A Conceptual Framework for Understanding Open Banking: A Financial Innovation Approach

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ABSTRACT

The global banking industry is experiencing a fundamental transformation driven by digitalisation, regulatory reforms, and rising customer expectations, with open banking emerging as one of the most significant innovations in this transition. Open banking redefines traditional banking by enabling secure, consent-based sharing of customer financial data with authorised third-party providers through standardized application programming interfaces (APIs). Despite its rapid diffusion across jurisdictions, existing research on open banking remains fragmented and often limited by narrow, country-specific or functional perspectives. Addressing this gap, the present study conceptualises open banking as a form of financial innovation shaped by the interaction of regulation, technology, business-model transformation, and stakeholder trust. Drawing on an extensive review of global and India-specific literature, the paper synthesises key theoretical and empirical insights to develop a comprehensive conceptual framework for understanding open banking. The proposed framework positions regulation as the foundational enabler of trust, highlights customer consent as the central operational mechanism, and illustrates how secure data flows between banks and third-party providers generate innovation, competition, and financial inclusion. By portraying open banking as a cyclical, trust-based ecosystem rather than a standalone technological intervention, the study contributes to stronger theoretical grounding in the literature. The framework offers valuable implications for researchers, policymakers, and practitioners seeking to design, evaluate, or implement open banking initiatives across diverse economic contexts.

Keywords:- Open Banking, Conceptual Framework, Financial Innovation**.**

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I. INTRODUCTION

The banking industry worldwide is undergoing a profound transformation, driven by digital technologies, evolving customer expectations, and regulatory reforms. Among the most significant developments in this landscape is Open Banking (OB), a paradigm shift that reconceives banks not merely as standalone custodians of deposits and lenders, but as platforms enabling secure and consent-based data sharing with third-party providers. At its core, open banking empowers customers to share their banking and financial data with authorised external entities, providing them with the right and technical means to do so. This enables the development

of innovative services, enhances competition, and deepens financial inclusion. Araluze& Plaza (2022).

Originally introduced in the UK in 2015 through regulatory impetus, open banking has since permeated many jurisdictions across Europe, Asia, the Americas and beyond Araluze& Plaza (2022) and Carriere-Swallow *et al.* (2021).Its diffusion reflects growing global recognition that traditional banking's "closed–system" architecture, where each financial institution hoards customers' data, often stifles innovation, locks clients into a single bank, and limits opportunities for tailored financial services.Ramdani et al. (2020) and World Bank (2022). By contrast, open banking seeks to break data silos: through standardized Application Programming Interfaces (APIs), banks can securely transmit account balances, transaction history, and other data — with customer permission — to authorized third-party providers such as fintech firms, payment companies, or financial advisers. Frei (2023).

From a theoretical standpoint, open banking represents a form of financial innovation, combining technological, regulatory and business-model transformations. According to a comprehensive bibliometric study of over 280 articles on the topic, the concept of open banking is driven by four interlinked forces: (1) business-model change, (2) client-data sharing, (3) the entry of technological companies (e.g. fintechs), and (4) regulation. Ramdani et al. (2020). These forces converge to convert traditional banks from closed, product-centric institutions into open, service-oriented platforms, thereby enabling a more competitive, efficient, and user-centric financial ecosystem. Colangelo &Khandelwal (2025), Akyildirim et al. (2025) and Wolska (2025).

In practice, open banking has unlocked a range of innovative applications: aggregated dashboards showing all of a customer's accounts across banks, budgeting tools, personalized credit scoring, rapid loan underwriting, seamless payment initiation, and comparative marketplaces for financial products. Hope (2021). For businesses and corporate clients, open banking can streamline treasury management by granting real-time visibility over multiple accounts, aiding cash flow forecasting and liquidity management. Ramdani et al. (2020).

Despite its promise, open banking is not free from challenges. Data sharing introduces legitimate concerns around privacy, consent management, data security, and fair use. Critics warn of potential misuse of transaction-level data — especially when combined with machine learning algorithms — which may lead to unintended consequences such as discriminatory profiling or financial exclusion of vulnerable groups. Frei (2023) and Andreeva (2025). Additionally, given

the multiplicity of regulatory regimes worldwide, the standards for data interoperability, security protocols, and consent infrastructure vary significantly across countries, posing difficulties for a universal conceptualization of open banking. World Bank (2022) and CCAF (2024).

