Beyond Adoption: FinTech Assimilation, Bank Digitalization, and Value Creation in Financial Intermediation

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Conflict of Interest

The authors declare that there exists no conflict of interest associated with this research. The research was conducted independently and no personal, professional, or financial relationship influence the research.

Abstract

FinTech has emerged as the catalyst of innovation and operational efficiency across sectors, positioning banks at the forefront of this digital revolution. Unlike BigTech and platform firms, incumbent banks must adopt these technologies while navigating regulatory compliances, infrastructure, and legal systems. Although global FinTech investment has substantially increased, performance across banks varies. This gap cannot be addressed by adoption-based explanation alone as most banks have adopted. We attempt to answer this by analyzing which factors determine FinTech adoption in banks and how FinTech is translated into measurable value. We follow a conceptual development approach drawing on IS adoption literature, grounded on six theoretical traditions and by integrating and extending technology-organization-environment in a four-stage adoption process. We argue that FinTech creates bank value not through adoption per se, but via assimilation, integration, and by the process how digital capabilities are infused into banks' core operations.

Keywords: FinTech, Adoption, Post-adoption, Technology Diffusion, Banking, Technology-Organization-Environment

1. Introduction

Digitalization is transforming the perspective of financial services, with financial technologies (FinTech), at the helm, driving innovation and designing new possibilities for consumers and businesses. Non-intermediated, peer to peer lending (P2P), cryptocurrencies, robo advising, IoT, blockchain, and smart contracts are some of the integral components of a growing landscape of technology driven, tailored financial services (Thakor, 2020) (Chen *et al.,* 2019). These financial innovations not only integrate customer experiences with new products, new service, new functionality, but also augments experience with refinements in the existing functionality (Gomber *et al.,* 2018).

"Fintech" is the fusion of two terms, "financial" and "technologies" (Alt *et al.,* 2018). FinTech's origin as (Arner *et al.,* 2015) highlights can be traced back to the 1990s when the term was used for the first time. It was then referred to the "Financial Services Technology Consortium" a project started by Citigroup to provide technology corporation efforts. FinTech however grew rapidly since the global financial crisis of 2008 (Thomas, 2021) (Bellardini *et al.*, 2022). (Consumers International 2017) illustrates the evolution of FinTech in three stages. Wave 1 (1866 to late 1960s) is marked by the laying of the first transatlantic cable, the telegraph, and the introduction of credit cards. This period marks the first financial globalisation. Wave 2 (1960s to 2008) is characterized by the onset of electronic payments and clearing system, ATMs, SWIFT, and online banking. This era was highly dominated by the traditional regulated financial services industry. The global financial crisis weakened trust in the traditional financial system triggering towards Wave 3 of FinTech. Wave 3 (2008 to 2019) saw the rise of disruptive technologies and new entrants in the financial services industry. We characterized Wave 4 (2020 to Present) of FinTech (see Figure 1) with the rise of digital finance platforms, advent of embedded finance, and autonomous intelligence. Wave 4 transition is not merely technical but organizational.

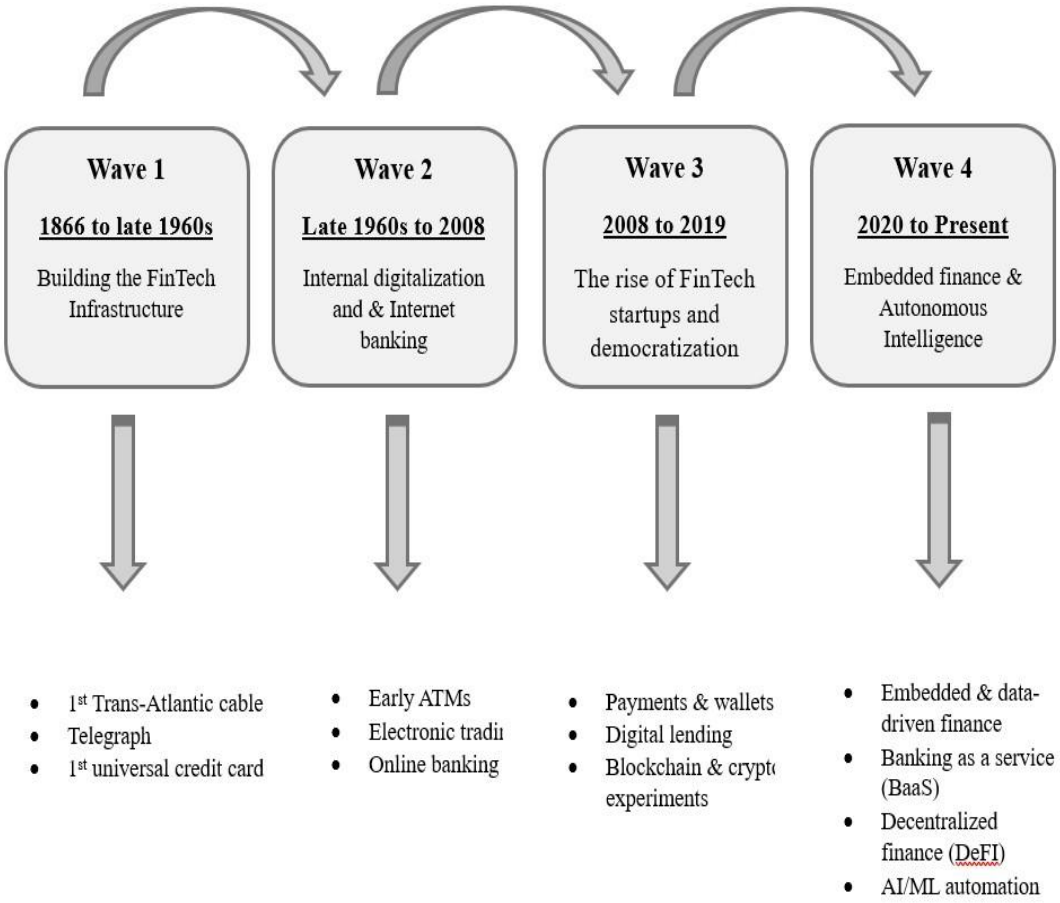


Figure 1: FinTech waves: Evolution from infrastructure to autonomous intelligence.

Note(s): Adopted from (Consumers International 2017) and extended by authors.

