Hero Fin Corp has implemented Generative AI-powered PII detection and masking achieving 100% RBI compliance across thousands of documents daily.

However, the deployment of AI in regulated financial environments introduces challenges that the FREE-AI framework explicitly addresses. RBI Deputy Governor R. Rabi Sankar highlighted critical concerns: "The black box model of AI or the lack of explanation of AI decisions makes these models not transparent, making it difficult for regulators and auditors to understand how decisions are made (World Economic Forum, 2024). The absence of explainability, therefore, could constrain use of AI tools". The fundamental tension lies in what this paper identifies as the "explainability trilemma" the inherent trade-off between model accuracy, regulatory compliance requiring transparency, and operational efficiency (Sankar, 2025).

This paper addresses three primary research questions contextualized to India:

1. What is the current state of AI adoption in financial regulation and compliance across Indian institutional contexts banks, NBFCs, and fintech firms? (NASSCOM, 2025).
2. How does the RBI's FREE-AI framework reshape compliance expectations and governance requirements for regulated entities?
3. How can Indian financial institutions design and implement AI systems that satisfy both operational requirements and regulatory expectations articulated in the FREE-AI framework?

The significance of this research extends beyond academic interest. As India's financial system becomes increasingly digitized and interconnected, the effectiveness of regulatory oversight depends critically on the capabilities of AI systems deployed by both regulated entities and supervisory authorities. Understanding how to harness AI's potential while adhering to the "Seven Sutras" of the FREE-AI framework Trust, People First, Innovation over Restraint, Fairness and Equity, Accountability,

Understandable by Design, and Safety, Resilience, and Sustainability is essential for maintaining financial stability, protecting consumers, and preserving market integrity (International Monetary Fund, 2024).

This paper is structured as follows: Section 2 reviews the existing literature on AI in financial regulation with emphasis on Indian developments. Section 3 describes the methodological approach. Section 4 presents a proposed research model for AI-enabled compliance architecture contextualized to the FREE-AI framework. Section 5 discusses findings from Indian case studies and market analysis. Section 6 concludes with implications for practice and future research directions.

## 2. Review of Literature

### 2.1 The Evolution of Regulatory Technology in India

The application of technology to regulatory compliance in India has evolved through distinct phases, accelerated by the Digital India campaign and the sudden emergence of fintech startups. Traditional compliance systems relied on manual processes and rule-based engines that flagged transactions based on predefined thresholds. While straightforward, these systems suffered from high false-positive rates, inability to adapt to novel money laundering techniques, and limited capacity to process unstructured data sources particularly problematic in India's diverse linguistic and documentary landscape.

The market research indicates that India's Reg Tech sector is projected to witness a CAGR of 30.58% during FY2025-FY2032, growing from USD 628.31 million in FY2024 to USD 5,311.13 million by FY2032 (Reserve Bank of India, 2025). This explosive growth is driven by the synergy between regulatory, technological, and economic factors. The growing complexity of compliance requirements adherence to data protection laws, AML regulations, and KYC norms has driven demand for automated regulatory tools. Additionally, the rise in cybersecurity threats and data breaches calls for stringent data protection mechanisms, further heightening demand.

However, this growth trajectory experienced a temporary setback in 2025, with Indian Reg Tech funding halving year-over-year to USD 63.5 million, as investors prioritized smaller deals with average deal value dropping to USD 3.2 million. This reversal highlights a more challenging funding environment despite the long-term growth outlook, suggesting increasing caution among investors even as regulatory complexity mounts (RegTech Analyst, 2025).

## 2.2 AI Applications in Indian Financial Compliance

Contemporary literature and industry developments document a wide range of AI applications across the compliance lifecycle in Indian institutions. Poonawalla Fincorp's recent announcement of five new AI deployments exemplifies this trend: the Early Warning System (EWS) for workforce attrition forecasting, Travel Bot for automating travel logistics, Reg Intel for real-time compliance support, ER Governance Tool for employee relations, and AI-enabled Suspicious Transaction Reporting (STR) for minimizing false AML alerts (World Economic Forum, 2024). These tools represent a strategic foray into predictive AI models and automated surveillance, reinforcing the company's vision of becoming an "intelligence-first, governance-led financial institution".