Given these dynamics, open banking emerges as an important subject of academic inquiry — yet as several scholars point out, it remains under-conceptualized. While practical implementations proliferate, theoretical grounding is often weak or inconsistent: many studies adopt idiosyncratic definitions based on narrow functional or country-specific understandings. Araluze& Plaza (2022), Wolska (2025) and Colangelo & Khandelwal (2025). There is a pressing need for a robust conceptual framework that captures the multidimensional nature of open banking — its technological infrastructure, regulatory underpinnings, business-model transformation, stakeholder interactions, and societal implications.

This paper seeks to fill that gap. By systematically synthesizing existing literature and regulatory practices, the study proposes a comprehensive conceptual framework to understand open banking as a financial innovation. Through this framework, we aim to elucidate the core components, underlying mechanisms, and expected outcomes — thereby offering scholars, policymakers, and practitioners a clearer lens to examine, implement, or research open banking across contexts. In doing so, the paper also highlights challenges and provides a structured basis for future empirical investigations.

II. LITERATURE REVIEW

Open banking has emerged as a transformative paradigm in financial services, broadly defined as the secure, consented sharing of bank customer data with authorized third parties via standardized APIs. De Araluze and Plaza (2022) note that open banking's core drivers include business model change, client data sharing, fintech integration, and enabling regulation. This data-sharing regime is often regulatory-mandated (e.g., PSD2 in the EU, the UK Open Banking Standard) but also facilitated by market-led digital infrastructures such as India's India Stack (Carrière-Swallow et al., 2021). Torshin (2025) emphasizes that open banking's API-driven model "enables secure data sharing" between banks and fintechs, promoting competition, improving customer experience, and spurring personalized product innovation. Likewise, Casolaro et al. (2025) systematically review open banking studies and report that its adoption is associated with increased competition, innovation, and access to financial services (for both firms and consumers), while also raising concerns over data privacy and consumer protection.

In India, for example, the use of bank accounts reportedly grew from 35% of adults in 2011 to 80% in 2017 under this inclusive, platform-driven strategy, illustrating how open-banking architectures can expand financial access. Carrière-Swallow et al. (2021) find that the India Stack approach—an extensive public infrastructure of interoperable APIs—has "implemented open banking principles of competition and contestability through interoperability and data sharing."

A key theme in the literature is that open banking fosters financial innovation by enabling fintech entry and novel business models. Babina et al. (2024) provide strong empirical evidence: using international data on 49 countries with open-banking regimes, they find that opening data sharing "spurs fintech entry" and dramatically expands consumer access to both credit and advisory services. Similarly, Liu et al. (2024) characterize open banking as a central outcome of inclusive fintech: they argue that open banking "makes financial services more accessible to long-tail customers" and creates "new growth opportunities to banks by widening customer acquisition channels," thus reshaping banking business models and facilitating innovation. In China, for example, open banking ties fintech partnerships to improved bank performance through enhanced lending and reduced costs.

At the technological level, APIs are the backbone of this transformation. Veldurthi (2025) describes the rise of the "API economy," where APIs are "fundamental building blocks" that allow seamless integration among banks, fintech startups, and other businesses. The technical literature emphasizes that APIs and open finance platforms (including Banking-as-a-Service and embedded finance models) create the digital infrastructure for innovation. For example, advanced analytics and machine learning can be applied to transaction data exposed via APIs to create more personalized products (Torshin, 2025; Babina et al., 2024). The literature also notes that open banking lowers barriers for non-bank entrants: fintechs and even big techs can plug into banks' data via APIs, facilitating new venture creation. Babina et al. (2024) in fact link open banking to a rise in fintech investment – they find that jurisdictions with broader data-sharing rules see more venture-capital activity in financial innovation.

Open banking has been propelled by regulatory reforms worldwide, and the literature highlights how different approaches affect outcomes. In the EU and UK, reforms like PSD2 and the CMA's Open Banking mandate have legally required banks to expose customer-initiated data to third parties, fundamentally altering market structure. Corbet et al. (2024) argue that open banking's adoption must be understood "as both a regulatory framework and a technological innovation," with country-by-country variation in rules shaping market responses. For instance, strict consent

frameworks and API standards (as in Europe's PSD2) provide robust consumer control but have also introduced complexity. Casolaro et al. (2025) report that regulatory-driven open banking (e.g., PSD2, Australia's CDR) tends to boost institutional competition but also raises debates around data security and compliance. He et al. (2023) model the policy goal of open banking in credit markets, showing that data-sharing rules can level the playing field between incumbent banks and agile fintechs, potentially intensifying competition. However, they also caution that if fintechs gain too much information advantage, competition could paradoxically decrease and leave some borrowers worse off.

