Assessing India's Legal and Institutional Readiness for FinTech-Enabled Regulatory Sandbox for Financial Inclusion: Advancing to SDG 9

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Abstract

Purpose:

The rapid expansion of financial technology (FinTech) has transformed financial services, creating new opportunities for innovation, financial inclusion, and economic growth while simultaneously posing regulatory and supervisory challenges. This study evaluates India's legal and institutional readiness for a FinTech-enabled Regulatory Sandbox (FRS) and examines its potential contribution to financial inclusion and Sustainable Development Goal 9 (Industry, Innovation, and Infrastructure).

Design/Methodology/Approach:

The study adopts a qualitative doctrinal legal research methodology based on secondary data. It analyzes statutory frameworks, regulatory policies, RBI guidelines, committee reports, and international standards. A comparative assessment of regulatory sandbox models in the United Kingdom, Singapore, Australia, and Baltic jurisdictions is undertaken using law-and- economics and law-and-technology perspectives.

Findings:

The study finds that India has emerged as a global leader in digital financial infrastructure through initiatives such as UPI, NPCI, PMJDY, Aadhaar-enabled services, and RBI-led innovation programs. However, the existing regulatory framework remains fragmented across multiple regulators, resulting in jurisdictional overlaps and regulatory uncertainty. While the RBI's Regulatory Sandbox has fostered innovation, the absence of a unified institutional framework limits its effectiveness. The findings indicate a need for greater interoperability, coordinated supervision, and technology-neutral governance to support sustainable finTech innovation and financial inclusion.

Practical Implications:

The paper recommends amendments to the Payment and Settlement Systems Act, 2007, expanding the definition of digital financial service providers, and establishing a Financial Sector Innovation Authority (FSIA) to administer a unified, interoperable regulatory sandbox

framework.

Originality/Value:

The study contributes to fintech governance scholarship by proposing an integrated institutional model that aligns innovation, regulation, financial inclusion, and SDG 9 objectives within the Indian context.

Keywords – Fintech regulatory Sandbox; Payment and Settlement System Act; Digital Unified financial Infrastructure; SDG 9; UK FCA; Financial Sector Innovation Authority'

JEL Classification – G28. O38. O16. K22

Introduction

In the early 1990's, industries were the primary beacon for India's Gross domestic product (GDP), contributing 26% from the manufacturing sector and 15% of the workforce; (Nagaraj, 2011) the LPG paradigm (Liberalisation Privatization and Globalization) opened the door for global association and companies therein. Banks and banking services became the bridge for industrial innovation and regulations, ending the long draconian interest of money lenders. It is the banking sector that enhances economic growth (Balasubramanian et al., 2021, pp. 69–81). Since 2008, the need for a payment system and a necessity for legislation was realized. National Payment Corporation of India (NPCI) was incorporated as an umbrella-like organization for all the payment system and their regulations; it has incorporated robust mechanisms for payment and settlement, be it a Unified Payment Interface (UPI) (Unified Lending Interface, 2025), Aadhar-enabled payment system (AePS), Bharat Interface for money (BHIM) and many products which paved the way for India's utmost financial and no cash-based payment system. The relentless work of NPCI to ensure the revolution through innovation in the payment system is a trailblazer for the credit gap and credit democracy in India (Reserve Bank of India, 2018).

Unified payment interface (UPI) is a digital innovation that curates a system where multiple bank accounts can be integrated into a mobile application that provides many banking features and seamless instant transactions. This system was developed in India and launched in 2016. The technology behind it is API (Application Programming Interface). This UPI system provides seamless payment, Aadhar-based links, and mobile-based apps. the means to achieve access to the financial system and the availability of digital products, enterprises, and others through technology is referred to as financial inclusion (Demirgüç-Kunt & Klapper, 2013) (Asli Demi & Klapper, 2013).

The regulatory source for Payment settlement in India is 'The Payment and Settlement System Act, 2007 (PSS ACT), which is incorporated by the Central Bank, i.e., RBI in India. The PSS Act and the Regulations provide the necessary statutory basis for India's central bank, the Reserve Bank of India (RBI), to regulate payment and settlement systems. BI has broad discretion in issuing any notification, circular, and guideline related to the fintech companies and their regulation, and the most recent adjudication was seen in the Paytm Payment Bank case, where RBI took a decision based on the investigation. There is a discussion on introducing a new board, which shall be called the Payment Regulatory Board (PRB) (RBI, 2025), which shall undertake all the relevant procedural and regulatory aspects for payment and settlement in India. The Central Board has been authorized to constitute a committee called the Board for Regulation and Supervision of Payment and Settlement System (BPSS), 2008. The BPSS regulation, 2008, and Payment and Settlement System Regulations 2008 is a regulatory framework with the PSS Act, 2007 (12th of August 2008). The Act has an objective to supervise and ensure net time payment settlement, with development of full stacks banking system, the PSS Act would play an important role for payment settlement and future development in the digital banking system. The oldest legislation also has provision encompassing for the full stack digital banks, section 22 under the Banking Regulation Act, 1949 (BR Act) has bestowed power with RBI to issue licenses to a banking company based on the requisites mentioned under the section. It is imperative to go step ahead for ensuring licensing (Niti Aayog, 2022) to digital banking and full stack banking systems. The policy aspect has also changed the horizon of the economy, shifting it more to the

financially inclusive side, where the destitute and rural households, including females who don't have access to banking and digital transfers, were put in the segment by ensuring transparency, subsidies, and direct transfers. This was also appended with trust in government schemes and officials who were made accountable for ensuring outreach. Pradhan Mantri Jan Dhan Yojana (PMJDY) which became revolutionary and embarked on a success story in financial inclusivity, PMJDY under the aegis of the National Mission for Financial Inclusion (NPCI, n.d,), has revolutionized the transfers through digital means and ensures financial inclusivity on account of 9 years of (in 2023) this scheme, the finance minister released a statement where around 56% of the Jan Dhan account holders are women and 67 % of accounts are in rural and semi-urban areas. This also supports the marginalized community and low-income groups. The objective itself was to promote inclusive and equitable growth. MSMEs (Micro Small Medium Enterprises) are significantly crucial in bridging the credit gap and financial inclusivity; the gross share of the MSME sector in the national GDP in the year 2019-2020 was 30% (Rastogi et al., 2021).