In KYC applications, AI systems leverage natural language processing to extract relevant information from unstructured documents Aadhaar cards, PAN cards, utility bills, and corporate registration documents. Hero Fin Corp's implementation of Generative AI-powered PII detection and masking demonstrates the maturity of these applications. The solution, built using Nova Pro via Amazon Bedrock, automatically identifies and classifies PII/SPI elements such as Aadhaar numbers and PANs from both historic and newly ingested documents, then masks sensitive data while retaining only necessary portions (e.g., last four digits) in the backend database. This achieves 100% compliance with RBI guidelines mandating PII/SPI masking while eliminating manual effort across thousands of documents daily.

Transaction monitoring represents another mature application. Machine learning models trained on

historical investigation data can dramatically improve precision, reduce false positives while maintain or improving detection rates. Protectt.ai, an Indian mobile app cybersecurity and compliance platform, secured USD 8.8 million in Series A funding led by Bessemer Venture Partners, enabling the company to strengthen its AI-driven mobile security stack and build new AI-powered threat detection capabilities. The company currently covers more than 300 million smartphones, processes over 2 billion mobile app sessions monthly, and blocks around 200 million cyber threats and fraud incidents monthly, with widespread adoption across insurance companies, banks, NBFCs, fintech firms, and stock exchanges (Protectt.ai, 2025).

## 2.3 The RBI's FREE-AI Framework: A Paradigm Shift

The most significant development in India's AI regulatory landscape is the RBI's FREE-AI framework, released in August 2025 following the constitution of a committee in December 2024. The framework responds to the growing adoption of AI in banking, NBFCs, fintech, and insurance, alongside associated risks such as bias, opacity, cybersecurity vulnerabilities, and consumer harm.

The framework identifies seven foundational principles, termed the "Seven Sutras," for AI adoption in financial services:

1. **Trust is the Foundation:** Building and protecting public trust in AI systems
2. **People First:** Final decision-making should vest with humans; human safety, awareness, and interests protected during AI-customer interactions
3. **Innovation over Restraint:** Responsible innovation prioritized over cautionary restraint
4. **Fairness and Equity:** AI models should act in unbiased and non-discriminatory manner
5. **Accountability:** Entities deploying AI held accountable for AI actions regardless of autonomy permitted (European Commission, 2024).
6. **Understandable by Design:** AI models transparent in disclosures; entities deploying them must understand how models work (explainability)

7. **Safety, Resilience, and Sustainability:** AI models sustainable and resilient to physical, infrastructural, and cyber risks

These principles are operationalized through six strategic pillars balancing innovation enablement and risk mitigation:

#### **Innovation Enablement:**

- Infrastructure: Shared data and compute infrastructure; AI innovation sandbox
- Policy: Clear AI policy guidance and proportionate compliance
- Capacity: Training and skill development at board, management, and workforce levels

#### **Risk Mitigation:**

- Governance: Board-approved AI policies, clear accountability frameworks
- Protection: Strong consumer protection measures, transparency in AI decisions
- Assurance: Independent audits, cybersecurity resilience, incident reporting

The framework applies across the spectrum of regulated entities under RBI's jurisdiction, including Scheduled Commercial Banks, NBFCs, Payment System Operators, and fintech entities. Notably, the framework contemplates indirect extraterritorial reach offshore technology providers will be drawn into the compliance net as Indian financial institutions are expected to "flow down" RBI obligations through contractual arrangements.

## **2.4 Governance and Risk Management Challenges**

The effectiveness of AI in compliance depends critically on governance structures a principle the FREE-AI framework elevates to regulatory mandate. Each regulated entity must now adopt a board-approved AI governance policy setting out governance structures, defining risk appetite, and allocating responsibility across the AI lifecycle. This firmly places AI oversight on the agenda of directors, exposing them to accountability for lapses.

The framework also mandates expanded Model Risk Management, requiring product approval, audits, and validation mechanisms to include AI. Institutions must adopt stricter protocols around data

collection, use, retention, and deletion, with explicit safeguards on consent and quality. With the Digital Personal Data Protection Act, 2023 now in effect, poor datasets or unchecked bias are no longer merely operational weaknesses but major compliance risks.