1.1 FinTech adoption in banks

Banks occupy a unique position in economy and their relationship with FinTech remains fundamentally distant from other technology adopting organizations. The investment and external funding in FinTech have surged globally reaching $95.6 billion (KPMG International, 2025) however, the investment across banks remain strikingly uneven. As principal institutions of financial intermediation, banks perform numerous functions. In tandem with screening borrowers and allocating credit, banks are also responsible for processing payments and mitigating risks. (Philippon, 2015) reveals the driving force for the popularity of FinTech is that although information technology has lowered the cost of goods and services, the cost of financial intermediation has not fallen for the past century and has remained roughly around 2% in the US for over 130 years (Thakor, 2020). This finding carries considerable importance for banks, which continues to persist being the core institutions for financial intermediation. In

banks screening, identification, monitoring are integrated in “production functions” where FinTech intends to provide affordable intermediation. Consequently, the primary assurance of FinTech constitutes the revelation of reducing costs of financial services and ensuring welfare. However, banks are among the constraint adopters as they work under prudential frameworks like Banking Regulation Act, 1949, Basel III and IV capital requirements, anti-money laundering agreements, and customer protection mandates. This makes FinTech adoption complex and substantial than in other sectors. Further, banks must preserve customer relationships built on trust, and long term-commitment. FinTech can strengthen these relationships when it is meaningfully integrated, however may weaken when digital change is shallow or poorly implemented. Thus, it becomes crucial to comprehend when and how banks derive value from FinTech necessitating towards its own framework.

The review of the existing literature helped us identify numerous gaps. The first gap is identified as perspective gap. FinTech literature is scattered with limited theoretical grounding (Cai, 2018) to explain adoption variations and value generation. Second, nevertheless, a disproportionate share of the FinTech literature have been devoted to understanding FinTech from the consumer point of view or is centered around factors impacting consumer’s adoption decision (Roh *et al.,* 2024) (Abdul-Rahim *et al.,* 2022) (Okat *et al.,* 2025) leaving bank specific institutional studies unexplored. Third, negligible studies provide empirical evidence that directly measures FinTech adoption in banks. (Bian *et al.,* 2024) argues that a significant proportion of the existing literature on FinTech has mirrored the most apparent third-wave of FinTech evolution by emphasizing on innovations P2P lending, crypto assets, in contrast the digital advancement and FinTech adoption on traditional financial institutions are underexamined. This is partly due to data availability gap and partly because of measurement challenges. Fourth, (Bian *et al.,* 2024) conceded that “it may take time” for banks to adopt new technologies and to analyze how the adoption influence operations and impact performance in still underexplored. This lines up with the concept of post-adoption usage which stresses that assimilation does not merely occur with adoption, it relies on measured integration of it into daily banking operations. Fifth, although extant literature has progressively studied and analyzed the market value of FinTech innovations (Chen *et al.,* 2019), theory led empirical evidence on how FinTech is integrated into daily banking processes and how it derives value remains limited.

The paper addresses the gap in the existing literature by framing the integrated conceptual framework and positioning post-adoptive use as a crucial mediator by which FinTech adoption converts into bank value creation. The contribution of the paper is threefold. First, we provide the integrated FinTech adoption framework by assimilating technology-organization-environment-human factors, institutional theory with dynamic capabilities. Second, it emphasizes post-adoptive use as a crucial mediator between adoption and performance, framing adoption in a four-stage adoption process. Third, it provides the empirical roadmap that integrates empirical model targeting FinTech adoption, post adoptive use, and bank value creation.

The remainder of the paper is structured in as follows. Section 2 provides the theoretical development approach. Section 3 delivers an institutional, capability, and governance outlook that drives bank specific antecedents of FinTech adoption. The subsequent Section 4 presents the conceptual framework and propositions. Section 5 provides the implications, followed by future research direction, and conclusion and limitations in Section 6 and Section 7.

2. Methodology

We follow the conceptual development approach to build the theorical architecture whereby bank FinTech adoption and value creation can be systematically understood and analyzed. We select the literature based on theoretical relevance following (Jaakkola, 2020), whereby the primary contribution is building an integrated theoretical framework, measured by the logical unity of its conceptual model, the novelty of the constructs, and the roadmap towards the empirical testability of the propositions.

Following (Jaakkola, 2020), we identify literature based on conceptual fit and not merely on exhaustive sampling which is in line with the purposive sampling logic practiced in conceptual development approach (Baumeister & Leary, 1997). Our approach varies from the exhaustive sampling because systematic reviews aggregate empirical findings rather than synthesizing theoretical perspective. The paper thus focuses on the first issue: development of a theoretical framework that can organize bank FinTech adoption to value creation process. To do so, research papers were taken from six data sources: Scopus, Web of Science, JSTOR, Emerald, Science Direct, and Emerald and from articles published between 1991 to 2025.

We identify five strands of theory crucial for the conceptual theoretical development. Each theory grounded with salient aspects of bank FinTech adoption that could not adequately explained by one single theory alone. The resource-based view (RBV) of the firm explains why

investments in technology may yield uneven performance outcomes across the banking system. Knowledge-based view argues that the true competitiveness of integration lies on its unique, institutional know-how it creates. Dynamic capabilities of the firm explain how banks develop assimilation capabilities through sensing and configuring organizational resources. The institutional theory considers the drivers behind the investment, banks seeking regulatory or industrial legitimacy often stops at the purchasing stage, whereas those pursuing operational efficiencies are more likely to fully integrate the technologies in their daily operations. The Technology-Organization-Environment provides structural logic for antecedent dimensions, extended to human, cultural, strategic, and economical dimensions to derive the factors impacting adoption decision in banks.

In line with (Gregor, 2006), we frame the conceptual model to explain why FinTech adoption produces different bank outcomes and how it derives value. Consequently, we aim to create a conceptual model explaining adoption, post-adoption, and value creation thereby generating a research agenda for future empirical work.

3. Literature review

We review the major theories on the theoretical framework that grounds the theoretical framework of this study.