There have been growing scholarly studies in the field of financial inclusion and fintech (RBI, 2008). However, most of the literature remains focused on digital literacy and women's development while a systematic review of its impact on the Statutory and legislative reform remains asymmetric. Hence, to synthesize the under-explored areas and provide better support for Regulatory Sandbox, aiming to support the SDGs has been a paramount objective of the paper (Toshniwal, 2024).

Research Questions

RQ1: What legal and institutional framework can inform regulatory reform in India in comparison to mature jurisdictions?

RQ2: Does multi-model fragmented Indian regulatory framework influence the inclusive and innovative fintech approach under existing statutory frameworks?

RQ3: To what extent will the proposed Financial Sector Innovation Authority (FSIA) will operationalise the acceleration to digital financial inclusion in order to achieve SDG 9?

Research Objectives

Following are the objectives align with the research questions

- RO1 -To propose a coherent entity FSIA by deducing the existing literature paving the way for legislative reform in India's Fintech Regulatory Sandbox (RQ3).
- RO2 - To assess India's Digital financial Infrastructure and impact of policies on financial Inclusion (RQ2)
- RO3 - To compare legal and innovative framework of India's Fintech Regulatory Sandbox to the UK FCA, Singapore MAS, Australia, and Baltic states (RQ1)
- RO4 – To assess institutional readiness of India's multi-modal entity and interoperability compliance (RQ1)
- RO5 – To map the development of innovation and regulation under SDG 9 (RQ1;RQ2; RQ3)

The study has been systematically reviewed through comparative lenses for constructing institutional readiness and aligned sustenance for India. The reviewed fintech sandboxes include- the United Kingdom, Singapore, Australia, and the Baltic states. The unique approach and systematic research available on these jurisdictions offer the contemporary and emerging perspectives of longitudinal studies. Globally, the UK Financial Conduct Authority (FCA) was the first to adopt a Regulatory Sandbox and create a safe harbour for entities to test the financial products and services by waiving regulatory requirements. This UK-FCA model aligned with the philosophy of innovative service in the live market, and it has now moved to the charged Sandbox to comply with AI-tiered activities (Fahy, 2022).

Singapore is a pioneer, as under the aegis of the Monetary Authority of Singapore, it developed the most mature financial product and regulatory sandbox model. This has created a centralized mechanism by MAS through the establishment of a regulatory sandbox (MAS, 2016). On the contrary, in India, there is an active intersection of mandates among entities. Hence, Singapore's centralized,

institutionally based regulatory model serves as a benchmark for coordination across fragmented institutional bodies (MAS, 2016; Vijayagopal et al., 2024). The Australian enhanced regulatory sandbox is considered due to its design, which defines the legal framework and protects consumers (Rizzi et al., 2026) while coexisting with institutions like the Australian Securities and Investment Commission (ASIC). The Baltic states have a fragmented approach to adopting Fintech regulatory sandboxes, with Lithuania and Latvia having adopted an interoperable, tech-enabled regulatory sandbox for cross-border coordination and innovation. This experience seems very normative of India's digital infrastructure, which includes Aadhaar, the Unified Payments Interface, and the JAM Trinity. The effectiveness of the National Payment Corporation of India (NPCI) as an institutional reformist is evident in its strong integration and structured legislative flexibility (Razi-ur- Rahim et al., 2026). Digital unified financial infrastructure is a broader concept for institutional architects and a coordination-based governance model for regulatory and statutory practices. Singapore's demonstration of centralized institutional integration is closely associated with the proposed Financial Sector Innovation Authority (FSIA).

So, the comparative approach for this scholarly work has been addressed on the themes of institutional supervision, digital unification of financial infrastructure, and India's multi- model regulator financial ecosystem. Where the study enables Singapore as centralised institutional supervision, Australia as design regulatory sandbox, and Baltic states as digital technological infrastructure.

In the forthcoming section, we delve into the theoretical ground of fintech. The structure of the document is structured in following manner

1. Introduction
2. Analytical Framework
3. Method
4. Findings and Discussion
5. Future Avenue and Limitation
6. Conclusion and Suggestions

Additionally, Light Touch disclosure to Strong policy document has been appended in the document.

Analytical Framework

The framework has been systematically synthesised and structured into thematic domains aligned with the research objectives. The development of literature extends to financial inclusion, fintech, Regulatory Sandbox, SDGs, and Policy-oriented approaches (PMJDY, JAM Trinity, and Aadhar). The three thematic axes have been identified for drafting the paper (Chigwedere et al., 2022): Fintech Regulatory Sandbox Approaches in the US, the UK, Singapore, Australia, and the Baltic; Regulatory fragmentation in a multi-model approach; Financial inclusion through Digital Public Infrastructure mapped with SDG9. Followed by identification of the domain gap and the present paper contributions.

