

From Digitization to Digital Governance: The Dynamic Capabilities of Vietnam's Banking Sector in Risk Governance and Financial Inclusion—Implications for Emerging Markets

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Abstract

Digital transformation is profoundly reshaping banking operations and governance models across emerging economies; however, the pace of digitization does not necessarily translate into commensurate governance capabilities. This study examines the case of Vietnam to elucidate the transition from transaction digitization to organizational transformation and digital governance, while drawing broader implications for emerging markets. The research employs a combination of structured literature analysis, secondary data, and descriptive statistics from the State Bank of Vietnam, the World Bank, the International Monetary Fund (IMF), the Asian Development Bank (ADB), the Bank for International Settlements (BIS), the Financial Stability Board (FSB), the Organisation for Economic Co-operation and Development (OECD), and international research studies. The findings indicate that the level of digitization in Vietnam's banking sector has increased rapidly. Four years after the implementation of Decision No. 810/QĐ-NHNN, numerous core banking operations have been fully digitized, while at many credit institutions, more than 90% of transactions are conducted through digital channels. During the first eleven months of 2024, cashless payments reached 15.92 billion transactions, representing an increase of 56.94%; QR-code transactions rose by 106.68% in volume and 84.77% in value. Nevertheless, digital financial inclusion remains uneven across gender and income groups. At the same time, increasing digitization has intensified risks associated with data, artificial intelligence, model risk, cybersecurity, and third-party dependencies.

The study argues that the relationship between technology and performance is not linear. Sustainable value emerges only when technology and data are effectively absorbed through dynamic capabilities and transformed into digital governance capabilities. Accordingly, the study proposes a framework of technology and data → dynamic capabilities → digital governance capabilities → performance, resilience, and financial inclusion, thereby shifting the focus from “how far digitization has progressed” to “how effectively what has been digitized is governed.”

Keywords: digital transformation; digital banking; FinTech; dynamic capabilities; risk governance; financial inclusion; artificial intelligence.

1. INTRODUCTION

Over the past decade, digital technologies have evolved from auxiliary tools into core infrastructure for the banking sector. Mobile banking, QR payments, electronic identification, big data, cloud computing, artificial intelligence, and FinTech are transforming not only the way transactions are conducted but also how banks organize their operations, manage risk, and build relationships with customers. Vial (2019) argues that digital transformation should be understood as a process that substantially alters how organizations create and capture value; Verhoef et al. (2021) likewise emphasize that digital transformation extends far beyond transferring conventional data and processes into electronic environments.

For emerging economies, the significance of digital transformation is even greater because technology can reduce transaction costs, expand access to financial services, and narrow infrastructure gaps. At the same time, however, this process is generating a new risk structure. As banking activities become increasingly dependent on data, algorithms, cloud infrastructure, AI, and technology providers, risks no

longer reside solely on the balance sheet but increasingly extend to digital infrastructure, technology supply chains, and data ecosystems.

Vietnam represents a particularly noteworthy case. Decision No. 810/QĐ-NHNN, issued on 11 May 2021, established an important policy foundation for the digital transformation of the banking sector through 2025, with a vision toward 2030. The State Bank of Vietnam (SBV) reports that, after four years of implementation, many basic banking operations have been fully digitized, while at numerous credit institutions, more than 90% of transactions are conducted through digital channels.

The growth of digital payments has likewise been remarkable. During the first eleven months of 2024, the system recorded 15.92 billion cashless payment transactions, with a total value of approximately VND 263.82 quadrillion; Internet-based transactions reached 2.92 billion, mobile transactions 11.01 billion, and QR transactions 271.58 million. QR transactions alone increased by 106.68% in volume and 84.77% in value year on year. By contrast, the number of ATM transactions declined by 12.87%.

These figures indicate that Vietnam's banking sector has moved beyond the stage of simply "putting transactions online." A more fundamental question, however, is beginning to emerge: have governance capabilities developed rapidly enough to keep pace with the speed of digitization?

