ISRG Journal of Economics, Business & Management (ISRGJEBM)

ISRG PUBLISHERS

Abbreviated Key Title: Isrg J Econ Bus Manag

ISSN: 2584-0916 (Online)

Journal homepage: https://isrgpublishers.com/isrgjebm/

Volume – III Issue - VI (November-December) 2025

Frequency: Bimonthly

THE IMPACT OF DIGITAL TRANSFORMATION ON THE OPERATIONAL EFFICIENCY OF VIETNAMESE COMMERCIAL BANKS

Hoang Thi Thu Hien

Banking Academy of Vietnam 12 Chua Boc, Kim Lien, Hanoi.

| **Received:** 12.11.2025 | **Accepted:** 17.11.2025 | **Published:** 19.11.2025

*__Corresponding author:__ Hoang Thi Thu Hien

Banking Academy of Vietnam 12 Chua Boc, Kim Lien, Hanoi.

Abstract

Digital transformation has emerged as a vital strategic priority for the banking sector, reshaping operational structures and redefining efficiency benchmarks in the digital economy. This study employs a qualitative, descriptive, and analytical approach to examine the impact of digital transformation on the operational efficiency of Vietnamese commercial banks. The research is based on a comprehensive analysis of secondary data sources, including industry reports, government policy documents, and published financial statements of major Vietnamese banks between 2016 and 2023. The study identifies that digital transformation has significantly improved the operational efficiency of commercial banks through enhanced automation, digitized customer services, and optimized internal processes. Digital technologies such as core banking upgrades, online payment systems, and data analytics have enabled faster transaction processing, cost reduction, and improved customer satisfaction. However, the analysis also highlights key challenges that hinder full digital integration, including limited digital infrastructure in smaller banks, high implementation costs, cybersecurity risks, and skill gaps among employees. The disparities between state-owned and private banks remain notable, with private institutions demonstrating stronger innovation capacity and adaptability. The findings suggest that while digital transformation has yielded tangible efficiency gains, its long-term success depends on strategic alignment between technology adoption, human resource development, and regulatory modernization. The study contributes to the literature on banking digitalization in emerging economies by providing contextual insights into Vietnam's transformation process. It also offers policy implications for fostering a resilient, inclusive, and technology-driven banking system that supports sustainable financial development.

Keywords: *Digital transformation; commercial banks; Vietnam; digital banking; financial innovation.*

DOI: 10.5281/zenodo.17646198

1. Introduction

In the context of the Fourth Industrial Revolution, digital transformation has emerged as one of the most influential trends reshaping the global financial landscape. The rapid advancement of digital technologies such as artificial intelligence (AI), blockchain, big data analytics, cloud computing, and robotic process automation has fundamentally changed how financial institutions operate, interact with customers, and create value (Vial, 2019). Within this transformation, commercial banks have faced increasing pressure to enhance their operational efficiency, improve customer experiences, and remain competitive in a rapidly evolving market (Baiyere et al., 2020). Digital transformation enables banks to optimize workflows, automate back-office functions, and reduce transaction costs while improving accuracy and speed in service delivery (Puschmann, 2017).

Globally, studies have demonstrated that digital transformation in the banking sector contributes to both cost efficiency and strategic agility. For example, in European and North American markets, banks that adopted digital solutions early achieved up to a 25–30% reduction in operating costs and a significant improvement in customer satisfaction (Brock & Wangenheim, 2019). Digital transformation also enhances risk management by enabling real-time data analysis and predictive modeling (Matarazzo et al., 2021). Furthermore, digital banking facilitates financial inclusion, particularly in developing economies, by expanding access to banking services through mobile platforms and online transactions (Ozili, 2018; Beck et al., 2016). Thus, digital transformation is not merely a technological innovation it represents a paradigm shift in how financial institutions design their operations, manage efficiency, and deliver sustainable value.

In Vietnam, the banking industry plays a crucial role in driving the national digital economy. The Vietnamese government has prioritized digital transformation as part of its long-term vision for socio-economic development, as outlined in the National Digital Transformation Program to 2030 and the Strategy for the Development of the Banking Sector to 2025, with Orientation to 2030 (State Bank of Vietnam, 2021). These strategic frameworks aim to modernize the banking infrastructure, expand financial inclusion, and improve the competitiveness of Vietnamese financial institutions. According to Deloitte (2022), the Vietnamese banking industry is among the fastest in Southeast Asia in adopting digital transformation initiatives. Leading banks such as Vietcombank, Techcombank, MB Bank, and VPBank have successfully implemented mobile banking applications, e-KYC systems, and AI-based credit scoring models to streamline operations and enhance customer experience (Nguyen & Do, 2022).