Fintech and Regulatory Sandbox Experiences in Baltic States, Singapore, Australia and UK

Fintech regulatory sandbox (FRSB) is an environment for experimentation where companies, start-ups, and other agencies are allowed to test their innovative products (Ringe & Rouf, 2020, p.605) and gather experiences through a simulated environment created for FinTech firms to ensure that innovation and services are generated without being constrained by legal requirements (Tsai et al., 2020; Buckley et al., 2020). After the successful landing and execution of the UK Fintech regulatory sandbox in 2016 (Johnson, 2023; Fahy, 2022), more than 60 countries by mid-2026 has established Fintech Regulatory Sandbox (FRSB) (Cornelli et al., 2024). Fintech has transformed the financial services method by including innovation and adopting to the governance model (Arner et al., 2018; Brummer, 2011).

The Baltic states, comprising Estonia, Latvia, and Lithuania, along with a few other European Union members, have also joined the Regulatory Sandbox. However, Estonia did not approach the Sandbox in a more pragmatically. Lithuania adopted the technology and solutions in 2018, and an innovation hub by Latvia in 2017 and a regulatory sandbox in 2021. Estonia has not been successful in implementing Sandbox but it has a Financial

Supervisory Authority (FSA). The aim of these sandboxes is to reduce the asymmetries between regulators and regulates (Fahy, 2022). FRSB improves the quality of technology and bulwark the interests of consumers (Ahern, 2019).

Singapore predominantly has a strong regulatory sandbox framework. Through its Payment Service Act 2019, its consolidated regulations relating to digital payments, payment settlement institutions, and banking (SEQUEIRA, J. M. (2018).). The institutional relevance of Singapore's regulatory sandbox through the Monetary Authority of Singapore (MAS) has integrated a centralised mechanism as the single regulator, and created sandbox express and sandbox plus for faster, innovative architectural support (MAS, 2022). Henceforth, the Paper presents Singapore MAS as a mature sandbox model, and in alignment with the suggestions of the manuscript.

Australia has institutionalised the sandbox experience through its 2020 framework for enhanced Fintech regulatory sandbox under the aegis of Australian Securities and Investment Commission (ASIC) (Bromber et al., 2017). Unlike Singapore and the United Kingdom, Australia adopted an exemption based on a regulatory sandbox administered by ASIC. These enhanced regulatory sandboxes, introduced in 2020, provide a licensing facility and a consumer protection obligation to ASIC through the sandbox complement innovation (Everhart, 2020; Khalid & Kunhibaba, 2020), serve as a hub, and establish a licensing obligation for a compliance pathway.

Regulatory Sandbox Experience in India

The regulatory framework provides a safe space for firms in the Fintech industry to navigate the innovation righteousness by identifying any legal issues (Reserve Bank of India, 2008), policy concerns, and supervisory framework. Testing new innovative products or services with regulatory or in the absence of regulatory relief is a regulatory sandbox (Reports- Reserve Bank of India, 2018). Therefore, a regulatory sandbox provides a safe space for experimenting, collecting data, introducing new technological solutions, and other business models by eliminating the gamut of regulations (Raudla et al., 2024). This ensures the fostering of more accountable, innovative solutions in the financial services, promotes efficiency, and benefits the consumers. The proposed technology shall include emerging technology and the co-existence of consumer benefits by testing new products in a live tech setup. In 2015, the United Kingdom started to integrate the Fintech sandbox for smoother adopting and testing of innovative technology, by 2016, the UK became the first country to adopt the Fintech regulatory Sandbox (FRSB), the Financial Conduct Authority (FCA) initiated and became a trailblazer for the regulatory sandbox, establishing 'Innovative Hub', (FAHY, 2021) ensuring consumer protections and regulatory ease. After theoretical studies, the first hackathon was in 2016. Many firms and start-ups applied to be a part; it is cost- efficient, early evaluative. The periphery consisted of a digital sandbox (Tabahriti, 2025) for pilot run in 2020-2021, Digital securities, a charged sandbox, and a supercharged sandbox, broadening the innovative pathway for early and high growth oversight with procedural flexibility (Bank of England & Financial Conduct Authority [BoE & FCA], 2024).

The scholarly literature has offered various methodologies to mitigate the risks, opportunities, and challenges among regulators and regulatees over information asymmetry emerging technologies pose. In order to promote exponential growth in Fintech (Raudla et al., 2024), it is necessary to promote the interests of consumers and economic development. Fin-tech solutions provide regulators to comprehend evolving technology and knowledge domains and associate themselves more with the conditional requirements of Fintech products. The question over the insufficiency of the existing legal and regulatory framework lies in that most of the regulatory framework for technology has been established prior to the emergence of the term 'Fin-tech', henceforth applying the rigorous rules to the existing development will defeat the righteous approach for encompassing Fin-tech applications (Ringe & Ruof, 2020). Firms, companies and start-ups require funding to facilitate new innovative products and offer new services, uncertainty in regulatory and legal aspects might result in hesitancy among the investors to

fund the companies on new products, owing to lessen down the regulatory and legal challenges, moreover, if the firms becomes a part of regulatory sandbox, this would serve as a signal to investors to invest and raise funds creating an ethics of regulatory and participatory framework (Goo & Heo, 2020). To implement the Financial Regulatory Sandboxes, the regulators face significant challenges, as conventionally the role of regulators has been to tighten the existing legal framework (Gromova & Ivanc, 2020). However, the FRSB model does not allow mere application; it expects the regulator to adopt a dynamic and resourceful role. The innovation hub requires the regulators to transcend the confines of the existing legal framework. It is a more active form of discourse with the participants and evolves its position from passive oversight to active collaboration in compliance (Ahern, 2021).