This question becomes even more salient when supply-side and demand-side data present different pictures of financial inclusion. The SBV reports that more than 87% of Vietnamese adults hold a bank account, whereas the 2025 Global Findex, based on a 2024 survey, records approximately 70% of women and 71% of men as having an account. These two sets of figures are not necessarily contradictory because they reflect different measurement approaches: administrative data from the banking system and survey-based data collected from users.

More importantly, account ownership does not necessarily imply frequent or equitable use of digital financial services. The share of women making digital payments is only 39%, compared with 63% among men; disparities across living-standard groups are also substantial. Accordingly, account coverage cannot be regarded as the sole indicator of financial inclusion in a digital economy.

From a risk-governance perspective, digitization does not eliminate traditional banking risks. The IMF assesses systemic risks in Vietnam as remaining elevated; although the non-performing loan ratio has declined, it remains considerably higher than in 2022, while the loan-to-deposit ratio exceeds 100% and liquid assets account for a relatively small share of total assets. At the same time, AI and emerging technology platforms are generating risks related to data, models, cybersecurity, and provider concentration. In 2025, the FSB continued to emphasize that dependence on a limited number of hardware, cloud, and AI-model providers may generate risks related to criticality, concentration, and substitutability.

Against this backdrop, the study addresses four questions: (1) how has Vietnam's banking sector moved from transaction digitization toward organizational transformation and digital governance?; (2) what mechanisms transform technology into performance, risk governance, and financial inclusion?; (3) why does the pace of digitization not automatically generate stability and inclusion?; and (4) which lessons from Vietnam can be selectively transferred to other emerging markets?

To address these questions, the study combines dynamic capabilities theory with the concept of digital governance capability and draws on secondary data from regulatory authorities, international organizations, and academic research. The study's principal contribution is to shift the analytical focus from the extent of technology adoption toward the organizational and institutional capabilities underlying technology.

2. Theoretical Foundation and Literature Review

The Dynamic Capabilities Theory developed by Teece, Pisano, and Shuen (1997) provides an appropriate foundation for explaining why the same technology can produce different outcomes across organizations. In volatile environments, competitive advantage depends not only on resources but also on the ability to identify change, seize opportunities, and reconfigure resources.

In digital banking, these three dimensions can be interpreted as follows. Sensing refers to the ability to identify emerging technologies, customer needs, and new risks; seizing concerns the ability to translate these opportunities into products, processes, and business models; and transforming refers to the ability to alter human resources, organizational structures, processes, data, and governance systems.

This framework is particularly relevant to banking because purchasing an AI system or deploying a digital banking application does not automatically create competitive capabilities. Banks must also possess sufficiently high-quality data, appropriately skilled personnel, model governance mechanisms, risk controls, and the capacity to integrate technology into business processes.

Vial (2019) and Verhoef et al. (2021) demonstrate that digital transformation represents change at the organizational level, while Vives (2019) emphasizes the implications of digital technologies for competition and banking business models. Murinde et al. (2022) further show that FinTech creates both opportunities and risks for banks, making adaptive capabilities and regulatory frameworks critical conditions.

Empirical studies likewise report heterogeneous outcomes. Using data from listed joint-stock commercial banks in Vietnam over the 2015–2021 period, Nguyen-Thi-Huong et al. (2023) find a negative effect of the degree of digital transformation on ROA and ROE. In contrast, Hoque et al. (2024), using data from 26 Vietnamese commercial banks over 2013–2022, find that digital transformation reduces credit risk and insolvency risk but has no statistically significant effect on liquidity risk.

Evidence from other emerging markets is similarly mixed. Safiullah and Paramati (2024) identify a positive effect of FinTech development on banking stability in Malaysia. By contrast, Khan et al. (2023) find that FinTech adoption is negatively associated with banking stability in GCC economies, although the adverse effect is weaker among larger, better-capitalized banks and in more competitive markets. Abdurrahman et al. (2024), drawing on evidence from Indonesia, find that sensing, seizing, and transforming all have significant effects on digital transformation and banking performance, while GRC enhances the effectiveness of digital transformation.