However, the level of digital transformation across Vietnamese commercial banks remains uneven. Large private banks tend to be more flexible and innovative in integrating digital tools, while state-owned banks face structural challenges related to bureaucratic processes, legacy systems, and risk-averse management cultures (Le & Phan, 2021). Furthermore, smaller banks often lack sufficient financial resources and digital talent to invest in advanced technologies (World Bank, 2022). As a result, while digital transformation has become an inevitable trend, its impact on operational efficiency varies significantly among different types of commercial banks in Vietnam.

Despite the growing attention to digital banking, academic research on this topic in Vietnam remains limited. Most existing studies have focused primarily on financial performance indicators or customer satisfaction (Nguyen et al., 2022; Le & Nguyen, 2023). Few have systematically examined how digital transformation affects the internal operational efficiency of banks, including process automation, cost optimization, and organizational restructuring. Moreover, empirical studies in Vietnam tend to emphasize quantitative methods—using surveys or financial ratios while there is a lack of qualitative analysis that contextualizes the practical realities, institutional conditions, and managerial factors influencing digital transformation outcomes (Tran, 2022). This methodological gap limits the comprehensive understanding of how digitalization reshapes banking operations in emerging markets like Vietnam.

Therefore, this study aims to analyze the impact of digital transformation on the operational efficiency of Vietnamese commercial banks through a qualitative, descriptive, and analytical approach based on secondary data. The research synthesizes information from policy documents, banking reports, and industry analyses to examine how digital initiatives influence operational efficiency in terms of cost reduction, process improvement, and service quality enhancement. It also identifies challenges such as digital infrastructure limitations, cybersecurity risks, and human resource constraints that hinder the digital transformation process.

2. Literature review

Digital transformation (DT) has been widely discussed as one of the most influential forces driving structural change in modern organizations. According to Vial (2019), digital transformation refers to “a process that aims to improve an entity by triggering significant changes to its properties through combinations of information, computing, communication, and connectivity technologies” (p. 121). In the banking industry, DT goes beyond simple digitization or automation; it represents a strategic, organizational, and cultural shift that redefines business models and operational paradigms (Baiyere et al., 2020).

In the financial context, DT is often associated with the adoption of technologies such as artificial intelligence (AI), blockchain, big data analytics, cloud computing, and mobile banking platforms (Puschmann, 2017). These technologies enable banks to modernize their operational processes, enhance customer interaction, and create new revenue streams through innovative financial services (Gomber et al., 2018). The strategic alignment theory suggests that DT success depends not only on technological adoption but also on the alignment between IT capabilities, organizational structure, and business strategy (Henderson & Venkatraman, 1993). Therefore, the effectiveness of digital transformation in the banking sector must be evaluated through its impact on operational efficiency, organizational agility, and customer-centric innovation.

Operational efficiency refers to a bank’s ability to deliver services in a cost-effective, timely, and resource-optimized manner while maintaining quality and compliance (Matarazzo et al., 2021). In the banking sector, operational efficiency is influenced by multiple factors, including technological infrastructure, process automation, employee productivity, and risk management systems. Digital transformation enhances efficiency by automating repetitive tasks, reducing manual errors, and enabling data-driven decision-making (Zachariadis & Ozcan, 2017).

DOI: 10.5281/zenodo.17646198

According to Ozili (2018), DT improves banking efficiency through three main channels: (1) automation of back-office operations; (2) digitalization of customer services; and (3) integration of real-time data analytics into decision-making processes. These mechanisms allow banks to lower transaction costs, accelerate service delivery, and improve compliance monitoring. For instance, research by Matarazzo et al. (2021) found that digital transformation positively correlates with cost reduction and value creation, as banks can allocate resources more strategically. Similarly, Baiyere et al. (2020) emphasized that DT enables "process reconfiguration," where traditional linear workflows are replaced with data-driven, agile systems that enhance flexibility and responsiveness.

In emerging economies, DT also plays a critical role in financial inclusion expanding access to banking services among underbanked populations through mobile and internet banking (Beck et al., 2016; Ghosh, 2018). However, the relationship between DT and efficiency is not linear. While technology adoption can improve short-term productivity, it may also increase operational risks, such as cybersecurity threats and system failures, particularly in banks with weak governance structures (Malaquias & Hwang, 2019). Therefore, the impact of digital transformation on efficiency must be assessed within the context of institutional readiness, regulatory frameworks, and digital maturity.