3.1 Post adoptive use

The research stream investigating adoption and use of technology has evolved as a leading stream in information management research (Jasperson *et al.,* 2005) (Venkatesh *et al.,* 2003). A notable contrast in stream supports that initial acceptance predicts adoption behavior, whereas post-adoption drives the ways in which users leverage, expand and integrate the technology (Jasperson *et al.,* 2005). In firm information system, value creation relies sparingly on adoption decisions than on firms' post adoption decisions, and the extent to which the degree of processes, roles, are structured. Classic literature (e.g. Jasperson *et al.,* 2005) disseminates post adoption behavior as routinization, infusion, and reinforces approaches that broadens users' repertories outside minimal use. For instance, (Jasperson *et al.,* 2005) frames post-adoption as behavior as measures that move beyond ongoing usage, stressing on exploration, expanded capabilities, and utilization of information technology enabled workflows gradually. Another stream of literature (see, Burton-Jones & Gallivan, 2007) illustrates that "use" needs to be measured for quality and alignment rather than on event frequency as usage is intrinsically

multi-tiered. Consequently, “use” being multi-dimensional and impossible to record reliably by mere frequency, measurement must therefore depict system usage and the level.

A stream of literature emphasizes that post adoption benefits of technology in banks is triggered by process executive rather than the presence of digital channels. (Fuster *et al.,* 2019) records that technology-based innovations in banks process mortgage proposals at a 20% higher than others while ensuring minimal default rates. This reinforces that technological innovation like FinTech can decrease the cost of intermediation discord via enhanced operational execution. This finding is particularly significant for post-adoption conceptualizing in banks since it indicates to the operational mechanism of FinTech adoption.

In banks, post adoptive use is generally solid, for instance in mobile or UPI payments, the outcomes indicate intensive integration of customer service and administrative routines. Payment led applications are therefore useful mechanisms to analyze post adoptive usages patterns of behaviors at scale, motivating research to study “adoption” and “embedded usage” distinctively. (Agarwal *et al.,* 2025) (Ho *et al.,* 2022) ties mobile payment dissemination with real efficiency impacts and studies the alteration of usage through price incentives. Recent literature involving central bank digital currencies (CBDC) pilots emphasize the rapid increase on CBDC pilots by central banks, nonetheless, empirical evidence of CBDC performance is still limited (Di Iorio *et al.,* 2024) and post-adoptive usage still unexplored. Figure 2 provides post-adoptive use in banks across four domains.

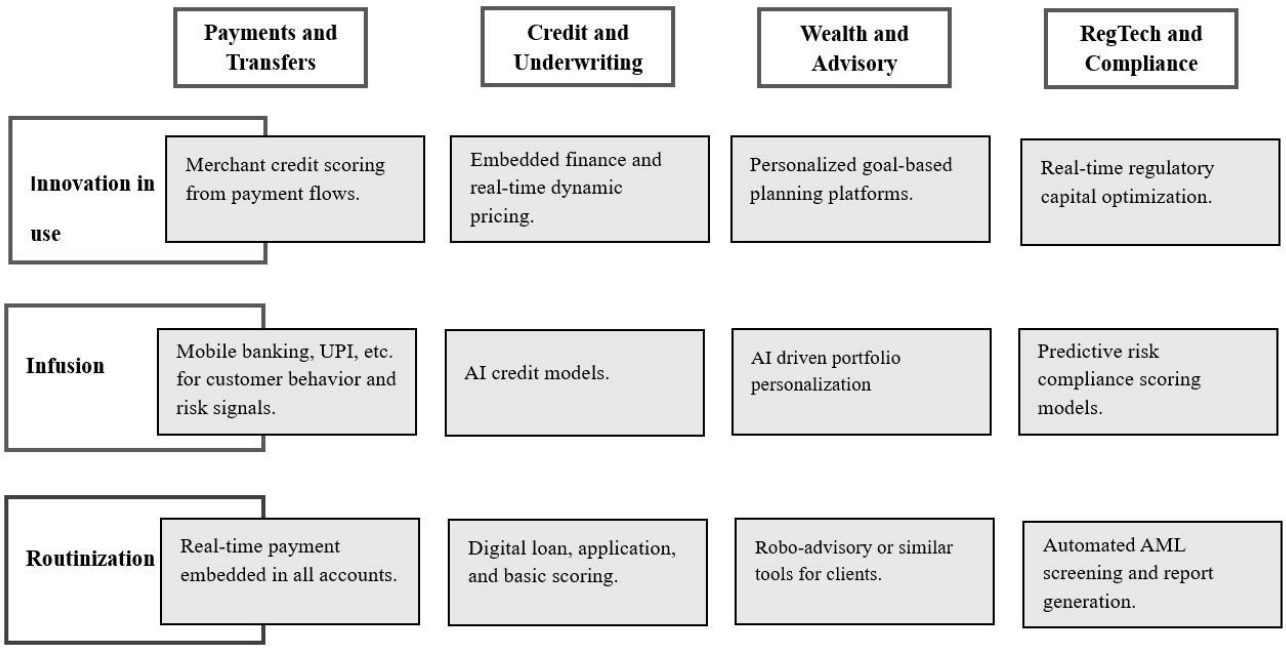


Figure 2: FinTech adoption breadth and assimilation depth across banks.

3.2 Resource Based View

The resource-based view (RBV) of the firm offers a theoretical foundation to connect FinTech adoption and bank value. Grounded in strategic management literature, RBV of the firm highlights that the firm's resources provide it with a considerable competitive advantage over its peers (Barney, 1991). RBV illustrates value creation in banks as a result of varied resources and how banks leverage these resources in a way that peers cannot replicate. The fundamental argument that RBV stresses is that firm varies in their resources and this variation can continue given that resources are stiff and guarded by "isolating mechanisms" (Wernerfelt, 1984) (Barney, 1991). In this light, "value creation" is not merely trigged by technology adoption but by bank specific resources and capabilities that makes FinTech adoption scalable, reliable, and producible. In information systems research, RBV has been employed to study IS capabilities (Mata et al., 1995) and to emphasize that information technology business value depends on firm's ability to leverage it than on the technology alone (Zhu & Kraemer, 2005) (Clemons & Row, 1991) . For banks, FinTech value creation depends on the extent to which the technology is embedded in the bank's core operations. Deeper integrating driven by use makes it likely for banks to develop unique capabilities on top of their foundational digital infrastructure. Contemporary RBV applications argues that value creation does not necessarily derives from having resources alone but how bank management organize and use the and how these resources are pulled together to generate value (D. G *et al.,* 2007).

3.3 Knowledge-based view

A relatively new extension to RBV is the knowledge-based view (KBV) of the firm (Cohendet *et al.,* 2024). "Knowledge" is one of the most crucial resources of the firm which provides the firm with competitive advantage (Nonaka & Takeuchi, 1995). KBV provides a strong theoretical foundation for studying FinTech adoption in banks. FinTech adoption is not merely technological decision it constitutes a knowledge-intensive organizational process, wherein banks are to assimilate digital knowledge, integrate it with established institutional expertise, and deploy it across operational, strategic, and customer-oriented function. Consequently, the successful implementation of FinTech relies on bank's ability to manage technological, organizational, environmental, human, economic, strategic, and cultural dimensions in a coordinated manner.