The heterogeneity of these findings provides important evidence in support of the study's central argument: technology does not generate a single outcome across all contexts. Its effects depend on organizational capabilities, risk governance, capital, market structure, and institutional quality.

Building on this perspective, the study introduces the concept of digital governance capability as an intermediate layer between dynamic capabilities and outcomes. This capability encompasses data governance; AI and model governance; cybersecurity and operational resilience; third-party risk management; consumer protection; and accountability.

This concept is consistent with the recent direction of international policy and research. The BIS argues that the use of AI in finance creates requirements for governance, expertise and skills, model governance, data governance, and the management of third-party AI providers. The OECD

likewise emphasizes that many AI-related risks in finance may amplify risks that already exist, while also creating challenges concerning data protection, privacy, bias, and provider concentration.

Accordingly, the study proposes the following framework: Technology and data → Dynamic capabilities → Digital governance capabilities → Performance, resilience, and financial inclusion.

This framework does not assume statistically tested causal relationships; rather, it serves as an analytical framework for organizing and interpreting secondary evidence.

3. Research Methodology

The study employs a structured document-analysis and secondary-data research design, focusing on the 2019–2026 period, with the principal quantitative evidence concentrated in 2024–2025.

The sources are divided into four groups. The first comprises administrative data and policy documents from the SBV and the Vietnamese Government. The second consists of internationally comparable data from the World Bank, particularly the 2025 Global Findex. The third includes reports on financial stability, AI, and technology governance issued by the IMF, BIS, FSB, OECD, and ADB. The fourth comprises published academic studies appearing in journals with identifiable DOIs and/or established publishers.

The analysis is organized around four interrelated themes: the extent of digitization; organizational and data capabilities; risk and resilience; and financial inclusion and institutions. Quantitative indicators are presented in the form of descriptive statistics, ratio comparisons, and cross-source comparisons. The study does not conduct regression analysis or causal inference based on primary data.

A key methodological principle is to avoid mechanically pooling statistics from different sources. SBV data reflect the operations and coverage of the banking system, whereas the Global Findex captures individual behavior through survey-based measures. Accordingly, differences between sources are treated as analytically informative rather than as discrepancies to be eliminated.

4. Results and Discussion

4.1. From Transaction Digitization to Data-Driven Banking

Policy evidence indicates that Vietnam’s banking sector has moved beyond the simple digitization of transaction channels. After four years of implementing Decision No. 810, the SBV reported that numerous core banking operations—including deposits, the opening and use of payment accounts, card issuance, fund transfers, and lending—had been fully digitized; at many credit institutions, more than 90% of transactions were conducted through digital channels.

The more consequential change lies in the fact that transaction data are increasingly becoming an organizational resource. A payment transaction does not merely complete the transfer of funds; it also generates information about frequency, value, timing, and patterns of service use. When properly governed, such data can support customer segmentation, anomaly detection, product personalization, and improved credit decision-making.

A survey released by the SBV in 2023, based on a PwC survey of more than 30 leading banks in Southeast Asia, found that banks were targeting reductions in cost-to-income ratios and customer-acquisition costs while seeking to increase revenue through digitization; 82% of the banks surveyed had begun digitizing end-to-end customer channels. At the same time, more than 80% reported that they had not yet achieved significant success in their digitization objectives, indicating that a gap remains between strategy and implementation capability.

This observation reinforces the central proposition of dynamic capabilities theory: technological investment is necessary but not sufficient. The economic value of technology depends on an organization’s ability to reconfigure processes, human resources, and governance mechanisms.

4.2. Digital Payments: Rapid Diffusion but Shifting Transaction Values

Cashless payments provide the clearest illustration of the pace of banking-sector digitization in Vietnam. During the first eleven months of 2024, the total number of cashless payment transactions reached 15.92 billion, representing an increase of 56.94%; transaction value reached approximately VND 263.82 quadrillion, up 33.76%. Internet-based payments increased by 50.67% in volume; mobile payments rose by 54.62%; and QR payments alone increased by 106.68% in volume and 84.77% in value.