Empirical research worldwide has provided extensive evidence on the impact of digital transformation on banking performance and efficiency. Puschmann (2017) and Gomber et al. (2018) highlighted that banks adopting digital technologies early benefit from improved cost-to-income ratios, faster service delivery, and enhanced customer satisfaction. In Europe, the integration of automation and big data analytics has led to significant improvements in productivity and innovation capacity (Brock & Wangenheim, 2019).

In Asian contexts, digital banking has been shown to drive both profitability and efficiency. For example, Lee et al. (2021) found that Korean and Singaporean banks achieved a 20–25% improvement in operational efficiency following digital integration, particularly through e-KYC systems and blockchain-based payment solutions. In China, large-scale digital transformation through platforms such as Ant Financial and WeBank has created a fully digital ecosystem, reducing administrative costs while expanding financial inclusion (Chen & Zhang, 2020).

However, scholars also note that DT outcomes depend heavily on institutional and organizational contexts. In developing countries, insufficient digital infrastructure, limited human capital, and outdated legal frameworks can slow digital adoption (Mhlanga, 2020). Moreover, in economies where state-owned banks dominate, hierarchical decision-making and risk aversion often reduce agility in adopting digital innovation (Nguyen & Do, 2022). These findings underscore the importance of examining the Vietnamese case, where rapid policy reforms coexist with uneven digital capabilities among banks.

In Vietnam, the banking industry has undergone substantial digital modernization, particularly after the implementation of the National Digital Transformation Program to 2030 and the Digital Banking Development Strategy to 2025 (State Bank of Vietnam, 2021). According to Deloitte (2022), approximately 95% of Vietnamese banks have developed or are implementing digital transformation strategies. Institutions such as Vietcombank, Techcombank, and VPBank have introduced advanced mobile banking apps, AI-based customer services, and online lending platforms, leading to notable improvements in customer satisfaction and transaction speed.

Nonetheless, several studies highlight the persistent challenges in Vietnam's digital banking transformation. Le and Phan (2021) found that state-owned commercial banks face significant delays in adopting digital tools due to rigid organizational structures and outdated IT infrastructure. Nguyen and Do (2022) argued that while private banks have achieved faster technological integration, disparities remain in terms of digital readiness, data governance, and staff competencies. Furthermore, smaller banks often encounter financial constraints and cybersecurity risks that hinder full-scale digitalization (World Bank, 2022).

Most existing research in Vietnam focuses on quantitative analysis examining financial ratios, profitability indicators, or customer satisfaction metrics. However, there is limited qualitative assessment of how digital transformation reshapes operational efficiency and internal management practices. Few studies synthesize secondary data sources such as policy frameworks, annual reports, and industry reviews to provide a holistic understanding of Vietnam's digital transformation process. Therefore, a qualitative, descriptive approach is needed to capture the contextual and institutional dimensions of how digital transformation impacts operational efficiency in Vietnamese commercial banks.

The reviewed literature indicates that digital transformation is a decisive factor in improving operational efficiency in commercial banks by enhancing automation, data utilization, and service quality. Yet, its outcomes vary significantly depending on the institutional context, organizational readiness, and regulatory environment. In the Vietnamese context, despite strong governmental initiatives and rapid adoption among leading banks, research remains fragmented and overly quantitative.

Thus, the present study fills this gap by conducting a qualitative analysis based on secondary data to explore the relationship between digital transformation and operational efficiency in Vietnamese commercial banks. This approach allows for a contextual understanding of both achievements and limitations in the ongoing digitalization process and contributes to the global discourse on sustainable and inclusive digital banking in emerging economies.

3. Current situation of digital transformation in Vietnamese Commercial Banks

In recent years, Vietnam's banking sector has experienced a profound transformation driven by digital technologies, policy reforms, and increasing customer expectations. The State Bank of Vietnam (SBV) has identified digital transformation as a cornerstone of its Banking Sector Development Strategy to 2025, with Orientation to 2030, which aims to modernize financial services and enhance efficiency across the system (SBV, 2021). This initiative is consistent with the broader National Digital Transformation Program to 2030, positioning the banking industry as a key driver of Vietnam's digital economy (Vietnamese Government, 2020). The COVID-19 pandemic further accelerated this process, forcing banks to digitalize their operations to ensure

DOI: 10.5281/zenodo.17646198

business continuity and meet the rising demand for online financial services (Nguyen & Do, 2022). According to Deloitte (2022), more than 95% of Vietnamese commercial banks have established digital transformation strategies, and nearly three-fourths have begun implementing digital initiatives in their core operations.