(Cohendet *et al.,* 2024) argues that knowledge-based resources of a firm help in increasing the role of internal idea generation into converting organizational capabilities. In banks, these are

reflected in digital transformation which helps in developing novel applications of FinTech applications to bank-specific functions, thereby capturing innovation in use dimension of post-adoptive use. Through our framework, we argue that post-adoptive use is not primarily innovative in nature, it is organizational and cognitive rooted in the practice and routines which accumulated a bank's employment of its digital knowledge into its specific organizational context.

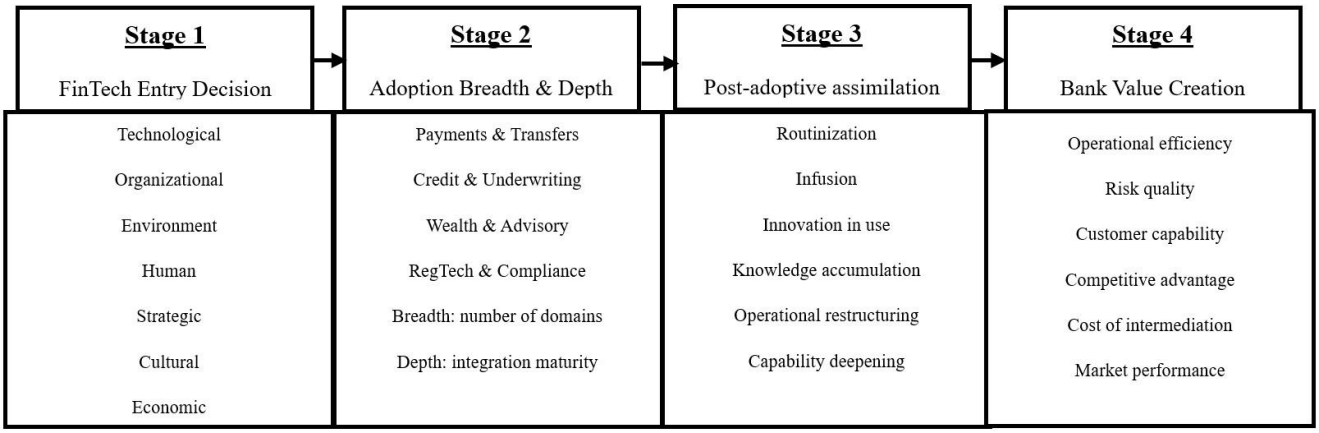


Figure 3: The four stages of bank FinTech adoption and value creation

3.4 Firm Dynamic capabilities

Dynamic capabilities of a firm points out to the higher order ability to deliberately adapt by sensing opportunities and threats, seizing them by timely investments and strategic decisions, and reshaping assets and routines to stay ahead as conditions change (Teece *et al.,* 1997) (Teece, 2007). This aspect is highly relevant to analyze FinTech adoption in banks as adoption is impacted by competition, technological factors, and regulatory challenges and where value is derived from continuously improving processes, governance, and data systems and not from one time technology purchase (Eisenhardt & Martin, 2000).

The three dynamic capabilities micro foundations links to the four-stage adoption process as highlighted in Figure 3. Sensing corresponds to Stage 1, identifying which FinTech developments in payments, credit, wealth management, or regulatory matter strategically for banks. Seizing is related to Stage 2, where FinTech involves committing to deploy across all the relevant banking areas and integrate them deeply enough to make a difference in operations. Reconfiguration responds to Stage 3, where banks move beyond deployment and begin reshaping their internal processes through FinTech capabilities. In post-adoptive use theory, this involves this stage reflects infusion and innovation in use. Stage 4 reflects the value

creation process, capturing the performance outcome in banks. Reconfiguration dimension is especially demanding in banks, as operational redesign must pass through multiple layers of governance approval, compliance review, and risk assessment before structural change can be implemented (Scuotto *et al.,* 2021). Institutions that have historically adapted to changing regulatory environments tend to develop organizational flexibility, which helps assimilate new technologies more effectively more effectively than peers (Zahra *et al.,* 2002). Where this capacity is weak, even well-resourced banks may struggle to move FinTech investments beyond peripheral automation rather than becoming embedded in banks' core operations (Bian *et al.,* 2024).

3.4 Institutional Theory

Institutional theory often adopts technologies not because they generate superior outcomes but because external pressures make non-adoption costly or socially illegitimate (DiMiaggio and Powell, 1983). In banks, three pressure simultaneously operate together: regulatory compliance for digital infrastructure, anti-money-laundering systems, and cyber security which forces banks to adopt these technologies sometimes even without considering cost-benefit analysis. Further, competitiveness pushes banks to match peer behavior when return forecasts are unreliable and producing imitative rather than strategic adoption.

The concept of value creation is significant in banks. Banks enter FinTech mainly due to coercive or mimetic pressure sometimes without internal organizations preparing for the assimilation. Banks typically lack the operational capabilities, risk, cultural, strategic alignment, needed to execute digital transformation from stage 2 to stage 3 (see Figure 3), their FinTech investments stuck at routinization without progressing to infusion or innovation in in use, where lasting value is generated. Legitimate data driven adoption is likely to result in superficial assimilation. In contrast, efficiency driven adoption is more likely to produce deeper integration and stronger value creation when banks clearly identify operational improvements and invest in complementary capabilities needed to support them.

(Scott, 2001) extends (DiMiaggio and Powell, 1983) by differentiating between regulative, normative, and cognitive institutional pillars, which correspond to regulatory support, cultural, strategic, dimensions of extended T-O-E.