Digital Public Infrastructure and Indian Government Policies mapped with SDG 9

The idea of Digital India began with the promotion of digital public infrastructure (DPI), which is an interoperable digital governance model (Alonso et al., 2023; GOI, 2024). It represents the adoption of technology and response to governance and data-related issues (Ministry of Electronics and Information Technology, 2015). India's DPI is called India stack (Reserve Bank of India, 2024), which encompasses Account Aggregators (AA), Digi locker, Aadhaar, and Jan Dhan-Aadhaar-Mobile (JAM trinity) to make the system operable. Scalable financial inclusion replicates the core infrastructure of financial products, which is developed in a stack and created through an ecosystem of platform-based technology (NPCI, 2024). JAM Trinity is a financial inclusion policy designed to link the excluded population to inclusive finance (Arner et al., 2020). The policy maps with SDG 9.3 (United Nation, 2015) for rural financial inclusion. UPI is a key innovation that has revolutionised the payment infrastructure in India (Das, 2024) and is operated by the National Payments Council of India (NPCI) under the aegis of the RBI. However, the lack of a redressal mechanism for payment- related issues has raised concerns in UPI payments, and regulatory oversight is subject to scrutiny (Financial Stability Board, 2022). Instead of development in digital public infrastructure, most scholarly articles have evaluated DPI as less effective because of lack of literature on its comparative interoperability ecosystem. However, it is to be noted that the digital infrastructure in India is surging and is integrating with the technology and innovations (World Bank, 2024), but the fragmented multimode entities like Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI), Insurance Regulatory and Development Authority of India (IRDAI), Pension Fund Regulatory and Development Authority (PFRDA) and Ministry of Electronic and Information Technology (Meity) majorly faces regulatory overlap, uncertainties with regulations and fragmented governance model (Bromberg et al., 2017). This asymmetry seems to be the existing scholarly gap and policy framework issue (World Economic Forum, 2023).

Method

The methodology adopted for this research paper consists of qualitative comparative doctrinal legal analysis focusing on primary legal sources, statutory and regulatory aspect of Fintech and Banking system. The study identified RBI Circulars, Regulatory Sandbox framework, Jurisdictional fragmentation, policy aspects and inconsistencies in evaluating the global standard set by BASEL, FATF, or GFIN. To understand the comparative component better – the United Kingdom, Singapore and the Australian and Baltic state models of regulatory sandbox were assessed for mature policy and suggestions making. The analytical study combines law and economics, law and technology and fintech regulation in relation to financial inclusion through various committees' report, institutional guidelines and regulatory reports. The ultimate objective of the research paper is to evaluate India's current regulatory challenges and promote financial inclusion. The thematic analytical approach has been used in the Paper with relevance to SDG9 and the inclusion objective. The study is limited to publicly available reports and does not include any fieldwork or primary empirical testing.

Design

The literature review comprises academic works, policy papers, legislation, working papers, and guidelines from

the central banks and international institutions from 1980- to 2025. Sources were systematically accumulated from legal and academic databases primarily from Scopus and Wiley (through systematic literature review). Other databases were Brill, Springer, Routledge, Hein online, Oxford Academic, SSRN and Google Scholar. The study analysed the international institutions suggestions and legal framework for regulatory sandbox to objectively suggest Fintech and financial inclusion relationship and policy-based mechanisms for India's Fintech hub. The international institutions like - Basel, GFIN, FATF and countries like the United Kingdom, Singapore and Australia were selected because of their divergent legal traditions and frameworks related to regulatory sandbox.

Literature Search Strategy

Literatures were retrieved from the Scopus database and were used to synthesise the scholarly work using deductive thematic approach. Three clusters were identified in order to investigate the research question. Each cluster was mapped to a specific research question, and the literature was examined to identify the institutional regulatory framework and sandbox mechanisms. The synthesis of all these publications was coherent and conducted using policy-oriented approach. The comparative legal approach was undertaken to determine interoperability among the entities. The comparative jurisdiction - UK, Singapore, Australia, and the Baltic states was selected as a mature jurisdiction. Fintech Regulatory Sandboxes (FRSBs) were examined based on innovation and institutional orientation. The methodology for each RQ is;

RQ1 - Addressed using comparative analysis with mature jurisdictions and traced doctrinal data for future reforms.

RQ2- Investigated using fragmented entities and Multi-model overlapping and its impact on financial inclusion.

RQ3-Construction of evidentiary supportive evidence to substantiate the proposed Financial Sector Innovation Authority (FSIA) and map with SDG9.

Search String 1 in Scopus Database – (Keywords) "ALL (Regulatory Sandbox AND Baltic State OR SINGAPORE OR MAS OR UK FCA OR FINANCIAL CONDUCT AUTHORITY OR AUSTRALIA OR BALTIC STATE AND FINTECH OR SDG 9) N = 9 (No Exclusion)

Search String Scopus 2 (Keywords) - SUBJAREA (ARTS OR BUSI OR DECI OR ECON OR PSYC OR SOCI) TITLE-ABS (DIGITAL PUBLIC INFRASTRUCTURE) ALL (Digital Public Infrastructure OR DPI OR digital infrastructure OR public digital infrastructure OR digital public goods) AND (India OR Indian) AND (policy OR policies OR governance OR regulation OR legislation OR initiative OR framework OR strategy) AND (Sustainable Development Goal 9 OR SDG 9 OR Industry , Innovation AND Infrastructure OR Target 9.1 OR Target 9.3) (n-10)(No Exclusion)., However, Google Scholar was also searched to find relevant document

Findings and Discussions

Globally, transformative changes in technology-enabled (Ahern, 2019, 2021) innovation have significantly impacted the business models (Alaassar et al., 2020, 2021, 2023; Brown & Piroska, 2022; Cornelli et al., 2024) financial services and products due to the rise and expansion of the FinTech industry (Ciukaj & Folwarski, 2023; de koker et al., 2019). So, Regulators are expected to introduce the regulatory framework through by promoting innovation and mitigating potential risk (Omarova, 2020).