The landscape of digital transformation in Vietnamese commercial banks can be divided into three groups: state-owned commercial banks, joint-stock commercial banks, and foreign-invested banks. State-owned banks such as Vietcombank, VietinBank, BIDV, and Agribank have made significant progress in upgrading core banking systems and introducing digital channels. Vietcombank, for example, launched its Vietcombank Digital Ecosystem, integrating mobile banking, e-payments, and digital lending services (Vietcombank, 2022). However, progress within these banks has been constrained by bureaucratic structures, legacy systems, and limited digital human resources (Le & Phan, 2021). In contrast, joint-stock commercial banks including Techcombank, VPBank, and MB Bank have emerged as frontrunners in the digital race. These institutions have implemented advanced technologies such as AI-driven credit scoring, cloud computing, and fully digital customer onboarding systems. For instance, over 90% of Techcombank's retail transactions are now conducted through digital platforms, reflecting a deep shift in customer behavior and operational models (Deloitte, 2022). Meanwhile, foreign-invested banks such as HSBC and Standard Chartered have contributed global expertise and advanced technologies, particularly in blockchain-based trade finance and paperless transactions (World Bank, 2022).

Overall, digital transformation has delivered tangible improvements in the operational efficiency of Vietnamese commercial banks. Automation of internal processes has significantly reduced manual errors and shortened transaction times. A Deloitte (2022) report estimates that process automation and online transaction systems have lowered operational costs by 15–20% across the sector. Data-driven management has further enhanced decision-making and risk control. Many banks have integrated big data analytics into their risk management systems to detect fraudulent transactions and forecast credit demand (Nguyen & Do, 2022). Additionally, digital platforms have improved customer satisfaction and expanded access to financial services. The Vietnam Banks Association (2023) reported that over 90% of retail transactions were conducted via online or mobile banking in 2023, highlighting the efficiency and convenience brought by digitalization.

Beyond financial performance, digital transformation has also contributed to human resource optimization and improved service quality. As automation replaces manual administrative work, bank employees are increasingly able to focus on customer-oriented and strategic tasks. Digital banking also supports new business models such as personalized financial services, online lending, and cross-platform payment ecosystems. These developments have enhanced banks' operational resilience and adaptability to market changes, aligning with global trends in the digital financial sector (Brock & Wangenheim, 2019).

However, despite these achievements, the process of digital transformation in Vietnam's banking industry remains uneven and fragmented. One of the most critical challenges is the financial and technological constraint, especially among small and medium-sized banks. The high initial costs of upgrading IT infrastructure, maintaining cybersecurity systems, and training personnel have created barriers to widespread adoption (Le & Phan, 2021). In addition, cybersecurity threats pose serious risks as banks become increasingly reliant on digital platforms. The Ministry of Information and Communications (MIC, 2023) reported that cyberattacks targeting the financial sector increased by nearly 30% between 2021 and 2023.

Human resource limitations also hinder effective implementation. Many employees in traditional banks lack sufficient digital literacy or adaptability, leading to resistance to technological change (Nguyen & Do, 2022). Furthermore, regulatory frameworks have not fully kept pace with technological development. Although the SBV has introduced some policies to guide digital banking operations, comprehensive regulations for open banking, data sharing, and digital currencies are still under development (World Bank, 2022). The absence of unified standards increases compliance uncertainty and slows innovation. Another issue lies in the uneven digital maturity across banks and regions. While large urban banks have integrated advanced digital systems, rural and smaller banks continue to rely on traditional models, exacerbating the digital divide and limiting overall efficiency gains (Deloitte, 2022).

Despite these challenges, the trajectory of digital transformation in Vietnam's commercial banking sector remains positive. Digitalization has enhanced service delivery, improved operational efficiency, and strengthened competitiveness. It has also transformed the relationship between banks and customers, shifting from transaction-based to experience-based engagement. Nevertheless, sustaining these gains will require continued investment in digital infrastructure, stronger cybersecurity measures, and improved coordination between regulators and financial institutions. Developing a digitally skilled workforce and refining policy frameworks will be essential for ensuring that the benefits of digital transformation are both sustainable and inclusive.

