



Financial Innovation and Digital Banking Transformation: A Systematic Literature Review

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Abstract

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This study aims to analyze the relationship between financial innovation and digital banking transformation through a Systematic Literature Review (SLR) approach to scientific publications in the last five years. This study identifies the pattern of relationships between financial innovation, technological development, and organizational restructuring in the context of digital banking. The results show that financial innovation plays a key catalyst for digital transformation by improving operational efficiency, expanding financial inclusion, and strengthening the competitiveness of the banking industry. The success of digital transformation depends heavily on the integration of technological innovation, adaptive leadership, an organizational culture that is open to change, and good governance. Strong innovation is proven to accelerate the restructuring of business models, while mature transformation drives the birth of new and sustainable innovations. In addition, collaboration between banks, fintech, and regulators is a crucial factor in building a secure, inclusive, and competitive digital financial ecosystem. The results of this research are expected to enrich the academic literature and become the basis for strategic policies in the development of innovation and digital transformation of banking in the future.



1. Introduction

The development of information and communication technology in the past decade has changed the paradigm of the global financial system. Digital transformation, characterized by the adoption of financial technology (fintech), artificial intelligence, and big data analytics, has forced the banking sector to adapt to faster disruptions. Banking no longer only functions as a traditional intermediation institution, but has evolved into a digital financial service provider based on technological innovation to answer the needs of modern consumers (Osei et al., 2023). This dynamic gives birth to two main strategic aspects of financial innovation and banking transformation that influence each other in shaping the competitive advantage of the digital finance industry.

According to Siek and Sutanto (2019), collaboration between fintech and banking institutions creates new synergies that accelerate financial innovation through the integration of payment systems, blockchain, and digital risk management. However, this integration also poses regulatory challenges, cybersecurity, and the digital divide among consumers. In this context, banking transformation is not just a process of operational digitalization, but a structural change that includes business models, organizational culture, and financial governance. Diener & Špaček (2021) assert that barriers to transformation often stem from internal factors such as managerial resistance and a lack of long-term innovation strategies.

In addition, the COVID-19 pandemic accelerated the adoption of digital banking services in various countries, driving a change in consumer behavior from

the physical economy to the virtual economy (Belitski et al., 2022). Banks are required to provide fast, secure, and personalized services based on customer data. This phenomenon encourages increased investment in predictive analytics, machine learning, and user experience design to create added value for customers. Khanchel (2019) highlights the importance of changing organizational culture that supports flexibility and cross-functional collaboration in realizing sustainable digital transformation. Although the literature on digital banking has grown rapidly, there is still a research gap in understanding how financial innovation directly contributes to the effectiveness of banking transformation. shows that financial innovation and banking transformation must be understood as two interdependent entities, especially in improving financial inclusion and efficiency.

With this background, this study seeks to systematically examine the relationship between financial innovation and digital banking transformation through the Systematic Literature Review (SLR) approach. This study not only examines the trends and directions of literature development, but also highlights the conceptual and practical gaps that still exist in previous studies. Academically, this research is expected to expand the understanding of the financial innovation integration model in digital bank transformation strategies. Practically, the results can help the banking industry in designing innovative policies that are adaptive to the challenges of technological disruption while supporting sustainable financial inclusion in the digital era.

2. Literature Review

2.1 Financial Innovation in the Digital Banking Era

Financial innovation is the main driver of the transformation of the modern banking industry. According to Siek and Sutanto (2019), innovation in the financial sector includes the application of digital technologies such as blockchain, artificial intelligence (AI), and cloud computing to create efficiency and transparency in the financial system. This technology allows banks to develop new products, lower transaction costs, and expand access to financial services. In a broader context, Thottoli et al. (2023) emphasized that financial innovation is not only technical, but also strategic, as it relates to the repositioning of banks' business models towards a digital orientation. Collaboration between banking institutions and fintech has accelerated the transformation of financial services, creating a digital ecosystem that is more inclusive and adaptive to changing consumer behavior. Furthermore, Indriasari et al. (2022) stated that the advancement of financial innovation plays a significant role in building a digital customer experience through process automation and integration between systems. Overall, financial innovation is a strategic instrument in creating sustainable competitive value in the digital banking sector.

