

DIGITAL TRANSFORMATION IN VIETNAM'S BANKING SECTOR: CURRENT SITUATION AND SOLUTIONS

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ABSTRACT

In the context of the Fourth Industrial Revolution and the rapid development of digital technology, digital transformation has become an inevitable trend across all socio-economic sectors, including the banking industry. This paper analyzes the current state of digital transformation in Vietnam's banking sector. The findings indicate that Vietnamese banks have made significant progress in adopting technologies such as Artificial Intelligence (AI), Big Data, Cloud Computing and Blockchain; however, challenges remain in areas such as human resource development, information security and the synchronization of the legal framework. Based on these findings, the paper proposes several solutions to enhance the effectiveness of digital transformation, strengthen competitiveness and move toward building a comprehensive digital financial ecosystem in Vietnam.

Keyword: Digital transformation; Digital banking; Artificial Intelligence (AI); Vietnam.

1. INTRODUCTION

The Fourth Industrial Revolution, with groundbreaking achievements in digital technology, artificial intelligence (AI), big data, the Internet of Things (IoT) and blockchain, is creating profound changes across all areas of economic and social life. In this context, the banking sector, which has a high level of interconnection and serves as the lifeblood of the economy, is among the most directly and strongly affected industries. The rapid growth of financial technology (Fintech) and the global trend of digitalization have created an urgent need for banks to transform comprehensively, not only in the way they deliver services but also in management thinking, operations and customer development.

Around the world, major banks such as DBS in Singapore, BBVA in Spain and JP Morgan Chase in the United States have successfully shifted from traditional business models to fully digital banks that put data at the center of their operations. This transformation has improved customer experience and optimized operational efficiency. These examples show that digital transformation is not a passing trend but an inevitable path for banks to survive and grow sustainably in the digital era.

In Vietnam, digital transformation in the banking sector is seen as one of the key driving forces for

the development of the digital economy and national financial inclusion. Implementing the National Digital Transformation Strategy to 2025, with a Vision to 2030 and the Project on Developing the Application of Population Data, Identification and Electronic Authentication (Project 06/QĐ-TTg), the State Bank of Vietnam (SBV) has clearly defined the goal of building a secure, convenient and inclusive digital financial ecosystem. In recent years, commercial banks have achieved remarkable progress through the implementation of electronic Know-Your-Customer (eKYC) systems, the expansion of cashless payment methods and the application of AI, blockchain and, most recently, biometric authentication across the entire system as required by the SBV.

Despite these achievements, the digital transformation of Vietnam's banking sector still faces many challenges. The technological infrastructure remains inconsistent, data management and cybersecurity capacity are not yet on par with the speed of development and the workforce with digital expertise is still limited. The legal framework for digital banking is also in the process of completion. In addition, a portion of customers still lack awareness or experience in using digital financial services, which affects the overall pace of transformation.

In a context of deep international integration and increasing global competition, studying the

current state of digital transformation in Vietnam's banking sector, analyzing its achievements and limitations and proposing feasible solutions to promote a more effective and sustainable transformation is an urgent requirement. This is not only the responsibility of credit institutions but also a strategic task that contributes to the goal of building a modern, secure, inclusive and user-friendly financial system, moving toward a dynamic digital economy in Vietnam by 2030.

2. ACHIEVEMENTS IN THE DIGITAL TRANSFORMATION OF VIETNAM'S BANKING SECTOR

In recent years, Vietnam's banking sector has made remarkable progress in digital transformation, becoming one of the leading industries in implementing the National Digital Transformation Strategy. On May 29, 2025, in Hanoi, the State Bank of Vietnam (SBV) organized the 2025 Banking Digital Transformation Event under the theme "Intelligent Digital Ecosystem in the New Era." This annual strategic event marked a significant milestone in the sector's digital transformation journey and reaffirmed the central role of technology in driving Vietnam's digital economy.