The SEBI consultation paper on AI/ML governance, released June 20, 2025, similarly addresses ethical application of AI in Indian capital markets. However, as the NLS Forum analysis identifies, the framework leaves critical aspects grey, particularly accountability and compensatory mechanisms. The article proposes algorithmic insurance and risk-pooling mechanisms as potential solutions, drawing parallels with the Deposit Insurance and Credit Guarantee Corporation (DICGC) which provides insurance coverage up to ₹5 lakh per depositor per bank in case of bank failures. Such mechanisms could protect investors when AI systems fail, without attributing liability where no demonstrable misconduct exists (Securities and Exchange Board of India, 2025).

## **2.5 The Explainability Imperative**

A persistent theme across Indian regulatory discourse is the challenge of explainability. RBI Deputy Governor Sankar emphasized that AI models used for credit, underwriting, and customer service must be explainable, auditable, and free of discriminatory bias. The FREE-AI framework explicitly requires that AI-generated decisions be traceable to comprehensible, human logic.

This explainability requirement poses challenges in the Indian context, where customers hail from diverse linguistic and regional backgrounds. The FREE-AI Report notes that existing AI models are "western-centric" and largely based on English language, while Indian customers may not be proficient in English. Bespoke AI models need development for customers speaking other languages, though data scarcity in local languages remains a challenge despite government-led initiatives.

Intellect Design Arena's Purple Fabric platform, recently selected by a diversified Indian financial services group for multi-entity deployment, addresses these concerns through a "governance-first architecture and deterministic knowledge

framework". The platform includes embedded governance and audit controls, and tools to optimize large language model performance for speed, accuracy, and cost—responding to the emerging requirement that intelligence in regulated environments must be "governed, deterministic, and aligned to generating measurable business impact" (Intellect Design Arena, 2026).

## 2.6 Research Gaps

Despite growing literature and regulatory developments, significant gaps remain in understanding AI in Indian financial compliance. First, there is limited empirical research on the long-term effectiveness of AI systems in detecting financial crime specifically within Indian institutional contexts. Second, the interaction between multiple AI systems deployed by different institutions and potentially interacting in complex ways remains poorly understood, raising concerns about systemic risk in India's interconnected financial ecosystem. Third, the ethical implications of AI-driven compliance, including potential bias against marginalized communities and linguistic minorities, have received insufficient attention. Finally, the optimal balance between automation and human judgment in compliance functions, particularly given the FREE-AI framework's "People First" principle, remains contested with limited guidance for practitioners.

## 3. Methodology

This research adopts a multi-method approach designed to capture both the breadth of AI applications in Indian financial compliance and the depth of implementation challenges faced by practitioners.

### 3.1 Research Design

The study employs a mixed-methods design combining systematic analysis of regulatory documents, secondary analysis of industry and market data, and case study analysis of institutional implementations in India. This approach enables triangulation of findings across different data sources and enhances the validity and generalizability of conclusions within the Indian context.

### 3.2 Data Sources

Four primary data sources inform this research. First, regulatory documents including the RBI's FREE-AI Committee Report (August 2025), SEBI's consultation paper on AI/ML governance (June 2025), and related master directions provide the foundational regulatory framework.

Second, market analysis draws on Reg Tech Analyst's funding data for Indian Reg Tech firms (2024-2025) and Markets & Data's India Reg Tech Market Assessment projecting growth to FY2032.

Third, corporate case studies provide implementation evidence: Poonawalla Fincorp's five AI tool deployments (October 2025), Hero Fin Corp's GenAI-powered privacy-first transformation (September 2025), Intellect Design Arena's Purple Fabric platform mandate (February 2026), and Protectt.ai's funding and technology capabilities.

Fourth, industry perspectives from the Global Fintech Fest 2025, including RBI Deputy Governor R. Rabi Sankar's address on responsible AI, provide regulatory and industry stakeholder viewpoints.