Table 1. Digital Payment Development in Vietnam

Indicator	Volume/Value	Year-on-Year Increase	Note
Cashless payments	15.92 billion transactions	+56.94%	First 11 months of 2024
Internet payments	2.92 billion transactions	+50.67%	By volume
Mobile payments	11.01 billion transactions	+54.62%	By volume
QR payments	271.58 million transactions	+106.68%	Value increased by 84.77%

Source: State Bank of Vietnam; data for the first 11 months of 2024, as cited in the study.

The fact that QR payment volumes are growing faster than transaction values indicates a decline in the average value per transaction. This pattern is consistent with the gradual adoption of QR payments for everyday purchases, rather than their use being concentrated primarily in relatively high-value transactions.

At the same time, the number of ATM transactions declined by 12.87%, while by the end of November 2024, Vietnam had 21,089 ATMs and 733,456 POS terminals. This points to a fundamental shift in transaction behavior: demand for payment services has not diminished, but the means of conducting transactions are increasingly moving away from cash and ATMs toward mobile devices, QR codes, cards, and other electronic channels.

The SBV also reports that Vietnam has completed cross-border QR payment connectivity with Thailand and Cambodia and has begun implementation with Laos. Digital payment, therefore, is evolving from a domestic innovation into a component of regional financial connectivity.

4.3. Financial Inclusion: High Account Ownership but Uneven Usage

The 2025 Global Findex provides an important user-side perspective. The database is based on a survey of approximately 148,000 adults across 141 economies in 2024 and represents a major source of internationally comparable data on access to and use of financial services.

Table 2. Digital Financial Inclusion: The Gap between Access and Usage

Population Group	Account Ownership (%)	Digital Payments (%)	Usage Gap
Women	70	39	–31 percentage points
Men	71	63	–8 percentage points
Bottom 40% by living standards	48	61	+13 percentage points
Top 60% by living standards	85	78	–7 percentage points

Source: World Bank, The Global Findex Database 2025, 2024 survey; figures presented in the study.

In Vietnam, approximately 70% of women and 71% of men hold an account. Yet the share making digital payments is only 39% among women, compared with 63% among men. Disparities by living standards are also substantial: account ownership reaches 48% among the bottom 40% of the population by living standards and 85% among the top 60%; the corresponding shares making digital payments are 61% and 78%, respectively.

This constitutes a noteworthy paradox. A financial system may expand account ownership rapidly while still failing to generate equitable patterns of usage. Financial inclusion in the digital era should therefore be assessed at least across three layers: access, account ownership, and effective use and benefit.

This distinction is particularly important for emerging economies. Technology can reduce the cost of delivering financial services, but it does not automatically eliminate barriers related to income, digital skills, access to devices, trust, financial literacy, or financial resilience.

4.4. Data, Digital Identification, and AI: From Information Advantage to Model Risk

Digitization is fundamentally transforming the way banks process information. Digital identification, biometrics, transaction data, and AI enable banks to authenticate customers more rapidly, detect anomalous transactions, and support credit assessment.

From an economic perspective, these technologies can help reduce information asymmetry. Hoque et al. (2024) find that digital transformation in 26 Vietnamese banks over the 2013–2022 period reduced credit risk and insolvency risk, while having no statistically significant effect on liquidity risk.

More data, however, do not necessarily mean better data, just as more sophisticated models do not necessarily produce more accurate decisions. Risks may arise from biased data, historical biases embedded in datasets, unrepresentative samples, inadequately validated models, or excessive reliance on automated outputs.

The BIS points out that the use of AI in finance creates requirements for governance, expertise and skills, model governance, data governance, and controls over third-party AI providers. The FSB identifies four areas of vulnerability with potentially systemic implications: third-party dependencies and provider concentration; market correlations; cyber risk; and model risk, data quality, and governance.

