## DIGITAL TRANSFORMATION OF THE COMMERCIAL BANKING SYSTEM IN VIETNAM - SITUATION AND SOLUTIONS

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Abstract: The Industrial Revolution 4.0 will inevitably involve digital transformation, which presents an opportunity for enterprises, in general, and the Vietnamese banking sector, in particular, to advance and reinvent themselves, or at least rethink how they go about doing business. Therefore, if digital transformation is not the key concern of the banking system in Vietnam at the moment, its lack of progress will cause it to lag behind compared to other industries. This article discusses certain challenges related to digitization and digital transformation in commercial banking operations, as well as the state of the Vietnamese commercial banking system in terms of digital transformation. Based on this analysis, the authors propose a number of recommendations to promote the aforementioned digital transformation process. The main research methods used in the article are traditional research methods: desk research, data synthesis, and analysis, induction of collected foreign and domestic documents.

• Keywords: digital transformation, digital economy, commercial banking.

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Tóm tắt: Cuộc cách mạng công nghiệp 4.0 chắc chắn sẽ kéo theo sự chuyển đổi kỹ thuật số, mang đến cơ hội cho các doanh nghiệp nói chung và ngành ngân hàng Việt Nam nói riêng thăng tiến và đổi mới chính mình, hoặc ít nhất là tư duy lại cách thức hoạt động kinh doanh. Vì vậy, nếu chuyển đổi số không phải là mối quan tâm hàng đầu của hệ thống ngân hàng Việt Nam ở thời điểm hiện tại, thì sự thiếu tiến bộ sẽ khiến hệ thống ngân hàng này tụt hậu so với các ngành khác. Bài viết này thảo luận về những thách thức nhất định liên quan đến số hóa và chuyển đổi số trong hoạt động ngân hàng thương mại, cũng như thực trạng của hệ thống ngân hàng thương mại Việt Nam về chuyển đổi số. Trên cơ sở phân tích này, nhóm tác giả đề xuất một số khuyến nghị nhằm thúc đẩy quá trình chuyển đổi số nói trên. Các phương pháp nghiên cứu chính được sử dụng trong bài viết là các phương pháp nghiên cứu truyền thống: nghiên cứu tại bàn, tổng hợp và phân tích số liệu, quy nạp các tài liệu trong và ngoài nước đã sưu tầm.

• Từ khóa: chuyển đổi số, kinh tế số, ngân hàng thương mại.

#### 1. Introduction and reason for choosing topic

The digital economy opens up new growth opportunities in many countries, helps promote economic competitiveness, and serves as the core driving force for national economic growth and research, ultimately contributing to solving socioeconomic problems. In Vietnam, the development potential of the digital economy presents a new opportunity to bridge the development gap. In this context, the commercial banking system is identified as one of the top priorities for the national digital transformation strategy, aimed at "digitizing" the economy. For the State Bank, the goal is to "comprehensively renovate the management activities of the State Bank in a modern direction, effectively applying and exploiting the achievements of Industry 4.0 technology, fully meeting the requirements of the State Bank of Vietnam set by the Government's digital transformation criteria." Meanwhile, commercial banks aim to "accelerate the digital transformation process, develop digital banking models, increase utility, enhance customer experience, and achieve the goal of financial inclusion. They also aim to achieve sustainable development by promoting the application of new and advanced technologies



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in management and the supply of products and services, focusing on process automation and optimization of business operations."

In this article, the authors focus on studying the theoretical framework of digital transformation for commercial banks, the current situation of digital transformation within the commercial banking system, and provide some recommendations to promote the digital transformation of the commercial banking system in Vietnam.

### 2. Basic issues of digital transformation in the operation of bank systems

### 2.1. Perspectives on digital transformation in banking operations

First of all, digital transformation, in general, according to Gartner, refers to the use of digital change business technologies to models. creating golden opportunities, generating new revenue, and adding value. Microsoft believes that digital transformation represents a new mindset that rethinks how enterprises organize all components, such as the workforce, data-driven processes, and operations, to create significant value. This transformation entails reshaping the entire operational model with the primary objective of increasing operational efficiency, enhancing customer satisfaction, and establishing a competitive advantage in the market. Digital transformation encompasses the application of digital technology in all aspects of human society, and during the transition phase, it enables new types of innovation and creativity in specific fields, going beyond merely enhancing and supporting traditional approaches.