### 3.3 Analytical Framework

Data analysis proceeds through three stages. First, descriptive analysis identifies patterns in AI adoption, applications, and governance across the Indian financial sector. Second, thematic analysis of regulatory documents and case studies identifies recurring themes and implementation challenges specific to the Indian context. Third, synthesis integrates findings to develop the proposed research model presented in Section 4, contextualized to the FREE-AI framework's requirements.

### 3.4 Limitations

This research has several limitations. The reliance on published case studies and market reports may underrepresent implementation challenges that institutions are reluctant to disclose publicly. The rapid pace of regulatory and technological change means that findings may require updating as the FREE-AI framework moves from advisory recommendations to binding master directions. The focus on regulated financial institutions may not fully capture developments in the startup fintech

ecosystem. Finally, while the RBI framework applies across India, regional variations in implementation capacity may exist between metropolitan centres and smaller cities.

#### 4. Proposed Research Model: AI-Enabled Compliance Architecture for Indian Financial Institutions

Based on the literature review, regulatory analysis, and empirical findings from Indian case studies, this section proposes a comprehensive research model

for AI-enabled financial compliance architecture contextualized to the RBI's FREE-AI framework. The model integrates technical, governance, and regulatory dimensions to provide a framework for both practitioners designing AI systems and researchers evaluating their effectiveness within the Indian regulatory environment.

##### 4.1 Model Components

The proposed model comprises four interconnected layers, as illustrated in Figure 1:

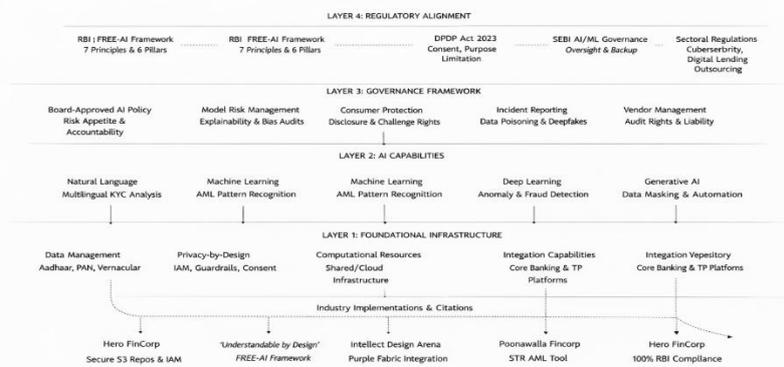


Figure 1: Four-Layer AI-Enabled Compliance Architecture for Indian Financial Institutions

##### 4.2 Design Principles Grounded in FREE-AI

The model embodies five design principles derived from the FREE-AI framework's "Seven Sutras" and strategic pillars:

**Principle 1: Trust-by-Design (Sutra 1).** Rather than treating regulatory requirements as constraints to be addressed after technical development, trust-building mechanisms should be embedded from the earliest stages of system design. This includes transparent disclosures about AI usage, explainable decision-making, and robust grievance redressal mechanisms.

**Principle 2: Proportionate Governance (Sutra 5).** Governance requirements should scale with the risk and materiality of AI applications, as envisioned in FREE-AI's graded approach to regulatory action. High-stakes applications such as credit underwriting or fraud detection warrant more intensive oversight than internal process automation with limited customer impact.

**Principle 3: Human-in-the-Loop (Sutra 2).** AI systems should support, not replace, human

judgment in compliance functions. The "People First" principle mandates that final decision-making vests with humans, with clear accountability for outcomes. This requires designing systems that enable effective human oversight rather than overwhelming humans with automated outputs.

**Principle 4: Explainability as Architecture (Sutra 6).** Explainability should be embedded in system architecture through design choices that enable transparency, rather than addressed through post-hoc explanation techniques. The "Understandable by Design" principle requires that AI-generated decisions be traceable to comprehensible, human logic. This includes maintaining audit trails, designing models that support interrogation tools (e.g., SHAP, LIME), and establishing clear chains of accountability.

**Principle 5: Adaptive Governance (Sutra 7).** Given the rapid evolution of both AI capabilities and regulatory requirements, governance frameworks must be designed for adaptation. The "Safety, Resilience, and Sustainability" principle requires monitoring for model drift, regular review of AI applications, processes for incorporating lessons



learned, and mechanisms for responding to regulatory changes.