Notably, in 2025, the FSB shifted its focus from merely identifying risks toward monitoring the extent of AI adoption and points of concentration across AI supply chains, particularly in specialized hardware, cloud infrastructure, and pre-trained models.

By 2026, the issue had advanced another step. The FSB issued a consultation draft on good practices for the responsible adoption of AI in financial institutions, proposing 12 groups of practices covering AI governance and the entire lifecycle of AI development, deployment, and use. This development strongly reinforces the argument that AI governance should be regarded as an organizational capability rather than merely a technical function.

4.5. Digitization Does Not Automatically Generate Financial Stability

Digitization can strengthen risk management, but it does not eliminate the traditional risks inherent in banking. In its 2025 Article IV report, the IMF noted that the on-balance-sheet non-performing loan ratio had declined from 5.9% in September 2023 to 5.3% in March 2025, but remained substantially above the 2.3% recorded in 2022. The capital adequacy ratio stood at 10.4% for state-owned banks and 12.1% for private banks; the loan-to-deposit ratio exceeded 100%, while liquid assets accounted for only 7.8% of total assets in June 2024. The IMF therefore assessed systemic risks as remaining high.

Table 3. Selected Indicators of Banking-System Risk and Soundness

Indicator	Level/Value	Period	Analytical Significance
On-balance-sheet non-performing loans	5.3%	March 2025	Down from 5.9% in September 2023 but still above 2.3% in 2022
Capital adequacy ratio – state-owned banks	10.4%	2025	Indicator of risk-absorption capacity
Capital	12.1%	2025	Higher than that

adequacy ratio – private banks			of state-owned banks
Liquid assets/total assets	7.8%	June 2024	Indicates limited liquidity headroom

Source: IMF, *Vietnam: 2025 Article IV Consultation—Press Release; Staff Report; and Statement by the Executive Director for Vietnam*, IMF Country Report No. 25/283.

This evidence indicates that two processes are unfolding simultaneously. On the one hand, banks are digitizing at remarkable speed; on the other, they continue to confront the fundamental challenges of credit quality, capital adequacy, and liquidity.

The academic evidence likewise does not support a simple conclusion. Nguyen-Thi-Huong et al. (2023) find a negative effect of digital transformation on ROA and ROE in their sample of Vietnamese banks, whereas Hoque et al. (2024) identify reductions in credit and insolvency risks associated with digital transformation.

These divergent findings may partly reflect the time lag associated with technology investment. The costs of investment, training, restructuring, and systems integration may materialize before productivity gains are fully realized. A given technology may simultaneously reduce one category of risk while generating another.

Accordingly, the proportion of digital transactions cannot be used as a single proxy for the maturity of digital banking.

5. From Dynamic Capabilities to Digital Governance Capabilities

Table 4. Capability Framework from Digitization to Digital Governance

Capability Layer	Core Content	Governance Question	Intended Outcome
1. Digital infrastructure	Internet/mobile banking, QR, POS, identification, connectivity	Does the institution possess sufficient technological capacity to scale services?	Access
2. Digital processes	End-to-end digitization, accounts, cards, payments, lending	Have processes been redesigned around digital capabilities?	Operational efficiency
3. Data-driven organization	Big data, AI, machine learning, customer analytics	Can data be transformed into business capabilities?	Decision quality
4. Digital governance	Data, AI, models, cybersecurity,	How are technology-enabled	Resilience and sustainability

	third parties, accountability	activities controlled, monitored, and made accountable?	
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Source: Author’s synthesis based on the study’s analytical framework, the dynamic capabilities framework of Teece, Pisano, and Shuen (1997), and the digital governance capability dimensions developed in this study.

The synthesis of the evidence allows four developmental layers of Vietnam’s digital banking sector to be identified.

The first is digital infrastructure, encompassing Internet banking, mobile banking, QR payments, POS terminals, digital identification, and payment connectivity.