By contrast, India's experience has been largely market-led with a focus on inclusion. Carrière-Swallow et al. (2021) describe India's India Stack as a public digital infrastructure (APIs for identity, payments, and consent) that implements open-banking principles in a decentralized way. This platform-first, government-enabled approach encourages any regulated payment or lending entity to build on shared rails, rather than imposing top-down data mandates. As a result, India has rapidly expanded digital banking even without formal open banking laws: interoperable systems like UPI (payments) and the RBI's Account Aggregator framework (formalizing consented data sharing for lending) illustrate the country's "technology-driven, platform-first" ethos. The IMF study notes that by bringing "a diverse range of banks and non-banks together under a common infrastructure," India's model has potentially facilitated financial inclusion through massive growth in low-value digital transactions.

Open banking fundamentally shifts power towards consumers by giving them control of their financial data. Studies emphasize that trust and perceived value are critical for adoption. Araluze and Plaza (2023) extend the Technology Acceptance Model (TAM) to open banking and find that "initial trust" and social influence are among the strongest predictors of a client's intention to use open banking services. Similarly, Sivathanu (2019) studies Indian consumers' readiness to use open banking and finds that customer "optimism" about technology and "innovativeness" significantly raise perceived usefulness and value of open banking. Conversely, feelings of insecurity about data (privacy fears) negatively influence perceived usefulness of open banking. Thus, across contexts, research suggests that customer empowerment through data control is effective only if accompanied by trust-building and clear consumer value.

This trust-based ecosystem operates through a structured data flow. Customers, as data owners, grant consent to banks (data holders) to share their information. Banks then transmit this data securely via standardized APIs to Third-Party Providers (TPPs), including fintechs and digital

service firms. These TPPs, in turn, create value-added services like personal finance apps, credit scoring tools, or loan comparison platforms. Veldurthi (2025) calls this the "API-first financial experience," where users can access and manage multi-bank services in real-time. Such data-driven services improve user convenience, increase financial literacy, and widen access to formal credit, especially for underserved populations.

Furthermore, this entire cycle enhances competition. Babina et al. (2024) show that open banking leads to more fintech entry, diversified offerings, and pricing pressure on incumbents. Fang and Zhu (2023) find that in BRICS countries, open banking policies have shifted consumer lending from traditional banks toward agile fintech platforms. However, He et al. (2023) warn that if data-sharing policies are poorly designed, fintechs may "cherry-pick" high-quality customers, potentially undermining fairness or financial stability.

One of the most cited outcomes of open banking is financial inclusion. By lowering onboarding costs and enabling data-driven underwriting, open banking allows financial service providers to reach unbanked or thin-file individuals. Carrière-Swallow et al. (2021) and Liu et al. (2024) document that inclusion gains are most pronounced in jurisdictions with strong infrastructure (India) or deep fintech ecosystems (China). Preziuso et al. (2023) argue that PSD2 and similar policies should be explicitly designed to support underserved groups, not just competition. As such, open banking is widely seen as a bridge to democratized finance, particularly when integrated with identity platforms, public data-sharing standards, and digital consent systems.

In summary, the literature overwhelmingly supports the structure of open banking as a layered ecosystem: starting with regulation, enabling trust through consent, facilitating data movement via APIs, catalyzing innovation through TPPs, and delivering outcomes such as improved customer experience, competition, and inclusion. These elements are tightly interlinked, forming the foundation for a robust conceptual framework that visualizes open banking as a cycle of secure data-sharing, innovation, and empowerment.

III. CONCEPTUAL FRAMEWORK

The conceptual framework of open banking is constructed on a multi-layered foundation where regulation, trust, consent, data flows, and innovation interconnect to transform traditional financial services into a customer-driven, digitally empowered ecosystem. At its core, open banking is the secure and consented sharing of financial data by banks (data holders) with authorized third-party providers (TPPs) through standardized APIs. This system is governed and

legitimized by a robust regulatory infrastructure—such as India's Account Aggregator (AA) framework overseen by the Reserve Bank of India (RBI), or the European Union's PSD2 directive—which establishes the legal and operational foundations for interoperability, security, and data portability (Carrière-Swallow et al., 2021). These regulatory regimes not only ensure technical consistency but also provide legal assurances to participants, defining roles, licensing conditions, and compliance responsibilities. However, regulation alone does not suffice to operationalize open banking. Embedded within this legal foundation is the indispensable layer of trust. Trust is the cornerstone that connects regulatory design with consumer engagement. It is built through a combination of legal protections, consent mechanisms, and institutional accountability that assure customers their financial data will be used securely, ethically, and only with their explicit permission (Araluze& Plaza, 2022). This trust framework is sustained by robust cybersecurity protocols, transparent communication, and clear mechanisms for revoking consent, thereby reducing the psychological and operational barriers for users to participate.