RQ1: What legal and institutional framework can inform regulatory reform in India in comparison to mature jurisdictions?

The Fintech Regulatory Sandbox (FRSB) has been widely accepted as an innovative mechanism to promote innovation and mitigate legal challenges for institutions. However, studies in these sandboxes are very limited due to a lack of empirical evidence and post- testing scrutiny to assess real-world effectiveness (Bromberg et al., 2017; Fahy L, 2022). The author has comparatively constructed (Jo. J, 2015) the doctrinal and policy-oriented approaches to analyse the Law & Economic perspective, but acknowledges its limited perceived impact (MAS, 2016). The study investigated the impact, year of establishment of Regulatory Sandbox (RS), and the institutional structure to consider the mature jurisdictions. United Kingdom (FCA),

Singapore (MAS), Australia (enhanced regulatory structure), and Baltic states innovation hub have been identified as mature jurisdictions (reasons outlined in the Introduction section). The constructive lesson for India's innovative hub is to be determined using normative deduction on existing literature. The comparative approach integrated the technology-enabled innovation into institutionally governed systems. From customer protection to testing hubs and financial governance to innovation hubs, the convergence of different jurisdictions could be assessed. The United Kingdom, through its regulatory sandbox focuses on fintech innovation and testing, while Singapore, through MAS is an adaptive Sandbox that supports flexibility and innovation. Australia is for Design-based solutions and the Baltic states have institutional readiness and capacity.

United Kingdom- Financial Conduct Authority (FCA) was the first to adopt Sandbox in 2016, and instead of providing a comprehensive waiver, the entity would waive based on evidence and requirements, as there is collaboration between Innovators and regulators. So, the co- existence of collaboration and practical learning strengthens (Authority, 2016).

Singapore- Monetary Authority of Singapore (MAS), being the sole institution for banking, sandbox, insurance, and other financial services nullifies the risk of fragmentation (as is persistent in Indian entity-based operations). So, MAS embedded the integration of experiment and innovation and simplified the regulatory accountability (Hamarat C, 2023).

Australia, through its "Enhanced Regulatory Sandbox" monitored by the Australian Securities and Investment Commission (ASIC), protects the licensing of innovators and businesses, so businesses need not comply with licensing requisites, while still being required to meet other compliance obligations related to consumer protection and disclosure requirements (Securities, 2017).

The Baltic states, in particular Lithuania and Latvia, have identified regulatory sandbox and digital public infrastructure as a single entity encompassing interoperable governance, an effective push toward digital infrastructure, and safeguard mechanisms for a robust regulatory framework for FRSB (Raudla R et al., 2026).

Table 1- Comparative legal principles from Mature Regulatory Sandbox

Legal Status	UK	Singapore	Australia	Baltic States	Relevance for India
Risk Based Regulation	✓	✓	✓	✓	Doctrine of Proportion
Experimentation	✓	✓	✓	✓	Controlled innovation test
Institutional operability	Moderat e	Very High Relevant for FSIA Proposal	Moderate	High	Multi-model fragmentation (SEBI, RBI, PFRDA, IRDAI) reduces
Digital Public Infrastructure	Medium	High	High	Very High	Financial Inclusion support
Time bound regulatory redressal	✓	✓	✓	✓	Eliminates regulatory Uncertainty

Table 1, focuses on each country's niche and advocates the adoption of a single, central entity for all forms of financial services by MAS, as fragmentation decreases, coordination strengthens, paving the way for India's own central mechanism - "Financial Services Authority of India" (FSAI), which is examined in response to RQ3. The primary focus shows that the Interoperability Regulatory Sandbox (IoRS) introduced by RBI in India would continue to operate independently and within the