3.5 Technology-Organization-Environment

The Technology Organization Environment framework, or the T-O-E, relates to the firm's internal and external technologies (Borgman *et al.,* 2013). Developed by (Tornatzky & Fleischer, 1990), TOE offers a broad range of elements that describe and anticipate the probability of innovation adoption (Awa & Ojiabo, 2016). The framework propounds that adoption is influenced by three contextual domains viz: technological advancements, organizational health, and the environment (Awa & Ojiabo, 2016) (Kauffman & Walden, 2001) (Chatterjee *et al.,* 2021). The technological context of TOE captures the technical viability, innovation characteristics, and firms' available technical base. Organizational context highlights firms' internal capacity and its readiness to adopt and implement technology. The environmental context of TOE is the external conditions where the firm operate (Tornatzky & Fleischer, 1990). A major sunk of the literature have adopted TOE to study the adoption of technology, For instance (Zhu & Kraemer, 2005) employed TOE to analyze the factors impacting the propensity to use E-business, (Borgman *et al.,* 2013) used TOE to analyze cloud computing adoption (Gupta *et al.,* 2022) used it to study AI adoption in insurance while (Bhattacharya & Wamba, 2018) employed TOE to study for RFID adoption (Bhattacharya & Wamba, 2018). The extant literature highlights that the TOE framework offers a robust theoretical ground for placing country-level variables related to technology adoption (Gupta *et al.,* 2022), further offering a dynamic approach to comprehend the factors affecting an organization's acceptance of technology and processes.

4. Conceptual Framework and Hypotheses Development

Extant literature studied FinTech adoption by utilizing numerous classic behavioral theories, including technology acceptance model (Wang, 2021) (Nguyen et al., 2022), unified theory of acceptance and use of technology (Sultana *et al.,* 2023), theory of planned behavior, and theory of reason and action (Irimia-Diéguez *et al.,* 2023). While these stream of literature has been productive in identifying technology adoption determinants at an individual level. For instance, (Setiawan *et al.,* 2021) studied eight determinants of fintech adoption in Indonesia and found brand image, perceived usefulness, attitude, financial literacy, and user innovativeness as significant predictors. However, the study remains largely confined to consumer-facing adoption decisions and rather than institutional level integration. Studies of firm and ecosystem-level conditions have further enriched this understanding (Zarrouk *et al.,* 2021) studied the economic and technological determinants of FinTech-based founders in United Arab Emirates and found venture capital access and financing constraints as significant predictors. (Nalluri & Chen, 2024) found regulatory uncertainty, safety and reliability deficits

as crucial structural barriers by employing fuzzy ISM and DEMATEL, while sustainability literature show similar insights, (Nguyen, 2022) identify centricity, low profit margin, agility, scalability, security, management, innovation, and adherence as crucial barriers. (Reyes-Mercado, 2021) further demonstrates that FinTech competitiveness need not depend on resource dependency but is rooted on effectuation based entrepreneurial decision making. Similarly, *(*Ahuja *et al.,* 2025) studied the key enablers that support the implementation of FinTech chatbots using ISM and MICMAC, revealing interdependency among technological, managerial, and regulatory factors. These theories provide that FinTech adoption success and implementation do not depend solely on technology alone but by an interconnect set of organizational, regulatory, and capability related conditions, a pattern which motivates the multi-dimensional framework developed in this paper.

4.1 Extended Theory and Hypotheses

FinTech innovations are beneficial for banks, it enable incumbent banks to secure themselves from outside threats (see Dasgupta & Stiglitz, 1980) (Gilbert & Newbery, 1982) (Chen *et al.,* 2019), manage risk, and optimize performance. However, as the FinTech innovations are progressively adopted, outcomes rely more on the volume of firm's uptake rather than its mere presence. In this context, banks exhibit varied returns in the payoffs from FinTech spending despite substantial investment. Part of this variation is due to stringent regulatory policies, competitive pressure, complex organizational structure, and normative influence of digitalization. In the paper, we contend that the critical gap is assimilation, the degree to which financial technology is intricately integrated into banks' core operations. We frame a theoretical framework examining the antecedents of bank specific FinTech adoption and how adoption unfolds as process.

We frame our conceptual framework by extending the technology organization environment, human factors, institutional theory with firm dynamic capabilities (Figure 4). We further emphasize post-adoptive use as a crucial mediator between adoption and bank performance.

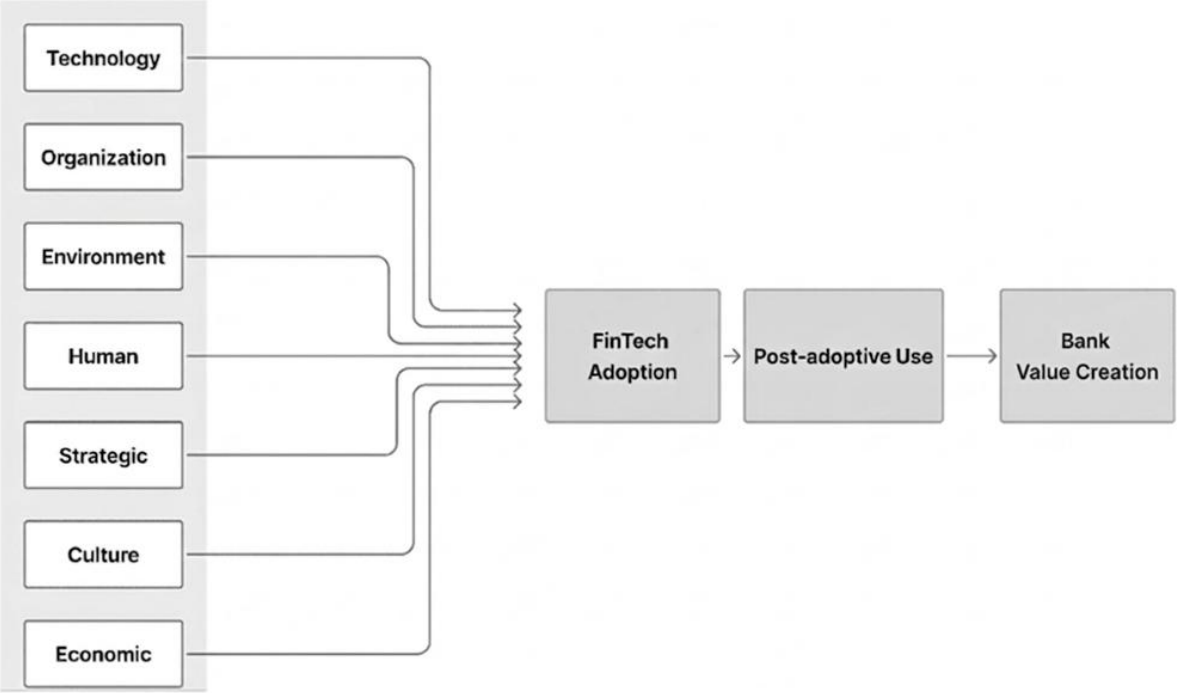


Figure 4: Extended FinTech adoption framework under Technology Organization Environment Human Strategic Culture and Economic dimensions.