As defined Wikipedia, "Digital on Transformation" goes beyond being solely about digital technology; it is a transformative step where digital technology aids in resolving traditional problems, given that people often prefer digital solutions over conventional ones. Consequently, digital applications open up new forms of innovation and creativity across various domains instead of just upgrading and supporting traditional methods. In a narrower sense, digital transformation can be exemplified by the concept of a "paperless office." To become a digital business, all elements, including business strategy, workforce, operating

processes, platforms, performance, communication methods, business-to-business relationships, and the enterprise's ecosystem, need to be digitized. These aspects also represent different levels (layers) of the digital revolution (see Figure 1).





Source: Wikipedia.

Digital transformation involves the application of technologies and techniques created from the Fourth Industrial Revolution to automate and digitize the activities of an enterprise, thereby creating new value.

Similarly, the digital transformation of commercial banks is the process of applying new technologies such as big data, the Internet of Things, cloud computing, etc., to change operating methods, leadership, work processes, and company culture, transitioning from a traditional operating model to a modern business paradigm.

## 2.2. Levels of digital transformation in banking operations

Digital transformation is a complicated task that requires banks to identify goals, develop a long-term strategy, and choose the right level of transformation. Basically, the process of transforming banking operations digitally can be divided into three stages: (i) Digitalizing the interface (front-end only); (ii) Modular digitization (Wrap and digitize); (iii) Digital native bank (Digital native).

#### Front-end only stage:

This is the most basic stage of digital transformation. In this stage, banks mainly focus their resources on systems that interact directly with customers to enhance their experience while keeping the infrastructure and information processing system intact. For example, the bank provides an online or mobile banking interface



to its users but without any significant changes to the core banking system. Banks in the early stages of change, with limited financial resources or low risk appetite, are most suited for this strategy. Implementing a strategy to digitize the interface helps banks save money and time. However, since all processing is still based on the old core system, the quality is not guaranteed. Additionally, there are many limitations due to the lack of time and an advanced workforce to carry out research, test, and develop products and new services on the old system, as they need to be programmed to be compatible and integrated with this system.

#### Module digitization (Wrap and digitize):

By using this strategy, the bank modernizes the user interface and takes another step toward progressively replacing the outdated infrastructure with digital technology, integrating the functions of many departments and products. Application program interfaces (APIs), for instance, are utilized by a bank to integrate data between several product groupings and services. This integration layer facilitates the trader's ability to see the client holistically. It also means that product line or system upgrades can be done more quickly and efficiently. The banking transaction system becomes faster and more precise when data is incorporated throughout. As a result, in the era of Industry 4.0, customers can access all of their accounts with one login rather than having to log onto separate websites for their banks, cards, and loans. They can also start an app on their mobile device, switch to the desktop, and complete their transactions more quickly.

#### The banking phase is digital native:

This transformation is the highest level in the digital revolution, where a digital bank is conceived from the ground up with a fully digitized interface and processing system. A bank initially selects a minimum number of products and services it can offer, such as focusing on deposits, payments, or loans. This digital transformation approach is poised for explosive growth in services and increasing challenges for banking. In this way, startups can also offer products and services of financial institutions. However, the convenience and rapidity of transactions are the primary drivers behind banks' decisions to go digital. Digital-native banking

adapts well to rapid changes in customer tastes and allows the bank to test and restore processes instead of commitments and hopes. The digital core and open architecture also provide flexible approaches for the bank to partner with third parties to provide a wide range of products and services. By utilizing cloud-based or third-party architecture, the digital bank is designed with complete functionality. With modern infrastructure, banks can quickly adapt product offerings and services, such as new account types or advisory services, and change prices as needed. Under this model, customers can have a very different banking experience, and most will be more engaging: A seamless experience designed around the needs of the customer rather than the bank's attempt to sell them products. At the end of the digital transformation period, a commercial bank will be a smart bank that brings many benefits to customers (all banking services are provided online such as trade finance, rental, payment, ticketing, insurance, lending, e-wallet via mobile phone, peerto-peer lending, crypto currency, mobile payment, crowd funding...).