The second is digital processes, whereby account opening, deposits, cards, payments, and lending are increasingly redesigned around end-to-end digital processes.

The third is a data-driven organization, in which big data, AI, and machine learning support customer analytics, fraud detection, and credit decision-making.

The fourth is digital governance, encompassing data governance; AI and model governance; cybersecurity; operational resilience; third-party risk management; consumer protection; and accountability.

The first three layers address the question: What can banks do with technology? The fourth addresses the deeper question: How do banks control, explain, and assume responsibility for what technology produces?

This is precisely where the concept of digital governance capability complements dynamic capabilities theory.

Dynamic capabilities explain an organization’s capacity to sense, seize, and reconfigure. Digital governance capabilities explain its capacity to control, monitor, account for, and remain resilient to the digital systems it has deployed.

Accordingly, the study proposes the following mechanism:

Technology and data → Dynamic capabilities → Digital governance capabilities → Performance, resilience, and financial inclusion.

Institutional quality, capital, human resources, market structure, and technological maturity function as contextual conditions that may amplify or constrain the effects transmitted through this chain.

This framework also helps explain three phenomena that may initially appear paradoxical. First, digital transactions are expanding rapidly, yet gaps in financial inclusion persist. Second, AI improves information processing while simultaneously increasing model risk and dependence on technology providers. Third, banks may achieve extensive digitization without eliminating credit, capital, and liquidity risks.

6. Managerial and Policy Implications

For banks, the most important requirement in the next stage is to move from a mindset of “digitize first, control later” to one of “governance by design.” Risk management needs to be embedded from the outset in the design of digital

products, technology selection, model development, and relationships with technology providers.

Data should be regarded as a strategic asset while simultaneously being recognized as a source of strategic risk. Data quality, access rights, traceability, information protection, and intended use must be governed throughout the entire data lifecycle.

For AI, banks need to establish lifecycle-wide governance mechanisms covering data selection, training, validation, deployment, monitoring, and decommissioning. High-impact applications, such as credit scoring, pricing, fraud detection, and AML/KYC, require a higher degree of control than applications intended primarily for administrative support.

Third-party governance should likewise be elevated to a core component of risk management. As banks become increasingly dependent on cloud services, FinTech firms, AI systems, and data providers, they need to assess concentration risk, substitutability, data access rights, provider portability, and recovery arrangements in an integrated manner.

For Vietnam, an important priority is to continue strengthening data and digital-identification infrastructure while ensuring that this development is accompanied by sound data governance, consumer protection, and accountability. The appropriate principle is not “share as much data as possible,” but rather to share the right data, for the right purpose, with the right party, under the right accountability arrangements.

A notable policy development is Decree No. 94/2025/ND-CP on the controlled testing mechanism for the banking sector, which entered into force on 1 July 2025. The decree establishes a regulatory sandbox for selected FinTech solutions in banking. By 2026, the SBV had continued to refine implementation procedures through Circular No. 19/2026/TT-NHNN, which entered into force on 30 June 2026.

The sandbox should therefore be viewed not merely as a mechanism for encouraging innovation, but also as a policy-learning instrument: experiment, collect data, identify risks, assess impacts, and subsequently translate the evidence into regulation.

For financial inclusion, policy metrics also need to evolve. Rather than monitoring only the number of people who hold accounts, policymakers should pay attention to active accounts, the frequency of digital-payment use, access to credit and savings products, financial literacy, financial resilience, and disparities by gender, income, and geographic area.

For regulators, technological capabilities must develop in parallel with the capabilities of the institutions being supervised. The BIS notes that many supervisory authorities are experimenting with AI for SupTech, yet continue to face constraints in IT infrastructure, data security, and specialized expertise. Accordingly, SupTech, data science, model supervision, and the capacity to assess technology providers should be regarded as integral components of financial-stability capabilities.

7. Implications for Emerging Markets

The Vietnamese experience suggests a three-layer framework for emerging markets.

The first layer—digital infrastructure comprises connectivity, digital payments, digital identification, data, and cloud infrastructure, which together create the capacity to scale financial services.