### 4.3 Evaluation Metrics Aligned with Regulatory Expectations

The model proposes multi-dimensional evaluation metrics aligned with the FREE-AI framework's requirements:

Dimension	Metrics	FREE-AI Alignment
Accuracy	Model precision, recall, F1-score against validated ground truth	Trust, Safety
Fairness	Disparate impact analysis across demographic/language groups; bias audits	Fairness and Equity
Explainability	Model interpretability scores; audit trail completeness; user comprehension testing	Understandable by Design
Compliance	Regulatory examination findings; adherence to board-approved AI policy	Accountability
Consumer Protection	Grievance volume and resolution time; transparency disclosure compliance	People First
Resilience	Model drift monitoring; incident frequency and response time	Safety, Resilience

## 5. Findings and Discussion

### 5.1 Accelerating AI Adoption Amidst Regulatory Formalization

The research reveals rapid acceleration in AI adoption across Indian financial services, occurring concurrently with regulatory formalization through the FREE-AI framework. Poonawalla Fincorp's announcement of 45 AI projects in motion, including five new deployments across HR, governance, and compliance, exemplifies this trend. The company's AI-enabled Suspicious Transaction Reporting (STR) tool for minimizing false AML alerts and Reg Intel for real-time compliance support demonstrate the strategic importance placed on AI for regulatory functions.

The market size projections reinforce this finding: the Indian Reg Tech market is expected to grow from USD 628.31 million in FY2024 to USD 5.31 billion by FY2032 at a CAGR of 30.58%. This growth is driven by the synergy between regulatory complexity—adherence to data protection, AML, and KYC legislation—and technological advancement. The Digital India programme and explosion in digital platforms are compelling companies to embrace technology that facilitates effective compliance and risk management.

However, the funding data reveals a nuanced picture: Indian Reg Tech funding halved year-over-year in 2025 to USD 63.5 million, with average deal value dropping to USD 3.2 million as investors

prioritized smaller, more selective deals. This suggests that while the long-term market outlook remains strong, investors are exercising greater caution, possibly awaiting clarity on how the FREE-AI framework will be operationalized through binding master directions.

### 5.2 Demonstrated Efficiency Gains and Compliance Outcomes

The efficiency potential of AI in Indian compliance is substantial and empirically demonstrated. Hero Fin Corp's implementation of Generative AI-powered PII detection and masking achieved 100% RBI compliance across both historical and incoming datasets, eliminating manual effort through real-time, AI-driven data masking across thousands of documents daily. The solution, built using Nova Pro via Amazon Bedrock, ensures consistent and precise detection of sensitive information including Aadhaar numbers and PAN details, minimizing human error while enabling teams to focus on customer experiences.

Protectt.ai's technology demonstrates impact at scale: covering more than 300 million smartphones, processing over 2 billion mobile app sessions monthly, and blocking approximately 200 million cyber threats and fraud incidents monthly. This widespread adoption across insurance companies, banks, NBFCs, fintech firms, stock exchanges, and government platforms underscores AI's growing role in securing digital financial ecosystems.

Poonawalla Fincorp's Early Warning System (EWS) for workforce attrition forecasting represents application of predictive AI beyond traditional compliance functions, demonstrating how AI can enhance governance across operational domains. Managing Director & CEO Arvind Kapil emphasized that these solutions "enhance transparency, agility, and accountability while setting benchmarks for technology-led governance in the NBFC sector".

### 5.3 Governance Formalization Under FREE-AI

The most significant finding is the formalization of AI governance requirements through the FREE-AI framework. Unlike the previously fragmented approach where AI models operated largely unregulated due to absence of dedicated AI regulation, regulated entities now face clear expectations. Every regulated entity must now adopt a board-approved AI policy, establish governance structures and allocate responsibility across the AI lifecycle.

This formalization addresses the governance gaps observed in other jurisdictions. The framework's requirement for expanded Model Risk Management—including product approval, audits, and validation mechanisms for AI—elevates AI oversight to the same level as credit risk or cyber risk management. Institutions must now conduct AI impact assessments before launching new use cases, ensure models are explainable using interpretation tools, and disclose when consumers interact with AI systems.