Figure 2: Smart banking focuses on customer satisfaction



#### Source: Le Nhan Tam, IBM (2018)

#### 3. Research methods

In the article, the authors use secondary data collected through the desk research method. The authors collect data from national and international documents. With the collected data, the authors use data processing methods such as statistics, analysis, synthesis... to draw the necessary lessons.

## 4. The state of digital transformation of vietnam's comercial banking system

# 4.1. The current situation of building digital transformation strategies of the commercial banking system

Recognizing the importance of digital transformation and banking digitization, most



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commercial banks in Vietnam have developed this strategy. Specifically, according to the summary information from the survey in September 2020 by the State Bank on the digitization activities of commercial banks, 95% of commercial banks have been building or planning to develop a digital transformation strategy. Among them, 39% of banks have approved a digital transformation strategy or integrated it into the business/ information technology development strategy, and 42% of banks are currently building a digital transformation strategy.

Figure 3: Survey results on the level of digitalization strategy implementation of Vietnamese commercial banks



Source: State Bank of Vietnam September 2020

## 4.2. Current status of digital transformation of Vietnam's commercial banking system

The digital transformation process of each commercial bank in Vietnam is at different stages. However, most commercial banks have successfully implemented phase 1 - digitizing transactions and are currently implementing phase 2 - modular digitization. For example: (i) OCB promotes retail and serves small and medium-sized enterprise customers, focusing on developing digital banking to bring the most convenience and services to customers. (ii) Timo digital bank (VPBank) is leading the digital banking revolution with the policy of reducing branches and transaction offices. (iii) TienPhongBank has a strategy towards network coverage with a density of automated

ATMs (LiveBank). (iv) Techcombank focuses on improving the UX/UI system and building an electronic payment solution based on maximizing customer experience. (v) MBB focuses on the development of customer communication channels to bring personalized digital experiences to customers. (vi) Maritime Bank also enhances the customer experience through the MSB plus utility on the Mobile banking application, providing a full package of services such as registering to open a credit card without requiring other proof of income, no waiting time for approval, and opening an online payment account. (vii) BIDV has expanded its ecosystem by connecting with most Fintech companies, nearly 1000 service providers, to deploy more than 1600 online payment services for customers with the goal of having 80% of customers accessing and using the bank's digital channels by 2025. (viii) VietinBank prioritizes digital transformation to improve customer experience, both at the counter, on smartphones, and through applications so that any customer can use the bank's services. (ix) LienVietPostBank optimizes customer experience in both forms: offline experience at branches and transaction offices, and online experience on websites, fan pages, and mobile apps, especially using cards.

In addition, a few banks are digitizing the data platform. In terms of the process, most of the top and middle banks (such as BIDV, TechcomBank, Vietcombank, TienPhongBank, VPBank, etc.) have all completed the automatic transaction system.





Source: State Bank of Vietnam September 2020



# 4.3. Current status of technology application in digital transformation of Vietnam's commercial banking system

Many commercial banks in Vietnam have applied artificial intelligence, big data, customer identification, and eKYC (electronic Know Your Customer) identification to maximize benefits for users, such as: (i) ShinhanBank Vietnam has cooperated with Zalo to provide a utility to look up and update information on account balances, credit card openings, consumer loans, home/car loans, and many other electronic services that will be further expanded in the future. This allows for answering and providing information to customers anytime, anywhere, timely, and completely free of charge. (ii) TienPhongBank introduced "T'Aio" on Facebook Fanpage since July 2017. This AI application has several benefits, including automatic response when receiving communication requests from customers in less than 5 seconds. It operates 24/7 and continuously learns, improving through customer support times to gradually become more intelligent and human-like, thanks to the application of artificial intelligence. (iii) NamABank has also successfully applied AI and Robots to the financial sector. The Bank has integrated Chatbot OPBA - a smart virtual assistant on NamABank's Fanpage, Open Banking, and the chat window of the Agent. The OPBA Chatbot can automatically engage in conversations with users on applications, respond to all questions regarding products and services 24/7, and meet all demands with a high rate of effectiveness. This enables better communication with customers while also fully satisfying their informational needs. (iv) VietinBank, with the Enterprise Data Warehouse (EDW) project, contributes to supporting the bank to improve management activities as well as monitoring and managing risks according to international economic standards. (v) VPBank of Vietnam applies IBM's data analysis technology to synchronize customer data and support quick customer behavior analysis. (vi) The five pioneering commercial banks implementing eKYC in Vietnam are VPBank, HDBank, TienPhongBank, Viet Capital Commercial Joint Stock Bank, and NCBank. VPBank allows customers to open 100% online payment accounts for immediate