2.2 Banking Transformation and Challenges of Its Implementation

Digital banking transformation involves a thorough restructuring of the organization's operational model and strategy to adapt to technological disruption. Diener & Špaček (2021) argue that the success of transformation depends on the readiness of organizations to adopt technological innovations as well as build a digital work culture. The main challenges arise from internal resistance,

infrastructure limitations, and increased cybersecurity risks. In a study by Tsindeliani & Proshunin (2022), digital transformation is seen as an ongoing process that demands synergy between regulatory policies, data governance, and operational risk management. Meanwhile, Khanchel (2019) highlights the importance of visionary leadership in directing organizational change towards technology-based business models. Thus, banking transformation is not just the implementation of new technologies, but is a fundamental repositioning that changes the role, structure, and value in the banking system. Through this process, banks have the potential to increase efficiency, expand the reach of financial inclusion, and strengthen competitiveness in the digital economy era.

3. Methods

This study uses Systematic Literature Review (SLR) as the main approach to examine the relationship between financial innovation and digital banking transformation. The SLR method was chosen because it was able to provide a comprehensive understanding of research developments, thematic trends, and conceptual gaps that have emerged in the last five-year period. This approach is carried out systematically by following measurable stages ranging from identification, selection, extraction, to synthesis of scientific literature relevant to the research topic.

The first stage is the identification of literature, which is carried out through searching for scientific articles indexed by Google Scholar and academic databases such as Elsevier, ResearchGate, and SpringerLink. The keywords used include financial innovation, banking transformation, digital banking, and fintech

collaboration. The articles obtained were then selected based on inclusion criteria, namely research published between the last five years, discussing innovation and transformation in the context of digital banking, and using relevant conceptual or empirical approaches. This process resulted in a number of articles that became the basis for the main analysis.

The second stage is the evaluation of the quality of the literature, which is to assess the credibility of the source, the relevance of the methodology, and the theoretical contribution of each article. The assessment is carried out by considering indicators such as the number of citations, the reputation of the journal, and the clarity of the analysis model used. Next, the data extraction stage is carried out to collect the main findings of each article, which are then categorized into two main dimensions: financial innovation and banking transformation. The final stage is thematic synthesis, in which the extraction results are integrated to identify patterns of relationships between variables, directions of influence, as well as unfilled research gaps. Through the SLR method, this study seeks to build a conceptual framework that explains the reciprocal relationship between financial innovation and digital banking transformation. This approach also allows researchers to propose future research directions that focus on synergies between financial technology, digital governance, and financial services sustainability.

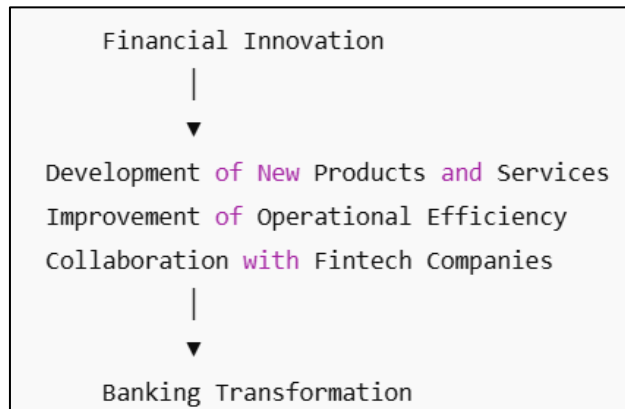


Figure.1 Conceptual Framework

The conceptual framework illustrates that financial innovation acts as a key driver of banking digital transformation. Financial innovation promotes the creation of new financial products, operational optimization, and cross-sector collaboration through technologies such as AI, blockchain, and fintech integration. These innovations drive banks to restructure their business models, implement end-to-end digital services, and strengthen customer-centric strategies. Consequently, the relationship between both variables is causal and synergistic—a higher degree of innovation accelerates the success of digital transformation, while a well-executed transformation enhances a bank’s capacity to innovate continuously and sustain competitiveness in the digital financial ecosystem.