The second layer—organizational capabilities includes digital talent, innovation, data governance, process restructuring, and FinTech partnerships, which transform technological potential into business capabilities.

The third layer—governance and institutions—comprises AI governance, cybersecurity, consumer protection, third-party risk management, FinTech supervision, and accountability. These factors ultimately determine whether the value generated by technology is sustainable.

These three layers do not operate in a linear sequence. Infrastructure creates potential; organizational capabilities transform that potential into value; governance and institutions determine whether that value can be realized safely and sustainably.

This is particularly important for emerging economies. If technology advances faster than governance capabilities, governance gaps may accumulate in the form of data, model, cyber, and third-party dependency risks. Conversely, if regulation becomes excessively restrictive while infrastructure and innovation capabilities remain underdeveloped, policy may inadvertently weaken incentives for experimentation.

The policy objective, therefore, should not be to maximize the speed of digitization, but to synchronize the pace of technological innovation with the maturation of governance capabilities.

This also marks a fundamental distinction between digital banking and banking with digital governance capabilities. Digital banking concerns what technology enables banks to do; digital governance concerns a bank's ability to control what technology produces.

8. Conclusion, Limitations, and Future Research

The study shows that Vietnam's banking sector has entered a stage of development in which technology is no longer an external layer of infrastructure but has become an integral component of organizational capability. Many core banking operations have been fully digitized, and at numerous credit institutions, more than 90% of transactions are conducted through digital channels. QR payments, mobile banking, and other electronic payment methods continue to expand rapidly.

However, the pace of digitization has not necessarily been matched by a corresponding maturation of governance. The Global Findex reveals substantial disparities in the use of digital financial services across gender and living standards. The IMF, meanwhile, indicates that credit, capital, and liquidity risks remain present. At the technological level, AI is intensifying requirements for data governance, model governance, cybersecurity, and third-party risk management.

The central finding of the study is therefore that digital transformation does not generate value through a linear “technology → performance” relationship. Sustainable value emerges only when technology is absorbed through dynamic capabilities and governed through digital governance capabilities.

On this basis, the study proposes the following chain:

Technology and data → dynamic capabilities → digital governance capabilities → performance, resilience, and financial inclusion.

The study's theoretical contribution lies in extending the application of Dynamic Capabilities Theory to digital banking in emerging economies by positioning digital governance capabilities between organizational capabilities and outcomes. Its policy contribution is to demonstrate that the next stage of digital transformation should not be assessed primarily by the number of digital transactions, accounts, or technologies deployed, but by the capacity to govern, withstand disruptions, and generate substantive benefits from digital systems.

The study has three main limitations. First, secondary data do not permit the establishment of direct causal relationships between digitization and banking outcomes. Second, differences between administrative and survey-based data require caution when comparing indicators. Third, the study does not have access to internal data on AI investment, data quality, digital workforce capabilities, or the contractual structures governing relationships with technology providers.

Future research should pursue three main directions. First, a Digital Governance Capability Index should be developed for Vietnamese banks. Second, bank-level panel data should be employed to test the mediating role of digital governance capabilities in relation to performance, risk, and resilience. Third, comparative research should be extended to Vietnam, Indonesia, Malaysia, India, and other emerging economies to identify the role of institutional conditions.

Ultimately, the most meaningful measure of digital transformation in banking should not be how many technologies a bank has deployed, but whether it possesses sufficient capabilities to govern what those technologies produce. It is at this point that digitization truly becomes a source of competitive advantage, resilience, and a more inclusive financial system.

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Conflict of Interest

The author declares that there are no conflicts of interest associated with this study.

Data Availability

This study uses secondary data and publicly available materials. No personal or confidential data were used.

During the preparation of the manuscript, the authors used artificial intelligence (ChatGPT) to assist with literature search and organization, language review, wording refinement, and manuscript and figure formatting. All research content, results, and conclusions were developed by the authors and have been verified.

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