We frame the integrated FinTech adoption framework by assimilating human, economic, culture, strategic, and economic factors in TOE. The integrated FinTech adoption framework is given in Figure 5 and variables conceptualized under the extended framework in given on Table 1.

Technology

Technological context encompasses the features and utility of innovative technology. Relative advantage refers to the extent to which an innovation is seen as a significant advantage compared to the idea it replaced (Rogers *et al.,* 2014). One of the significant factors is the relative advantage. Adoption decisions can be positively associated with relative advantage, especially in terms of subsequent usage (Mohamad Hsbollah & Kamil, 2009). Technology provides banks with a relative advantage by increasing efficiency, improving processes, fostering innovation, and enabling better decision-making. Thus, we frame the following proposition:

Proposition 1: Banks that perceive greater relative advantage from FinTech will exhibit higher adoption

Complexity is the degree to which technology is seen as relatively challenging to comprehend and employ (Corrocher, 2003) (Mahdaly & Adeinat, 2022). FinTech is associated with numerous complexities involved in like regulations (Anagnostopoulos, 2018), fraud (Griffin *et al.,* 2023), complicated user interface, security compliance requirements, and ethical and legal considerations. As the complexity can impede successful implementation, it is associated with a negative relationship (Wang *et al.,* 2010). In line with this, we say that the growing complexities reduces bank FinTech adoption.

Proposition 2: The increased complexity of FinTech will have a negative impact towards its adoption by banks

Trust is yet another significant factor impacting bank adoption decision. Trust is defined as the perceived credibility and benevolence of a target of trust (Doney & Cannon, 1997), in simple terms, it is the degree to which partners perceive each other as credible (Mohr & Spekman, 1994) . In bank FinTech adoption context, trust refers to the users believe on the reliability, security, honest, and capability of operating FinTech with minimal impact on operational, regulatory, or cyber security. In line with this, we argue that the higher trust in FinTech (e.g. in the system, FinTech processes, protection etc.,) higher is the banks' FinTech adoption.

Proposition 3: Trust in FinTech solutions positively associated with its adoption

Organization

Following this, the organizational context encompasses the measures within the organization, including the decision-making structure, communication processes by top management, and the size of the organization (Rosli *et al.,* 2012). One of the organizational factors in the FinTech adoption is the top management involvement. Top management involvement is defined as the degree and participation of top management in related business initiatives (Felekoglu & Moultrie, 2014). Top management involvement is critical in banks through strategic, and implementation obligations. It results in enhanced coordination with partners and increased transparency fostering a favorable environment for FinTech adoption. In line with that, we frame the following proposition:

Proposition 4: Top management involvement has a positive impact on bank FinTech adoption.

Technological competence, or technological readiness, comprises of information technology (IT), technology infrastructure, and IT professionals (Zhu *et al.,* 2003) (Zhu & Kraemer, 2005) (Wang *et al.,* 2010) (Zhu *et al.,* 2006). Technological competence in effectively utilizing and

managing technology is recognized as a key determinant of firms' readiness and acceptance of technology. In banks, technology competence refers to the banks' internal capabilities to understand, implement, and integrate FinTech solutions. Extant literature highlights the significant role of IT, a significant component of technology competence in banks productivity and growth (Shu & Strassmann, 2005). Technological competence is essential for adapting to advancements, solving problems, and leveraging technology to gain a competitive edge or improve overall performance (Cappiello, 2018).

Proposition 5: Banks with greater technological competence are more likely to adopt FinTech

Environment

Environmental factors are associated with the environmental externalities of the firm (Yadegaridehkordi *et al.,* 2018). In the context of the environment, the TOE framework asserts that organizations must navigate their external surroundings, including interactions with clients, competition within the industry, compliance with regulatory obligations, and external influences (Rosli *et al.,* 2012; Yadegaridehkordi *et al.,* 2018). One of the crucial factors in the environment dimension is regulatory support (EF1). A study by (Buchak *et al.,* 2018) holds that diffusion of innovation is fueled jointly by technology superiority and regulatory frictions which have the capability to change the incentives and challenges encountered by banks. In banks, FinTech adoption becomes easier when the regulators ensure a supportive, sound, and protective environment for the consumers.

Proposition 6: Regulatory support has a positive impact on FinTech adoption in banks.

Another crucial factor under environmental context is competitive pressure. It is the degree of pressure that the company feels from the competitors within the industry (Zhu & Kraemer, 2005). Competitive pressure is a significant determinant of FinTech adoption and a determinant of firm's readiness to acceptance of new technology. In banks, when competing firms offer faster payments, efficient digital onboarding, and enhanced customer experience, they are pressured to adopt similar practices. Consequently, we frame the following proposition:

Proposition 7: Competitive pressure is positively associated with FinTech adoption in banks.

Another significant factor within environmental context impacting technology adoption is external support (Gibbs & Kraemer, 2004). It is associated with the availability and support from vendors, service providers, technology partners for executing and employing a

technology. External support enables banks to ease the implementation process, and capacity gaps. Thus, the following proposition is proposed:

Proposition 8: Higher external support is positively with FinTech adoption in banks.

Human

TOE fails to explicitly classify the "human factors", to bridge the gap, researchers emphasize the HOT-fit model (Dora *et al.,* 2022). The HOT-fit model initially introduced for the health information system (Alharbi *et al.,* 2016) is based on the information system evaluation model (Yusof *et al.,* 2008) . The HOT-fit model explicitly considers human factors as a significant dimension (Yusof *et al.,* 2008) and further indicates that the greater the alignment among technology, human, and organizational factors, the higher the potential for realizing the IS capabilities.

One of the significant factors under human dimension is employee training and empowerment. It signifies that employees are required to be educated and trained to incorporate skills, quality principles, and attitudes act in accordance with the standards and steady enhancement where they can contribute. Skilled employees consistently pursue innovative solutions for diverse business challenges (Gangwar *et al.,* 2015). Accordingly, the following proposition is proposed:

Proposition 9: Employee training has a positive impact on FinTech adoption in banks.