In summary, Vietnam's commercial banking industry has made remarkable progress in digital transformation, yet disparities persist in implementation and outcomes. The sector is moving from a technology-adoption phase toward a strategic transformation phase, where the focus shifts from applying digital tools to integrating them into core business processes. For Vietnam to realize the full potential of digital banking, both banks and policymakers must view digital transformation not only as a technological evolution but also as a comprehensive process of organizational and institutional restructuring aimed at achieving greater efficiency, innovation, and financial inclusion.

4. Conclusion

This study analyzed the impact of digital transformation on the operational efficiency of Vietnamese commercial banks using a qualitative and descriptive approach based on secondary data. The research found that digital transformation has become a strategic priority and a key driver of performance improvement across the Vietnamese banking industry. The adoption of digital technologies such as artificial intelligence (AI), data analytics, automation, and cloud computing has led to significant improvements in transaction speed, service quality, and cost efficiency. Banks that invested early in digital infrastructure have achieved higher operational agility, better risk management, and enhanced customer satisfaction.

DOI: 10.5281/zenodo.17646198

However, the study also revealed that digital transformation among Vietnamese commercial banks remains uneven and incomplete. Large private banks such as Techcombank, MB Bank, and VPBank have made substantial progress in digital integration, while state-owned and smaller banks continue to face financial, technological, and human resource limitations. Key challenges include high investment costs, cybersecurity risks, fragmented legacy systems, and insufficient digital literacy among employees. Moreover, regulatory frameworks and governance mechanisms have not yet fully adapted to the pace of technological change, leading to uncertainties in implementation and compliance.

Overall, digital transformation has improved operational efficiency in Vietnamese commercial banks, but its long-term success depends on aligning technological innovation with organizational restructuring, workforce readiness, and supportive public policies. The findings underscore that digital transformation is not merely a technological upgrade but a comprehensive institutional and cultural shift that requires commitment from both the financial sector and the government.

Based on the analysis, several policy recommendations are proposed to accelerate digital transformation and enhance operational efficiency in Vietnam's banking sector. First, the government and the State Bank of Vietnam (SBV) should establish a comprehensive national framework for digital banking transformation. This framework should set clear standards for data governance, cybersecurity, and digital risk management while promoting interoperability among banks. It should also define measurable performance indicators to assess the progress of digital transformation across institutions. Second, policymakers should expand financial incentives and funding mechanisms to support digital investment. The creation of a Digital Finance Innovation Fund or preferential credit lines for digital projects could encourage small and medium-sized banks to modernize their infrastructure. Collaboration with international organizations such as the World Bank, ADB, or IMF would help mobilize resources and share global best practices. Third, human resource development should be a central focus of the digital transformation strategy. Banks need to invest in retraining and upskilling their workforce to improve digital literacy, cybersecurity awareness, and data analytics capabilities. Universities and training institutes should partner with financial institutions to design specialized programs in fintech and digital banking management. Fourth, strengthening cybersecurity and data protection is essential. The Ministry of Information and Communications (MIC) and the SBV should coordinate to enforce stricter cybersecurity standards, improve incident reporting systems, and establish a national cybersecurity center dedicated to the financial sector. Public awareness campaigns about online fraud and digital risk prevention should also be promoted. Fifth, the government should encourage innovation ecosystems and public–private partnerships (PPPs) to foster digital solutions. Banks can collaborate with fintech startups to develop innovative services such as open banking platforms, blockchain-based payments, and AI-driven credit scoring models. A regulatory sandbox mechanism could be expanded to allow experimentation with new technologies under controlled supervision. Finally, to ensure inclusivity, policymakers should support digital infrastructure development in rural and remote areas. Expanding broadband coverage and mobile payment networks will help reduce the digital divide and promote financial inclusion ensuring that the benefits of digital transformation are shared across all regions and segments of society.

In conclusion, digital transformation represents both a challenge and an opportunity for Vietnamese commercial banks. While it has already improved operational efficiency and competitiveness, its full potential will only be realized through coordinated actions among financial institutions, regulators, and policymakers. The study emphasizes that technological innovation must go hand in hand with institutional reform, human capital development, and robust governance frameworks. By adopting an integrated approach that combines technology, regulation, and organizational change, Vietnam can build a resilient, efficient, and inclusive digital banking system. Such a system would not only enhance operational performance but also strengthen the country's financial stability and contribute to the broader goal of sustainable economic growth in the digital era.

Acknowledgments Funding: The authors gratefully acknowledge the financial support from the Banking Academy of Vietnam.