One of the most notable achievements in the digital transformation of Vietnamese commercial banks is the rapid development of mobile banking services. In the past, digital banking applications were limited to basic functions such as balance inquiries or internal transfers. Today, platforms like VCB Digibank (Vietcombank), BIDV SmartBanking, Techcombank Mobile, MB App and

VPBank NEO have evolved into "miniature banks in the palm of customers' hands."

These applications are designed to be multifunctional, user-friendly and highly secure, allowing customers to perform most financial transactions without visiting a branch. Services include online savings deposits, mutual fund investments, credit card registration, insurance purchases, bill payments, mobile top-ups and even online loan applications completed within minutes. The adoption of advanced security technologies such as facial recognition (Face ID), dynamic one-time passwords (Smart OTP) and electronic customer identification (eKYC) has significantly strengthened transaction safety and minimized risks of financial fraud.

Beyond convenience, mobile banking platforms also aim to personalize user experiences through behavioral and spending data analysis, thereby providing tailored product and service recommendations. For example, Techcombank Mobile integrates a Personal Financial Management (PFM) feature that enables users to track cash flow and set savings goals, while VPBank NEO offers smart investment tools linked directly to insurance and securities products.

With their 24/7 accessibility, intuitive interfaces, diverse features and fast processing speed, smartphones have truly become "mobile bank branches" in their own right. The widespread adoption of mobile banking has not only improved service quality and expanded customer outreach but has also played a crucial role in promoting financial inclusion, enabling people in rural and remote areas to access banking services conveniently, securely and effectively.



Figure 1. Mobile Banking Applications of Selected Banks in Vietnam

(Source: FPT IS, 2025)

Along with the rapid expansion of mobile banking services, another major achievement of Vietnam's banking sector in recent years has been the strong growth of the digital payment ecosystem. The proportion of people using electronic payments has increased steadily each year with the widespread adoption of QR codes, e-wallets, NFC payments and 24/7 instant transfers. By the end of 2024, more than 87% of Vietnamese adults had bank accounts and about 90% of transactions at large banks were carried out through digital channels. This growth reflects both greater user acceptance and the banking sector's efforts to invest in digital infrastructure to meet rising demand.

QR code payments have become a particularly bright spot, showing remarkable increases in both transaction volume and value. The connection of cross-border QR payment systems with Thailand, Laos and Cambodia, with planned expansion to Japan, China and Singapore in 2025, allows Vietnamese users to make convenient payments when traveling or doing international business. This development highlights Vietnam's growing role in regional digital payment integration.

Another important milestone has been the implementation of biometric authentication across the banking system, which has strengthened transaction security and helped reduce fraud. By the end of 2024, about 38 million customers had completed biometric registration. Within three months of introduction, fraud cases fell by 50% and the number of accounts used for fraudulent transfers dropped by more than 70%. These results demonstrate the effectiveness of the solution and have helped build public trust in digital banking. In 2025, the plan to extend biometric authentication to organizational clients and business accounts reflects the sector's determination to create a transparent and safe financial environment.

During 2024 and 2025, banks also expanded their digital financial service ecosystems to provide a more complete experience for users. Many banks have added online gold trading, multi-channel services combining investment, insurance and savings, as well as digital payment solutions for public transportation such as the Ben Thanh-Suoi Tien metro line. These innovations enhance convenience and represent a shift from traditional

banking to multi-service digital platforms that address a wide range of customer financial needs within one ecosystem.

At the same time, banks have invested heavily in technology and cybersecurity, applying Big Data, AI and Machine Learning to analyze customer behavior, manage risk and detect unusual transactions. Leading institutions such as Vietcombank, BIDV, Techcombank, MB and VPBank have developed advanced data analytics systems that support product personalization, improve operational efficiency and reduce costs.