4. Results

The results of a systematic review of several scientific articles over the past five years show that financial innovation has a strong relationship with the success

of banking's digital transformation. Most studies highlight that digital technologies such as artificial intelligence (AI), blockchain, big data analytics, and cloud computing have changed the way banks manage services, risks, and relationships with customers. Financial innovation has been shown to drive operational efficiency, expand financial inclusion, and improve banks' ability to respond to market dynamics adaptively (Osei et al., 2023).

Research by Siek and Sutanto (2019) confirms that the synergy between traditional banking and fintech is an important element that accelerates the adoption of financial technology. Through this collaboration, banks can expand market reach, increase transaction speed, and reduce operational costs. The study also shows that banks that invest in digital innovation are better able to survive volatile market conditions. Similar findings were also put forward by Pavlidis (2021) who highlighted that regulation is one of the strengthening factors in supporting the innovation ecosystem, where the clarity of digital policies accelerates the implementation of technology-based financial systems.

The results of the literature synthesis show that the digital transformation of banking not only has an impact on the technological side, but also changes organizational structures and work patterns. Diener & Špaček (2021) found that the adoption of digital technologies requires visionary leadership as well as a planned organizational change strategy. Without the support of an adaptive work culture, digital transformation often fails to achieve long-term goals. This is reinforced by Khanchel (2019) who explains that the success of transformation is not only

determined by technology investment, but also by the readiness of human resources to adopt financial innovation as a whole.

In the context of operational efficiency, Zuo et al. (2021) identified that the digitization of banking business processes increases productivity by up to 25–40% by reducing manual processes and increasing service speed. These results show the direct impact of financial innovation on improving efficiency and reducing transaction costs. Meanwhile, Aziz et al. (2021) highlights the socio-economic impact of these innovations, especially in expanding financial inclusion in developing countries through digital banking that is easily accessible to the wider community.

The study by Thottoli et al. (2023) also revealed that the integration of big data analytics and AI plays an important role in supporting data-driven managerial decisions, allowing banks to design more personalized financial products. This approach strengthens customer relationships, increases loyalty, and fosters trust in digital services. Baskerville et al. (2020) state that the evolution of digital banking has changed the paradigm of industry competition, where banks no longer compete only on interest rates, but on the ability to provide efficient and secure digital experiences.

In terms of regulation and governance, Tsindeliani & Proshunin (2022) explain that banking transformation requires a clear legal framework to protect user data and prevent the risk of cybercrime. Progressive and adaptive regulations to technological innovation are key factors for the sustainability of digital banking. A consistent result is found in Buckley (2021), who emphasizes that the application of artificial intelligence requires regulations that ensure a balance between the security, ethics, and efficiency of the digital financial system.

From a risk management perspective, it emphasizes that digital transformation brings new risks such as cyberattacks, reliance on digital infrastructure, and loss of jobs in the operational line due to automation. Therefore, banks need to adopt technology-based risk mitigation policies and strengthen cyber resilience. These findings are reinforced by Boratyńska (2019) who highlights the importance of synergy between fintech and bank supervision systems in anticipating potential digital disruptions that can disrupt financial stability.

In the context of financial performance, the results of research by Isa et al. (2021) show that digitalization increases the efficiency and profitability ratio of banking through technology-based process optimization. Banks that are digitally transformed faster have a better rate of return on asset (ROA) and cost-to-income ratio (CIR) than conventional banks. In addition, the perception of data security and privacy is the dominant factor that influences the level of adoption of digital services by consumers. The higher the trust in system security, the greater the loyalty of customers to the bank's digital services.

Broby's (2021) research shows that digitalization has also created a new economic model in banking, where a company's value is not only determined by physical assets, but also by its ability to manage data, digital networks, and customer experiences. Digital transformation is driving the creation of a banking ecosystem, which is an open financial system that enables interoperability between banks and non-bank financial service providers.