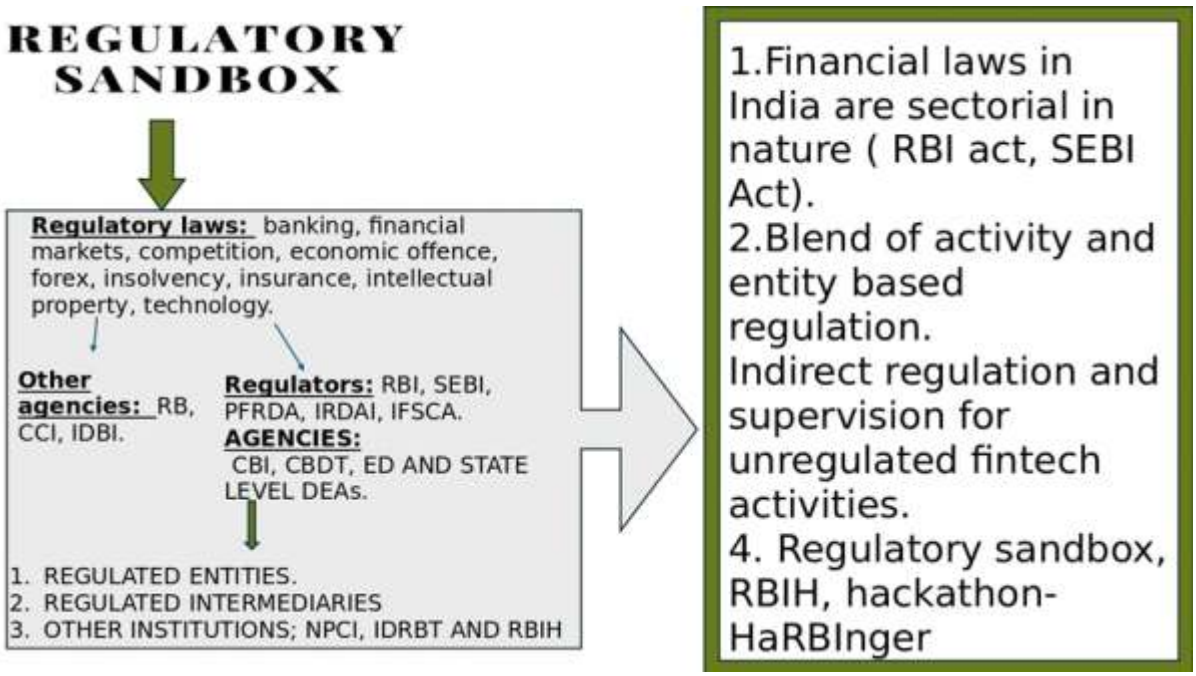
fragmented model, defeating the outcome of the comparative research. The success of Singapore (MAS) is attributed to institutional coordination rather than independent institution oversight (Everhart, 2020). Regulatory and legal certainty holds greater importance (Australian ERS study), and harmonising all financial services led to a few extended principles, suggesting the foundation of FRSB in India (Vijayagopal et al., 2024). The employment of institutional coordination to interoperability (Khalid & kunhibava, 2020) and institutional case-based explanations and legal certainty are a few of the emerging axes that could synthesised from the comparative normative deduction (Gromova & Ivanc, 2020).

RQ2: Does multi-model fragmented Indian regulatory framework influence the inclusive and innovative fintech approach under existing statutory frameworks?

Multiple supervisory authorities regulate the Indian FinTech system. Each of these organizations has its own interoperability regulatory sandbox. However, the nature of work overlaps, causing distress about the functionality and sector-based regulation of these agencies. Reserve Bank of India regulates monetary policy, banking institutions, and lending services through the Reserve Bank of India Act, 1934, and the Payment and Settlement Systems Act, 2007 (Reddy & Reddy, 2025; Verma & Goyal, 2025). Similarly, securities and tokenization are regulated by the Securities and Exchange Board of India (SEBI) under the SEBI Act, 1992. Data protection is regulated by the Ministry of Electronics and Information Technology through the Digital Personal Data Protection Act, 2023. NPCI regulates the Unified Payment Interface and all other online transactions. These institutions attempt to provide expertise in their domain, but the nature of FinTech is overlapping and requires coordination between the entities. So, the Singapore model of MAS acts as an explanatory and progressive model for Indian FinTech mandates. Henceforth, the construction and proposal of FSIA have been considered under RQ3 of the manuscript.

The RBI Inter-Regulatory Working Group (IRWG) on fintech (2016-2018) marks a pivotal milestone in architecting India's collaborative fintech growth. The working group submitted its report in 2018, (RBI , 2016) where institutes like the Securities and Exchange Board of India (SEBI), the Reserve Bank of India (RBI), the Pension Fund Regulatory and Development Authority (PFRDA), and the Insurance Regulatory and Development Authority of India (IRDAI) coordinated their efforts to assess the cross-sectoral regulatory implications and payments system. The report by WG emphasized that robo-advisory, Digital KYC, blockchain technology, and P2P lending are diluting traditional regulatory laws. Therefore, it is mandatory to shift from a unified legislation to an activity-based supervisory regulation, where entities are not necessarily focused. The recommendation would facilitate a regulatory sandbox as shown in the figure 1, as well as strong cybersecurity, ethical data governance, and entry norms for new intermediaries. The clearer the oversight, the stronger would be digital authentication, such as Aadhaar based authentication (Burman & Rai, 2020), e-KYC digital credit, and mitigating the risk of unregulated digital wallets. However, the need for inter-regulatory entity coordination will be paramount to prevent arbitrage. However, the recommendations by the working group could hinder innovation (Marjit & sharma 2021) and slow down the market at the very early and critical stage of fintech expansion. By 2025, it is reported that more than 99% of the Indian population has been enrolled in the Aadhaar project. (Khera, R. (2011) Collectively, UIDAI surveillance, NPCI digital infrastructure, and UPI technology broaden the digital public infrastructure stack. Scholars working in the area mainly have impelled Aadhaar data as a minimum, adhering to the principle of maximum utility. Since 2015, numerous empirical studies have revealed a significant transformation in financial inclusivity. The JAM Trinity-Jan Dhan Yojana, Aadhaar, and mobile-based payment have transcended the onboarding of financial transactions with the bank. Recently, in India's federal state of Bihar, more than 10 lakh women benefited from a sum of ? 10,000 each through direct benefit transfer DBT(Verma & Goel, 2025).

Fig 1. -Proposed Legal Regulatory Sandbox for FinTech Governance



As shown in Figure 1, the paper suggests incorporating multimodal regulatory entities under a single aegis or umbrella for light disclosure of regulatory measures that shall safeguard consumer interest without intervening to cease the innovation. The suggestion is akin to the WG by RBI, with an approach to establish a Fintech umbrella-like entity. specifically, Table 2 comprehends the policy lacunae and distinctions, as well as how multi entities in the Indian fintech ethos works, where it aligns and overlaps, and where the blueprint can be asserted (suggested in the conclusion section).