Culture

Culture is considered as among the significant factors in determining adoption decisions (Harnadi *et al.,* 2025) (Jackson, 2011)**.** There is no consensus on the formal definition of culture within the realm of adoption literature (Alghushami *et al.,* 2020). It can be described as the something cultivated and handed over to other individuals (Igira, 2008). Organization culture is often studied in the area of information system and is considered as a significant predictor impacting adoption decisions. One of the crucial factors under cultural dimension is participative decision making and refers to the extent to which employees and managers are actively involved in key decision-making process. In context of banking sector, culture significantly impact its capability and willingness to adopt FinTech. Banks are hesitant to change due to ingrained practices and conservative culture. A culture which values innovation, customer, collaboration will significantly improve the chance of fintech adoption. Consistent with the existing literature (Alghushami *et al.,* 2020), the following proposition is made:

Proposition 10: Higher participative decision making is positively associated with FinTech adoption in banks.

Under crucial factor within cultural dimension is power sharing, it is explained as the degree of sharing of information, resources, and influence across levels and areas of the organization (Hurley & Hult, 1998). Greater power sharing helps in cross- functional coordination, lower resistance, and ensure smoother implementation of FinTech.

Proposition 11: Greater power sharing within banks is positively associated with FinTech adoption.

Strategic

Strategic dimension mirrors whether FinTech is seen as a transformation in consistent with banks' long-term objectives. A significant factor explained under strategic dimension is strategic partnership which refers to the collaborative alliances between firms to solve problems and manage uncertain environment (Mohr & Spekman, 1994). Strategic partnership facilitates the banks' access to outside technology, skills, and innovative capacity building via collaboration with FinTech firms.

Proposition 12: Stronger strategic partnerships are positively associated with FinTech adoption in banks.

Another significant factor is shared vision which refers to the extent to which common stakeholders of a bank hold a shared understanding of technology adoption. It influences the direction of learning and is crucial foundation of proactive learning in an organization (Cummings *et al.,* 1983). A shared vision in an organization setting is particularly beneficial because it reduces conflict and ensures cooperation. Shared vision also ensures people adopt technological change, while conflicting perspective can result in division. Consequently, we frame the following proposition:

Proposition 13: Stronger shared vision is positively associated with FinTech adoption in banks.

Economic

Economic dimension will cover factors including internal financing and operational concerns that would impact a bank's intention to adopt FinTech. Studies have emphasized on the significance of economic environment (Böhme *et al.,* 2015) on technology adoption decision.

(Kumar *et al.,* 2018) emphasize that certain economic conditions like expected profit, input and output prices, investment availability, working capital are significant in adoption studies. In banks, economic dimension is the strong evidence of financial readiness and organizational feasibility.

One of the significant factors is cost effectiveness, it refers to the extent to which firm believes that technology delivers clear benefits (Premkumar & Roberts, 1999). It is associated with the bank's perceived benefits of FinTech in relation to its associated costs.

Proposition 14: Higher cost-effectiveness will be positively associated with FinTech adoption in banks.

Size

Size is regarded as one of the important drivers of innovation (Hage & Aiken, 1967) (Mansfield, 1963) and is frequently used determinant in adoption literature (Lee & Xia, 2006) and is frequently regarded to serve as a primary indicator of organizational complexity. Literature suggests that size significantly impacts adoption decisions (Gopalakrishnan et al., 2003). Organization size pertains to the volume of assets held by the organization incorporating multiple benchmarks such as total assets, sales, average total assets, etc. (Ahmed *et al.,* 2023). Researchers have identified contradictory or inconsistent relationship between enterprise size and adoption (Salah *et al.,* 2021). For instance, (Alhammadi *et al.,* 2015) found a negative relation between enterprise size and cloud computing adoption. However, a significant proportion of the literature shows a positive and significant impact of adoption. Researchers argue that the contradictory result is mainly due to the lack of consideration of moderators (Lee & Xia, 2006). The size of a bank can considerably impact fintech adoption by influencing available resources, scalability, and decision - making speed. In line with the existing literature and logical grounding, we propose size as a crucial moderator between FinTech adoption and post-adoptive use.

Further, in alignment with RBV, post adoptive use, and firm dynamic capability theory, we propose post adoptive use as a significant mediator between FinTech adoption and bank value creation.

Dimensions	Constructs	Characteristics	Source
Technology	Relative advantage	The extent to which a technology apparently appears better than another one.	(Rogers, 1995)

	Complexity	Complexity is the extent to which an individual perceives a technology to be hard to use and comprehend.	(Rogers, 1995)
	Trust	It is related to a firm's desire to collaborate.	(Mohr & Spekman, 1994)
Organization	Top Management Involvement	Management support/involvement is the degree and participation of top management in related business initiatives.	(Felekoglu & Moultrie, 2014)
	Technology competence	It refers to the IT, technology infrastructure, and IT human resources.	(Zhu & Kraemer, 2005)
Environment	Competitive Pressure	It is a key determinant of firm's readiness to and acceptance of new technology.	(Oliveira & Martins, 2010)
	External Support	It is the availability of support for executing and employing an information system.	(Premkumar & Roberts, 1999)
	Regulatory Support	It pertains to the government laws, policies, and incentives that addresses adoption challenges.	(Zhu *et al.,* 2003)
Human	Employee Training	Training refers to the degree to which an organization directs its employees in the use of a tool with respect to quality and quantity. Employee training and empowerment thus pertains to the education and training of the employees to incorporate skills, concepts, and attitudes to make throughout improvement in the any task they perform.	(Schillewaert *et al.,* 2005)
Strategic	Strategic Partnership	It refers to the collaborative alliances between firms to solve problems and manage uncertain environment.	(Mohr & Spekman, 1994)
	Shared Vision	It influences the direction of learning and is crucial foundation of proactive learning.	(Cummings *et al.,* 1983)
Culture	Participative decision making	It is the degree of openness and involvement in decision making.	(Hurley & Hult, 1998)
	Power Sharing	It is the degree of sharing of information, resources, and influence across levels and areas of the organization.	(Hurley & Hult, 1998)

Economic	Costs effectiveness	The extent to which firm believes that technology delivers clear benefits.	(Premkumar & Roberts, 1999)

Table 1: Critical success factors under extended TOE framework.