Customers, in this model, are not passive data sources but empowered stakeholders who own and control access to their financial information. Their role is central—they initiate data-sharing by granting informed consent to their respective banks. This consent must be explicit, revocable, and purpose-specific, enabling a dynamic system where control remains with the individual (Sivathanu, 2019). Once consent is given, banks serve as secure data custodians. Traditionally siloed institutions, banks in the open banking framework are legally required to share user-authorized data through secure APIs with licensed third-party providers. Their role is technical and fiduciary, ensuring data is transmitted accurately, securely, and in real time. The use of APIs, often mandated by regulators, provides standardization, scalability, and interoperability, making it possible for different financial entities to connect, innovate, and serve the customer efficiently (Torshin, 2025; Veldurthi, 2025). This structured data flow marks a fundamental departure from traditional banking, which confined user data within institutional boundaries and discouraged customer mobility.

With secure access to this financial data, third-party providers (TPPs) enter the scene as catalysts of innovation. These providers may include fintech startups, credit platforms, insurance aggregators, personal finance apps, or even larger tech companies that offer financial products. Their primary function is to transform raw financial data into customized, accessible, and high-value services for consumers. By analyzing transaction histories, account behavior, income flows, and spending patterns, TPPs can design products such as personalized budgeting tools, credit

scoring algorithms for thin-file customers, real-time loan comparison platforms, automated investment portfolios, and small-ticket insurance products tailored to user behavior (Liu et al., 2024; Babina et al., 2024). This transformation of data into services represents the most visible manifestation of financial innovation within the open banking framework. Importantly, these value-added services return to the customer, completing the innovation cycle. Users now experience more personalized financial management, increased access to competitive products, and a significantly improved digital interface for engaging with their money. The result is a notable enhancement in customer satisfaction, financial literacy, and product suitability. Moreover, by simplifying access to financial products—especially for those previously excluded from formal banking—open banking begins to bridge the financial inclusion gap. Individuals without credit histories, minimal documentation, or residing in underserved regions can now access credit or insurance based on alternative data, such as cash flow patterns or mobile payment behavior (Fang & Zhu, 2023).

This data-sharing and service creation cycle also fosters market-wide outcomes that go beyond the individual level. Increased competition is one of the major benefits observed in countries with mature open banking ecosystems. With barriers to entry lowered, fintechs and other non-bank entities can challenge incumbents by offering more agile and tailored services. This compels traditional banks to enhance their own digital capabilities, revise legacy processes, and invest in innovation. The net effect is a more dynamic and responsive financial services sector where consumers have more choices, better pricing, and improved service quality (Casolaro et al., 2025). Furthermore, the ability to compare financial products transparently across providers empowers consumers to make better-informed decisions, further leveling the playing field. However, as many scholars argue, this competitive advantage must be balanced with data protection and systemic stability. Poorly designed data-sharing protocols can inadvertently give TPPs the ability to cherry-pick high-value customers, leaving traditional banks to serve riskier segments, potentially destabilizing credit markets (He et al., 2023). Therefore, the regulatory framework must not only mandate access but also monitor equitable outcomes, ensuring that open banking does not lead to new forms of exclusion or monopolization.

Another key element of this conceptual model is the cyclical feedback loop it creates. As customers benefit from innovative services and competitive pricing, their satisfaction and trust in the system grow. This trust reinforces their willingness to grant consent for future services, which in turn fuels further innovation by TPPs. The system becomes self-sustaining: regulation

facilitates trust, trust enables consent, consent drives data flow, data fuels innovation, and innovation enhances customer outcomes, leading back to stronger trust (Araluze& Plaza, 2023). This loop makes open banking not just a technical framework but a dynamic ecosystem where consumers, banks, fintechs, and regulators interact in a mutually reinforcing cycle. In countries like India, where the open banking framework is integrated with other public digital infrastructure such as Aadhaar (digital ID), UPI (real-time payments), and DigiLocker (document storage), the synergy creates a comprehensive financial inclusion pathway that is both scalable and secure. By blending digital identity, real-time consent architecture, and interoperable APIs, India's model illustrates how open banking can be used as a public-good digital infrastructure rather than solely a market-driven compliance tool (Mehta, 2023; Garg et al., 2022).