Intellect Design Arena's Purple Fabric platform, selected after an eight-month evaluation process involving technical architecture reviews and business-level assessments, exemplifies the market response to these governance requirements. The platform's "governance-first architecture and deterministic knowledge framework" includes embedded governance and audit controls, responding to the emerging requirement that intelligence in regulated environments must be governed and deterministic.

### 5.4 The Explainability Challenge in Indian Context

The research confirms that explainability poses challenges in the Indian context. The FREE-AI Report explicitly notes that existing AI models are "western-centric" and largely based on English language, while Indian customers hail from diverse regions and may not be proficient in English. This linguistic diversity requires bespoke AI models for customers speaking other languages, though data scarcity in local languages remains a challenge despite government-led initiatives.

RBI Deputy Governor Sankar's address at the Global Fintech Fest 2025 emphasized that "the black box model of AI or the lack of explanation of AI decisions makes these models not transparent, making it difficult for regulators and auditors to understand how decisions are made". He highlighted that "it also becomes difficult to assign responsibility when an AI model makes a harmful or erroneous decision".

The "Five Ts of Responsible AI" articulated by Sankar—Trust, Transparency, Training, Technology, and Togetherness—provide a framework for addressing these challenges. Transparency reinforces clarity and explainability so that decisions can be understood, audited, and questioned. Togetherness envisions collaboration between regulator, industry, academia, and global partners committed to common goals.

### 5.5 Regulatory Fragmentation and Harmonization Challenges

While the RBI's FREE-AI framework represents significant progress, the research reveals challenges of regulatory fragmentation across India's financial regulators. SEBI's consultation paper on AI/ML governance, released in June 2025, addresses AI in capital markets but operates independently of the RBI framework. The NLS Forum analysis identifies gaps in SEBI's approach, particularly regarding accountability and compensatory mechanisms when AI systems fail.

The proposed solution of algorithmic insurance and risk-pooling mechanisms, drawing on existing Indian precedents like the Deposit Insurance and Credit Guarantee Corporation (DICGC) and

Investor Education and Protection Fund (IEPF), offers a potential path forward. Such mechanisms could provide financial backstops protecting investors when AI malfunctions occur, without attributing liability where no demonstrable misconduct exists. However, challenges remain in pricing algorithmic risk, defining "algorithmic malfunction," and preventing moral hazard.

Overlap with existing laws presents another challenge. Many FREE-AI obligations—fairness in decision-making, consent management, grievance redress intersect with the DPDP Act 2023 and Consumer Protection Act, 2019. Without explicit harmonization, regulated entities may navigate duplicative or conflicting compliance requirements.

## 5.6 Emerging Enterprise-Wide Architectures

The research documents emergence of enterprise-wide AI architectures designed for governed deployment. Intellect Design Arena's Purple Fabric platform, deployed across five entities within a diversified Indian financial group operating across consumer lending, insurance, payments, asset management, and wealth management, represents this trend. The platform enables operational intelligence, cross-functional collaboration, and enhanced governance across core financial workflows through a structured technology stack including unified enterprise knowledge layer, multi-agent digital automation capabilities, and embedded governance and audit controls.

This signals a broader shift in the Indian financial services sector: "AI must move beyond experimentation and become a structured enterprise capability". As regulators increasingly scrutinize AI use in decision-making, platforms emphasizing governance, transparency, and operational accountability are gaining traction.

## 5.7 Operational Burden and Proportionality Concerns

The research identifies concerns about operational burden, particularly for smaller regulated entities. The FREE-AI framework expects all regulated entities, regardless of size, to establish board-level AI oversight, incident reporting mechanisms, and structured lifecycle management of AI models. For smaller NBFCs and fintech firms, these obligations

may be disproportionately onerous, increasing compliance costs and potentially stifling innovation at the stage where agility is most critical.

The framework's graded approach to regulatory action offers some relief: full-scale regulatory actions may be avoided if errors occur despite compliance with prescribed safeguards, and entities should receive benefit of doubt, especially if they undertake immediate corrective measures. However, whether this graded approach will extend to compliance burden itself with smaller entities facing proportionate requirements remains unclear.