Competing interests: The authors declare that there are no conflicts of interest regarding the publication of this paper.

REFERENCES

1. Baiyere, A., Salmela, H., & Tapanainen, T. (2020). Digital transformation and the new logics of business process management. *European Journal of Information Systems, 29*(3), 238–259. https://doi.org/10.1080/0960085X.2020.1718007
2. Beck, T., Demirgüç-Kunt, A., & Levine, R. (2016). Financial institutions and markets across countries and over time: The updated financial development and structure database. *World Bank Economic Review, 30*(1), 5–33.
3. Brock, J. K.-U., & Wangenheim, F. (2019). Demystifying AI: What digital transformation leaders can teach us about the human side of AI. *Business Horizons, 62*(6), 761–772. https://doi.org/10.1016/j.bushor.2019.08.002
4. Chen, J., & Zhang, Y. (2020). Fintech, digital transformation, and the efficiency of Chinese commercial banks. *China Economic Review, 64*, 101546. https://doi.org/10.1016/j.gfj.2023.100850
5. Deloitte. (2022). *Vietnam banking industry report 2022: Accelerating digital transformation for sustainable growth.* Hanoi: Deloitte Vietnam.
6. Ghosh, S. (2018). Digital transformation in financial inclusion: The Indian experience. *Journal of Payments Strategy & Systems, 12*(3), 260–273.
7. Gomber, P., Koch, J.-A., & Siering, M. (2018). Digital finance and fintech: Current research and future research directions. *Journal of Business Economics, 87*(5), 537–580.
8. Henderson, J. C., & Venkatraman, N. (1993). Strategic alignment: Leveraging information technology for transforming organizations. *IBM Systems Journal, 32*(1), 4–16.
9. Le, Q. T., & Phan, M. N. (2021). Challenges of digital transformation in state-owned banks: The case of Vietnam. *Asian Journal of Economics and Business Management, 8*(4), 112–128.
10. Le, T. H., & Nguyen, T. H. (2023). Digital banking transformation and competitive advantage: Evidence

DOI: 10.5281/zenodo.17646198

from Vietnam. *Journal of Asian Finance, Economics and Business, 10*(2), 65–74.

11. Lee, J., Kim, S., & Park, S. (2021). Digital transformation and efficiency in Asian banking: Evidence from Korea and Singapore. *Asia Pacific Journal of Financial Studies, 50*(3), 412–435.
12. Matarazzo, M., Penco, L., Profumo, G., & Quaglia, R. (2021). Digital transformation and customer value creation in made-in-Italy SMEs: A dynamic capabilities perspective. *Journal of Business Research, 123*, 642–656.
13. Mhlanga, D. (2020). Industry 4.0 in finance: The impact of artificial intelligence (AI) on digital financial inclusion. *International Journal of Financial Studies, 8*(3), 45–62.
14. Ministry of Information and Communications (MIC). (2023). *Vietnam cybersecurity report 2023*. Hanoi: MIC Press.
15. Nguyen, T. T., & Do, H. T. (2022). Digital transformation in the Vietnamese banking sector: Opportunities and challenges. *Journal of Asian Finance, Economics and Business, 9*(4), 345–354.
16. Ozili, P. K. (2018). Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review, 18*(4), 329–340.
17. Puschmann, T. (2017). Fintech and the Digital Transformation of Financial Services. Highlights in Business Economics and Management, *27*(1), 1–7. https://doi.org/10.54097/hbem.v8i.7225
18. State Bank of Vietnam (SBV). (2021). *Digital transformation strategy for the banking sector to 2025, with orientation to 2030*. Hanoi: SBV Press.
19. Tran, D. H. (2022). Assessing digital transformation readiness in Vietnamese commercial banks. *Vietnam Journal of Economics and Development, 301*(2), 44–57.
20. Vial, G. (2019). Understanding digital transformation: A review and a research agenda. *The Journal of Strategic Information Systems, 28*(2), 118–144. https://doi.org/10.1016/j.jsis.2019.01.003
21. World Bank. (2022). *Vietnam digital economy report 2022*. Washington, D.C.: The World Bank.
22. World Bank. (2023). *Vietnam financial inclusion data 2023*. Washington, D.C.: The World Bank.
23. Zachariadis, M., & Ozcan, P. (2017). The API economy and digital transformation in financial services: The case of open banking. *SWIFT Institute Working Paper, 2017-001*.

DOI: 10.5281/zenodo.17646198