As can be seen from the table, the inherent problems are fragmentation and a lack of institutional coordination, which cause non-adherence to regulations and create regulatory friction among the entities. These SABI, innovation, sandbox, RBI regulatory sandbox, and IRDAI FinTech sandbox are independent, but their outcomes, methodologies, and approaches may require multi-model engagement and interoperable coordination among these sandboxes (Choudhary & Gupta, 2023). Table 2 shows the fragmentation and potential overlap of the same subject matter across different entities, which affects FinTech and leads to slower innovation, operational risk, compliance burdens, and other inconsistencies due to regulatory arbitrage (fs, n.d). This fragmentation results in multiple licensing pathways and sector- specific supervision, which are interconnected under the centralized edges of the proposed FSIA. The 'absence' of umbrella unified Fintech legislation in India has been in broad discussion amongst regulators and scholars in academia. The existing legal structure is fragmented across many authorities, and that has resulted in patchwork of legal guidelines and regulations in absentia of cohesive legislation. The Reserve Bank of India and scholars have adapted to address the sector as “soft law to digital governance” (Reserve Bank of India, FinTech Department [RBI], 2024, pp. 4–6) for regulating the sector and promoting innovation.

India's promising future in digital public infrastructure (DPI) serves as a torchbearer for integrating technology and innovation (Chaudhary, 2024). Legal certainty, and consequently the elimination of institutional complexity, may facilitate greater innovation and more certain digital governance. The India Stack, including Aadhaar, UPI, CBDC, DigiLocker, and others, requires institutional

governance and high integration with existing multi-model entities (Zreik & Iqbal, 2025). The critical finding of the existence of multiple regulators is mainlybased on the grounds of incapability and regulation for the subject matter, which are interconnected in the Fintech. Sector-specific operations and compliance may result in regulatory ambiguity and arbitrary governance (Sharma, 2025). So, the findings reflect the normative understanding of a centralized mechanism proposed by FSIA and the elimination of legal uncertainty through interoperable coordination under an umbrella entity.

Table 2 – Cumulative Existing of Multi-Regulator Framework

Institution	*Principle Statute*	*Fintech domain*	*Emerging Overlap*	*Entity Overlap*
RBI	*RBI Act, 1934; PSS Act, 2007*	*CBDC; Payment; Lending*	*Account Aggregrator; Payment Innovation*	*UIDAI &NPCI*
SEBI	*SEBI Act, 1992*	*Investment; token security*	*Digital Asset Crowd Funding*	*RBI & NPCI*
IRDAI	*IRDAI, 1999*	*Insurtech*	*Health data*	*UIDAI*
PFRDA	*PFRDA Act, 2013*	*Pension Tech*	*Digital Onboarding*	*UIDAI*
NPCI	*PSS Act, 2007*	*UPI, Imps, RuPay*	*Payment Infrastructure*	*RBI and SEBI*
UIDAI	*Aadhaar Act, 2026*	*Digital Entity*	*e-KYC; Authentication*	*RBI & NPCI*

RQ3: To what extent will the proposed Financial Sector Innovation Authority (FSIA) will operationalise the acceleration to digital financial inclusion in order to achieve SDG 9?

The study advocates for a centralized, activity-based governance body, proposed as the Financial Sector Innovation Authority (FSIA), which will act as a coordinating body for activity- and function-based approaches, harmonizing regulators and ensuring institutional coordination by integrating governance and legal certainty. The construction of the proposal has been identified as characteristic of mature Singaporean diction.

Singapore's fintech hub, through the Monetary Authority of Singapore (MAS), has established a single integrated regulator to exercise authority over digital services, fintech (Fuda K, 2025; Monetary Authority of Singapore, 2022)), and banking under the Payment Services Act, 2019, unlike India, which is multimodal, and the UK FCA, which is dual- model. Singapore fintech Regulatory Sandbox consolidates all activities under single institutional supervision (Law J, 2025), which is in consonance with the proposed Fintech service Innovation Authority (FSIA) in this paper. FSIA shall operationalise with digital financial infrastructure, leading to financial inclusion as financial services would become more reliable and aligned with the regulatory governance of Digital Public Infrastructure (DPI). FSIA, being a function-based institute, would serve as a single regulatory sandbox, ensure DPI governance, establish an innovation and research unit, a supervisory intelligence unit, and adjudicate policy harmonization by jointly holding licensing coordination. These are all idealized through comparative study and the construction of institutional and fragmented entities that are underdeveloped in India's FinTech ecosystem (Reserve Bank of India, 2024).

Table 3 – Constructing SDG mapping with Proposed FSIA functions and DPI initiatives

FSIA Function	SDG Mapped	Outcome	Digital Public Infrastructure	Government Policy	Contributions
Unified	9.1	Integrated	Aadhaar	Digital India &	Digital
Sandbox		Innovation		Aadhaar Act	Identity
					Repository
P2P	9.3	Accessible	PMJDY and JAM	Financial	Inclusive
		to All	Trinity	Inclusion	Banking
Unified	9.3	Start-Up	UPI	NPCI	Digital
Licensing		India			Payment
					Service
Innovation	9.1 &	Research	India Stack	Meity	Innovation,
Hub	9.3				Licensing and
					Interoperable
					Innovation
DPI	9.1	Digital	Digi Locker	Digital India	Digital
Governance		Infrastructur			Governance
		e			

Source – Researcher Extensive review on all government policies and initiatives

The United Nations Sustainable Development Goals (UNSDG) serve as the outcome map for the proposed FSIA, in coordination with India's Digital Public Infrastructure. As reflected in Table 3, each function of FSIA is mapped to a specific SDG under SDG9 (Rajaiah J et al., 2022), reflecting its contributions to advancing technology, strong, resilient Digital public infrastructure, digital pooling and connectivity, interoperability, and a research- and innovation-oriented approach. The demonstration of each function is evidence of the rapid progress of India Stack in becoming a sustainable fintech hub. Accordingly, the proposed FSIA also conceptualizes legal certainty through comparative regulatory principles and a unified institutional map aligned with SDG9.