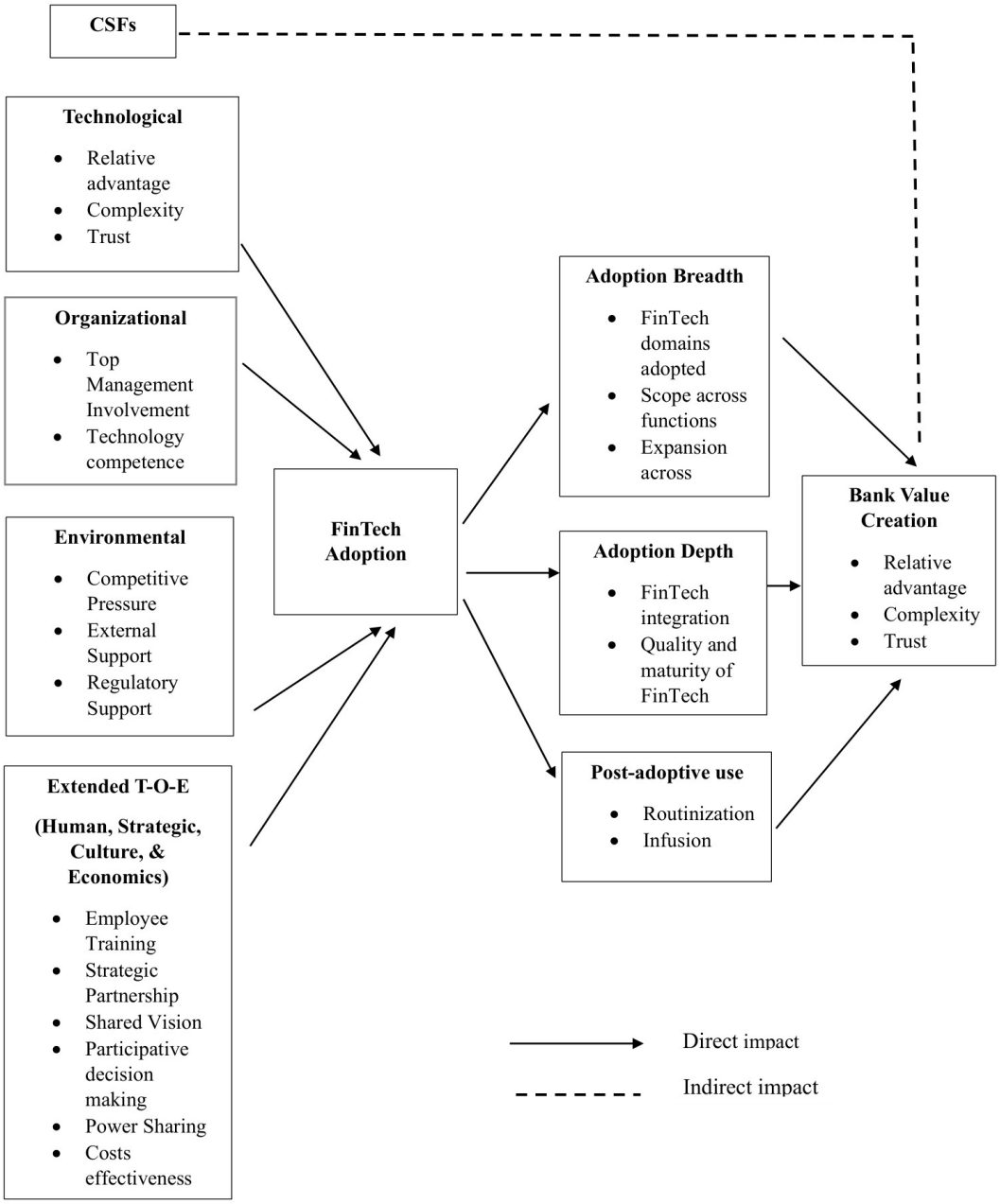


Figure 5: Integrated FinTech adoption framework. Source: authors' own creation

5. Implications

The key contribution of this paper is to show that FinTech value creation does not necessarily arise from adoption alone but from adoption threshold, breadth, depth, which simultaneously translate into post-adoptive use, which later with time materialize into bank value. The framework development carries considerable implication across various levels. For banks, it provides a structural basis for identifying where in the adoption process value creation is being constraint. For instance, explaining whether underperformance reflects technological gap, cultural resistance, or insufficient employee capability rather than treating digital underperformance as a single undifferentiated problem. Bank managers can use this distinction to prioritize investment more effectively, first by establishing the necessary regulatory and technological foundations and then strengthening human capabilities, strategic relationships, economic factors, and organizational culture required to deeper FinTech assimilation. The bank management can also incorporate the model as a diagnostic and implementation guide.

The findings will offer valuable information on how FinTech can be well integrated into the banks' core system and help bank to fix the governance gap. For regulators and policy makers, the developed framework shifts the focus away from just counting adopted products to digital channels that consistently overstate real transformation and towards measuring how deeply technologies are integrated into operations.

6. Future research directions

The propositions developed in this paper provides a direction for future empirical research. Several avenues deserve particular attention. First, the propose four stage-process model should be examined utilizing longitudinal research designs, specifically to understand whether banks always process through the stages in the order theorized or those with exceptionally prior organizational capabilities can bypass intermediate stages and move directly to deep assimilation. Second, the relationship between depth and breadth can vary across different areas of banking. For instance, RegTech assimilation is driven by coercive institutional pressure, whereas credit and payment assimilation seems to be driven mostly by efficiency, suggesting which antecedent drives change varies from one to another. Third, the framework was developed keeping incumbent commercial banks as the primary unit of analysis, future research should also access whether this process logic extends to co-operative banks,

development financial institutions, non-banking institutions, where government arrangements and regulatory conditions differ considerably.

7. Conclusion and Limitations

We propose the integrated FinTech adoption framework by assimilating technology-organization-environment-human factors, institutional theory with firm dynamic capabilities. We show adoption as a sequential four stage adoption process rather than one technological event. We also provide a post-adoptive FinTech framework highlighting that FinTech result in value generation mainly through post-adoptive use. We emphasize post-adoptive use as a crucial mediator between adoption and bank value creation. The framework posits that FinTech scale shape not just adoption capacity but also post-adoption assimilation.

The paper is not without limitations. As a conceptual work, the framework and its propositions remain empirically unvalidated. The propositions remain theoretically grounded with literature support however, their empirical supports await the panel data analysis. Second, the framework considers the seven dimensions of adoption as additive and largely dependent, however in practice, some factors may compensate for others. For instance, strong strategic alignment may partly offset weak regulatory support. Future research should therefore examine whether the antecedents operate through non-linear or interactive relationships. Third, the distinction between depth and breadth, while theoretically motivated and grounded indicates that careful measurement is needed before it can be used for future empirical research, especially given the challenge of comparable depth indices in banking.

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