## 6. Conclusion

This research has examined the transformative role of Artificial Intelligence in financial regulation and compliance within the Indian financial sector, synthesizing findings from regulatory developments, corporate implementations, and market data following the release of the RBI's Framework for Responsible and Ethical Enablement of Artificial Intelligence (FREE-AI) in August 2025.

The evidence demonstrates that India stands at a unique inflection point: rapid AI adoption across financial institutions coincides with proactive regulatory foresight establishing comprehensive governance guidelines before widespread problems emerge. Institutions like Poonawalla Fincorp have deployed 45 AI projects across compliance functions; Hero Fin Corp has achieved 100% RBI compliance through GenAI-powered data masking; and the Reg Tech market is projected to reach USD 5.31 billion by 2032 at a 30.58% CAGR. These developments signal AI's substantial potential to enhance compliance effectiveness while reducing operational burden.

However, the research also reveals significant challenges that must be addressed. The FREE-AI framework's "Seven Sutras" particularly Trust, Accountability, and Understandable by Design establish clear expectations that AI models must be explainable, auditable, and free of discriminatory bias. This explainability requirement poses challenges in India's linguistically diverse context, where western-centric English-language models may inadequately serve customers from diverse regional backgrounds. The governance

formalization required board-approved AI policies, expanded Model Risk Management, incident reporting mechanisms represents a significant shift from previously unregulated AI deployment.

The proposed research model offers a framework for addressing these challenges through integrated consideration of foundational infrastructure, AI capabilities, governance frameworks, and regulatory alignment. By embedding the FREE-AI principles into system architecture, establishing proportionate governance scaled to risk, maintaining human oversight as mandated by the "People First" principle, designing for explainability, and enabling adaptive responses to evolving requirements, Indian financial institutions can harness AI's benefits while satisfying regulatory expectations.

Several implications for practice emerge. First, regulated entities should immediately adopt board-approved AI governance policies as recommended by the FREE-AI framework, establishing clear accountability structures. Second, institutions should invest in explainable AI methodologies and interpretation tools (e.g., SHAP, LIME) to satisfy the "Understandable by Design" requirement. Third, vendor management processes must be updated to flow down RBI obligations through contractual arrangements, ensuring third-party AI providers demonstrate compliance with Indian requirements. Fourth, institutions should build AI literacy across the organization—from board members to frontline staff—as mandated by the capacity-building pillar.

For regulators, the path forward requires converting the FREE-AI framework's recommendations into binding master directions with clear implementation timelines. Harmonization across financial regulators RBI, SEBI, IRDAI, PFRDA is essential to prevent fragmented compliance burdens. Consideration of proportionate requirements for smaller NBFCs and fintech firms would balance innovation with protection. Finally, exploration of algorithmic insurance and risk-pooling mechanisms, as proposed for SEBI-regulated entities, could provide financial backstops protecting consumers when AI failures occur.

Future research should address several critical questions. Longitudinal studies are needed to assess the long-term effectiveness of AI systems in

detecting financial crime within Indian institutional contexts. The systemic implications of multiple interacting AI systems across India's interconnected financial ecosystem require investigation, including potential amplification of risks. Ethical dimensions, including bias against marginalized communities and linguistic minorities in AI-driven compliance decisions, demand sustained attention particularly given the FREE-AI framework's Fairness and Equity principle. Finally, the optimal balance between automation and human judgment in compliance functions, given the "People First" mandate that final decision-making should vest with humans, remains contested and warrants further study.

The integration of AI into Indian financial regulation and compliance represents both an opportunity and a responsibility. If deployed thoughtfully, with robust governance frameworks aligned to the FREE-AI principles, AI can strengthen financial integrity, protect consumers, and support market confidence in India's rapidly digitizing economy. If deployed carelessly, without adequate attention to explainability, fairness, and accountability, AI may introduce new vulnerabilities and undermine the very trust on which financial systems are built. The RBI's proactive approach establishing guardrails before widespread problems emerge positions India to navigate this balance successfully, provided regulated entities embrace both the letter and spirit of the FREE-AI framework.

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