Based on the overall, the results of this study show that the success of digital banking transformation is highly dependent on the ability of financial institutions to

integrate financial innovation with organizational strategies, governance, and digital leadership. Financial innovation is proving not only as a tool of efficiency, but also as a catalyst for structural change that determines the competitiveness of the future banking industry. Thus, the relationship between financial innovation and banking transformation is reciprocal and continuous innovation accelerates transformation, and successful transformation creates space for new innovations that are more inclusive and sustainable.

5. Discussion

The results of this study confirm that the relationship between financial innovation and digital banking transformation is reciprocal and reinforces each other. Financial innovation serves as a key driver in driving the restructuring of banking business models towards an efficient technology-based system, while digital transformation expands the space for new innovations. These findings reinforce the view of Osei et al. (2023) who explain that the success of modern banking digitalization is not only determined by the adoption of technology, but by the ability of banks to internalize innovation into the organization's core strategy. Thus, financial innovation is not just a tool of adaptation, but a catalyst for structural transformation.

From a managerial perspective, the results of this study show that effective digital transformation requires a balance between technology investment and human resource readiness. Diener & Špaček (2021) emphasize that many failures of digital transformation are caused by organizational cultural resistance as well as weak digital

leadership. This means that innovation strategies must be accompanied by strengthening employee competencies and developing adaptive leadership. In addition, the shift in business models towards digital services requires organizations to develop an experimental culture, that is, the ability to test, evaluate, and implement innovations quickly without sacrificing financial system stability.

From an external perspective, synergy between banks and fintech companies is an important pillar in expanding financial inclusion and strengthening the industry's position in the digital economy era. This collaboration, as explained by Siek and Sutanto (2019), creates added value through service diversification, process efficiency, and improved customer experience. However, on the other hand, this increased collaboration also poses new challenges related to regulation, data security, and financial system stability. This requires closer coordination between regulators and financial institutions so that innovation can run within a safe and sustainable governance framework.

In terms of policy, the role of regulators is very important to ensure that the innovation ecosystem runs in balance. Tsindeliani & Proshunin (2022) highlight that regulations that are responsive to technological developments will accelerate the adoption of innovation, while policies that are too rigid can actually hinder digital progress. Therefore, an adaptive regulatory approach is needed, pro-innovation, and puts consumer protection as a top priority. In this context, the Financial Services Authority (OJK) and similar institutions in various countries play a strategic role in creating a balance between innovation and risk mitigation.

From a theoretical point of view, the results of this study reinforce the idea that financial innovation and banking transformation are inseparable within the framework of the modern digital economy. In line with Thottoli et al. (2023), technology-oriented innovation must be accompanied by value-oriented transformation, where technology plays a role not only as a tool of efficiency, but also as a mechanism for creating new value in the financial system. Therefore, the integration between financial innovation and digital transformation needs to be seen as a sustainable strategy that involves three main dimensions: technology, people, and governance.

The implications of these results confirm that the future of banking will be determined by how quickly financial institutions are able to balance the exploration of innovation and the exploitation of existing resources. Banks that are able to build a collaborative, secure, and customer-oriented digital ecosystem will have long-term competitiveness. On the other hand, banks that fail to adapt to the dynamics of innovation will lose relevance in the midst of increasingly intense competition in the digital era.

6. Conclusion

This study concludes that financial innovation has a fundamental role in accelerating the digital transformation of banking. Innovation is not only a tool for efficiency, but also a key driver of business model change towards a more adaptive and technology-based system. Successful digital transformation requires synergy between technology development, human resource readiness, and regulatory

support that is responsive to change. Banks that are able to integrate these three aspects will have a sustainable competitive advantage in the midst of the dynamics of the digital economy. In addition, banking transformation based on financial innovation can strengthen financial inclusion, expand access to digital services, and increase public trust in the financial system. The relationship between the two is reciprocal, the higher the innovation ability, the faster the transformation process; Meanwhile, the success of the transformation creates new space for the next innovation. Thus, the future of banking will be determined by the extent to which financial institutions are able to innovate sustainably, maintain system stability, and provide inclusive, secure, and value-added digital services for society and the global economy.

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