Fig 2- Flow chart of Comparative to proposed FSIA



Future Research Direction and Limitations

The study acknowledges several limitations on the grounds of a lack of empirical data; a comparative study was not undertaken by excluding emerging global governance frameworks, such as the European Union (MiCA Act), Hong Kong, the United Arab Emirates, and Brazil. Where these economies and jurisdictions are financially stable and growing, future scholarship shall integrate more empirical validation of the proposed FSIA qualitative survey and interview, which could be a feasible method for understanding the literature on centralized coordination in India. However, the scholarship has integrated artificial intelligence and embedded finance into the digital public infrastructure (Deloitte U.S, 2024). However, a significant investigation into their outcomes, using empirical indicators that measure the efficiency of SDG goals, should be undertaken.

So, the author acknowledges the future roadmap in Regtech, legal governance, and institutional Readiness in India (Omarova, 2020). At the same time, suggesting researchers go for the Delphi method, econometrics, significant comparative legal analysis of developed economies, and a case study. This would shift regulation from sector-specific to activity- based governance (EY, 2022). Such research would facilitate innovation and create legal certainty in an inclusive and interoperable Fintech ecosystem.

Conclusion

The inadequate unification of regulatory authority has resulted in the prevailing dispersal of regulatory functions and overlapping power, which further creates structural inconsistencies, leading to a fragmented approach to regulatory bodies. So, a collective and unified concrete mechanism is required for the regulatory sandbox. India is the beacon for FinTech products and services around the globe. However, it requires a more coherent and grounded Fintech regulatory sandbox (FRS), which can be an imperative to foster an innovative financial ethos that is commensurate with the global guidelines and standards. The successful operation of the Australian Securities and Investment Commission, the sandbox, and the Monetary Authority of Singapore could substantiate this suggestion. Notably, both are characterized by sensitivity to consumer risk and an organized sandbox approach, a persuasive licensing method, and are circumscribed by a light approach to regulation, fostering innovation. The existing administered regulatory sandbox in India, conceptualized by the Reserve Bank of India, requires delineation among other players, including the RBI, SEBI, IRDAI, PFRDA, NITI Aayog, and other ancillary bodies (as visualized in Figure 1). This would create harmony among the nation's expert bodies and provide a niche for attaining specified objectives, such as financial inclusion, as outlined in the research paper. As suggested in the working group discussion paper. The mechanism for fintech start-ups, such as mobile networks, could be a light-touch disclosure framework, which would enable the business to flourish and safeguard consumer interests (Werth et al., 2023). Consolidating all supervisory authorities into a regulatory sandbox would clarify regulatory conundrums and serve as a trailblazer to competent, discerning Fintech governance, achieved through innovation in India.

Legislative Policy Suggestions

- The legal taxonomy requires amendment to the current Payment and Settlement Systems Act, 2007. The insertion of a definition clause for a digital financial service provider, which could encompass digital banks, payment intermediaries, mobile wallets, and virtual asset service providers, shall form a coherent part of the definition. This would ensure the regulatory competency of the Reserve Bank of India by mandating regulation for standardizing third-party technology and integrating payment infrastructure. The definition under section 2(I) of the act defines a payment system. It could also be broadened to include clearance houses, which would, in turn, unify the regulatory bodies.
- The necessary legislative reform shall be incorporated by establishing a Financial Service Innovative Authority (FSIA), which can be vested with the regulatory competency to formulate and administer a regulatory sandbox (RS) and substantiate innovative guidelines across the major supervisory bodies in India.

The FSIA shall have the authority to coordinate, provide guidelines, and, crucially, develop interoperability in the digital infrastructure. It can play a crucial role, serving as an anchor for technology, neutral governance, and coherence—India's FinTech ethos.

The research paper suggests the same recommendation of the working group (RBI, Working Group, 2018) that the financial regulator must take a variable approach in designing the disclosure requirement, which could be structured in three segment light, touch approach, moderate touch approach and full-fledged regulation and that shall be dependent on the nature of business of the financial entity and the risk associated with it.The above four suggestions are preliminary and based on the synthesis of doctrinal analysis and secondary data experiences from regulatory sandboxes in other countries, and are derived primarily from literature reviews, institutional policies, and reforms. The multimodal regulators like SEBI, IFSCA, RBI, PFRDA do have domains and creates overlap due to governance model and jurisdictional mechanism. The Inter operable Regulatory sandbox (IoRS) exists as a common window to facilitate the financial system and provide single window clearance for the innovation and testing hybrid products. This substantiates the need for FSIA as the key body to focus on governance a jurisdictional uncertainty. The suggested reformations and proposed amendment requirements may 'influence' the stakeholders to align with a coherent and future-oriented payment ethos. However, it aligns with SDG 9 (Innovation and Industry) and promotes the utmost goal of financial inclusion, one of the principles of a socialist state.

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