The legal framework for digital banking has also become more complete. The State Bank of Vietnam issued several key regulations to facilitate digital transformation, including Circular 17/2024/TT-NHNN on electronic identification, Circular 18/2024/TT-NHNN on biometric authentication and Circular 50/2024/TT-NHNN on cybersecurity and data protection in online banking. In addition, the implementation of Project 06/QĐ-TTg has connected population data between banks and the Ministry of Public Security, helping clean up customer databases, improve identification accuracy and prevent financial crime.

These achievements have improved service quality, streamlined internal processes and expanded access to financial services, making digital transformation a key driver of Vietnam's digital economy. The progress achieved provides a solid foundation for the banking sector to accelerate in 2025 toward building an intelligent digital ecosystem suited to the new era and to meet the fast-evolving needs of the economy and its customers.

The period from 2020 to 2025 marks a breakthrough in the digital transformation of Vietnam's banking industry. The system has achieved notable results in technology, product development and security while showing initiative, creativity and close coordination with the Government to build a modern, safe, transparent and people-centered digital financial system.

3. LIMITATIONS AND CHALLENGES IN THE DIGITAL TRANSFORMATION OF VIETNAM'S BANKING SECTOR

Alongside notable achievements, the process of digital transformation in Vietnam's banking sector

still faces several limitations and challenges. These difficulties arise not only from internal factors within credit institutions but also from issues related to the legal environment, technological infrastructure and the overall readiness of society for digitalization.

First, technological infrastructure and data systems remain inconsistent.

Although many banks have invested in modernizing their core banking systems and adopting cloud computing platforms, there is still a significant gap between large banks and smaller institutions. Some credit institutions, particularly medium and small-sized banks, struggle to implement new technologies due to limited financial resources and weak technological management capabilities. In addition, customer data systems have not yet been standardized and data connectivity between banks and regulatory bodies is still lacking, making it difficult to effectively exploit and analyze big data.

Second, information security and data protection still face potential risks.

The rapid expansion of digital transactions has brought a rise in cyberattacks, fraud and personal data breaches. According to the Authority of Information Security under the Ministry of Information and Communications, in 2024, hundreds of cyberattacks targeted financial and banking systems each month, causing significant losses in both assets and reputation. Establishing and maintaining international security standards such as ISO/IEC 27001 or PCI DSS requires large investments and highly skilled technical teams, which not all banks can afford. Moreover, users' awareness of information security remains limited; many customers are still vulnerable to scams through text messages, fake links or unofficial applications, which undermines public trust in digital banking services.

Third, human resources for digital transformation are still insufficient and underqualified.

Digital transformation requires personnel who possess both banking expertise and technological proficiency. However, according to the Vietnam Banks Association, only about 20–25% of banking employees have the professional qualifications necessary to participate in large-scale digitalization projects. Many banks still lack

specialists in data analytics, cybersecurity, artificial intelligence and technology management. Retraining internal staff also presents challenges due to high costs and the rapid pace of technological change, which quickly renders existing skills obsolete.

Fourth, the legal framework for digital banking remains incomplete.

Although the State Bank of Vietnam has issued several important regulations, including Circulars 17, 18 and 50/2024/TT-NHNN and Decree 52/2024/NĐ-CP on cashless payments, significant legal gaps persist in managing new business models such as digital-only banks, peer-to-peer (P2P) lending and blockchain-based financial services. The controlled testing mechanism (regulatory sandbox) has not been widely implemented, creating certain barriers to innovation in the Fintech and banking sectors. In addition, regulations on financial data sharing, cloud storage and user privacy protection remain inconsistent across regulatory agencies.

Fifth, customer awareness and habits continue to be barriers.

Although the number of digital banking users has increased rapidly, a considerable portion of customers, particularly the elderly and those in rural areas, remain hesitant to use online services due to security concerns or limited technological literacy. The preference for cash transactions is still common in many areas of daily consumption, which reduces the effectiveness of initiatives promoting cashless payments that the Government and banks have been implementing.