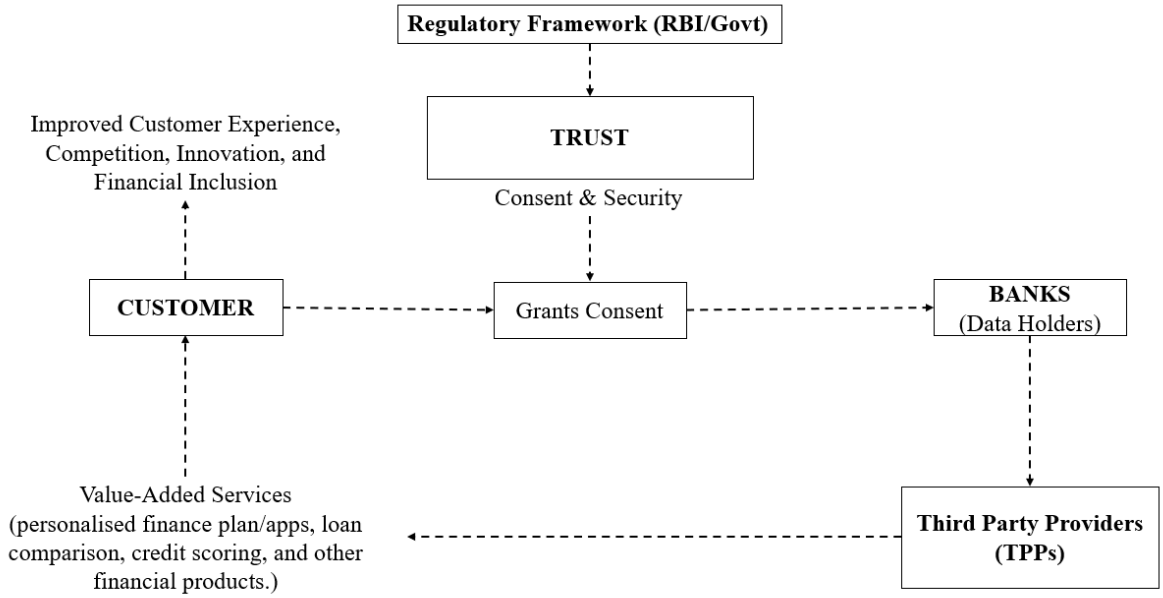

Figure 1: Conceptual Framework for Understanding Open Banking

The conceptual framework of open banking illustrates a tightly interlinked system in which regulation, trust, customer agency, institutional responsibility, technological infrastructure, and market innovation work together to reshape the financial landscape. It envisions a transition from closed, institution-centric banking to an open, customer-centric financial ecosystem driven by consent and enabled by secure data exchange. Through this model, open banking becomes a powerful lever for expanding financial access, improving customer experience, enhancing market competition, and enabling sustainable digital innovation across both developed and developing economies. The framework serves as a guide for policymakers, researchers, and industry leaders

seeking to understand not just how open banking works, but how its individual components interact to generate systemic value.

IV. CONCLUSION

The conceptual framework presented in this study encapsulates open banking as a structured, trust-centric, and customer-driven financial ecosystem enabled by regulation and digital infrastructure. By positioning the regulatory framework (RBI/Government) at the apex, the model clearly establishes that open banking is not an unregulated market phenomenon but a legally anchored system that governs data sharing, security standards, and stakeholder accountability. Regulation nurtures trust, which emerges as the pivotal connective element linking institutional design with customer participation. Without this foundation of trust—reinforced through robust consent mechanisms and cybersecurity safeguards—the open banking ecosystem cannot function effectively.

The framework further highlights the centrality of the customer as the owner and controller of financial data. Customer consent acts as the operational trigger that activates data flows between banks, as data holders, and third-party providers (TPPs) as innovators. This consent-driven data exchange enables banks to transition from closed custodians of information to secure platforms facilitating interoperability. In turn, TPPs leverage shared data to create value-added financial services, including personalised financial planning tools, credit assessment models, and product comparison platforms.

Importantly, the model demonstrates the cyclical nature of open banking outcomes. The delivery of innovative, efficient, and inclusive financial services enhances customer experience, competition, and financial inclusion, which in turn reinforces trust in the system. This feedback loop ensures the sustainability of open banking as a dynamic ecosystem rather than a one-time regulatory intervention. Overall, the conceptual framework provides a coherent and integrative lens to understand how regulation, trust, technology, and stakeholder interaction collectively drive the transformative potential of open banking.

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