Overall, these limitations and challenges represent major bottlenecks that must be addressed for digital transformation in Vietnam's banking sector to achieve sustainable success. Overcoming them requires close coordination among the Government, credit institutions and technology enterprises to improve the legal framework, invest in advanced technology, strengthen human resource capacity and enhance financial education for the public in order to build greater awareness and trust in digital banking systems.

4. SOLUTIONS TO PROMOTE DIGITAL TRANSFORMATION IN VIETNAM'S BANKING SECTOR

To ensure that digital transformation in Vietnam's banking sector develops effectively, sustainably and comprehensively in the coming years, it is essential to implement a combination of macro- and micro-level solutions that harmonize policies, technology and human factors.

First, improving the legal framework and policy mechanisms.

The State Bank of Vietnam should continue reviewing, updating and completing the legal framework to align with new technological trends, especially in the implementation of Decree No. 52/2024/NĐ-CP on cashless payments and Circulars 17, 18 and 50/2024/TT-NHNN. Specific guidelines on digital banking, open banking data (Open Banking), financial information sharing (Open API) and electronic identification (eKYC, biometrics) should be introduced to ensure consistency, transparency and security in digital transactions. In addition, a regulatory sandbox mechanism should be developed to allow banks and Fintech companies to test new digital financial products and services in a controlled and flexible legal environment that supports innovation.

Second, strengthening investment in technology infrastructure and information security.

Banks need to continue investing heavily in core technology infrastructure, migrating toward cloud-based core banking platforms and applying AI, Blockchain, Big Data and Machine Learning to optimize risk management, fraud detection and customer service personalization. Building multi-layered cybersecurity management systems that combine data encryption, biometric authentication and real-time monitoring is essential. The Government should also consider establishing a National Financial Data Center to facilitate data connectivity and sharing among credit institutions, enterprises and regulators, contributing to national data security and efficiency.

Third, developing high-quality human resources for digital transformation.

Human capital is a decisive factor in the success of digital transformation. Banks should design training and retraining strategies to equip

employees with digital skills, information security knowledge and data analytics capabilities. Collaboration with universities, research institutes and technology enterprises should be encouraged to create specialized training programs in Fintech, Data Science and AI for finance and banking. The Government could establish a Digital Financial Human Resource Development Fund to support training programs and nurture technology experts for the banking sector.

Fourth, promoting collaboration between banks and Fintech companies.

International experience shows that bank-Fintech partnerships expand financial inclusion, reduce service costs and improve customer experience. Therefore, commercial banks should be encouraged to cooperate with Fintech firms in areas such as electronic payments, peer-to-peer (P2P) lending, asset management, digital insurance (InsurTech) and open banking. The State Bank of Vietnam should act as a coordinator, fostering a healthy competitive environment and facilitating connections across the digital financial ecosystem.

Fifth, enhancing communication, financial education and public awareness.

Besides technological innovation, improving public understanding of digital finance, transaction security and online fraud prevention is crucial. Credit institutions should work with the State Bank of Vietnam and the Ministry of Information and Communications to implement financial education and awareness campaigns on digital platforms, providing users with practical knowledge about online security. These efforts not only expand access to financial services but also build public confidence in digital banking.

5. CONCLUSION

Digital transformation has become an irreversible trend and plays a vital role in modernizing and enhancing the competitiveness of Vietnam's banking sector. The achievements of 2024, especially the implementation of biometric authentication, the expansion of cashless payments and the strong development of digital banking services, have laid a solid foundation for the sector's acceleration in 2025 and beyond. However, for this transformation to be effective, close cooperation is needed among the

Government, credit institutions and technology enterprises in refining the legal framework, investing in technology infrastructure, developing digital human resources and ensuring data security. With sound strategies and a sustainable vision, Vietnam's banking sector can become a pioneer in the national digital transformation process, contributing significantly to the realization of a digital economy and digital society by 2030.

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