transactions. HDBank provides customers with iMoney accounts on the bank's app to perform many online transactions. TienPhongBank uses eKYC to ensure accurate customer verification, checking relevant documents such as ID/CCCD, passport, driver's license, through the bank's app. Viet Capital Commercial Joint Stock Bank has implemented an eKYC process to quickly and efficiently verify customer information. NCBank uses eKYC to open an online bank account quickly.

In addition, some commercial banks have also applied open banking technology. OCB is one of the pioneering banks with this model. Through the OCB Omni application, users can not only use pure banking services such as money transfer and savings but also experience products and services from affiliated partners. Currently, the bank has linked with AirPay, VnPay, Momo, and others to help customers pay electricity, water, Internet bills, recharge phones right on the OCB Omni application, or transfer money through wallets for shopping and payment service. Customers of OCB Omni can access many financial investment products such as buying insurance (travel, motorbike, accident) or investing in Vinacapital fund certificates completely online right on the application. The application also integrates many financial services from Fintech companies such as UrBox to bring added value to customers through the program of accumulating points, exchanging gifts, paying rewards, and offering discounts.

By April 2019, NamABank deployed the Ommi Channel - Open Banking system, breaking through all limits and catching up with the 4.0 technology revolution trend with a series of outstanding features and utilities such as Chatbot virtual assistant, Share bill, Accumulate on demand, Schedule payments, Centralized card management. NamABank's Open Banking application "liberates" customers from the usual definitions of a bank when they can experience a completely new digital banking, multi-channel transactions, multi-utility integration, an ecosystem of digital banking, and more. The comprehensive and out-of-the-box feature ecology focuses on the non-physical card ecosystem, education, insurance, healthcare, and multi-payments.

In addition, in Vietnam, there are 15 banks that are using the method of sharing data through web



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services, while 4 other banks have used the data sharing method of Open API. Banks that have shared APIs available to partners have a high level of availability when implementing Open API. Regarding the need to deploy Open API, most banks have suggested that there is a need for a common connection standard to share data.

Blockchain technology and cloud computing have also been successfully tested by NAPAS and three banks, including VietinBank, VIB, and TienPhongBank. HSBC has also successfully implemented L/C (Letter of Credit) transactions on the Blockchain platform.

As a result, the digital transformation process of the commercial banking system in Vietnam has achieved initial results. However, the Vietnamese commercial banking sector still faces many obstacles related to the legislative environment, technological infrastructure, network security, competition from Fintech businesses, and human resources.

# 5. Some recommendations to promote the digital transformation of the commercial banking system in Vietnam

#### 5.1. Some recommendations to the Government

The State Bank strengthened the assessment of disbursement progress according to the approved capital plan to determine the effectiveness of information technology projects at credit institutions. On the other hand, the Government needs to actively build a digital government platform to integrate and share the national database, facilitating open connectivity for banks to access according to approved authority and providing a legal framework for data sharing with third parties.

The Government should focus on investing in developing the system of science and technology infrastructure to create a modern technical and technological environment, enhancing learning, and facilitating technology transfer to support banks in applying new technologies during the digital transformation process.

#### 5.2. Some recommendations to the State Bank

*Firstly,* the State Bank should strengthen the assessment of disbursement progress according

to the approved capital plan to determine the effectiveness of information technology projects at credit institutions. Simultaneously, the management, inspection, and supervision of the banking industry should be carried out based on new criteria, along with the ranking of credit institutions, to establish a supervisory inspection system that keeps pace with the financial and banking industry worldwide. As a result, the State Bank will be able to effectively manage commercial banks.

Secondly, the State Bank needs to complete and apply mechanisms to encourage the growth of financial technology as soon as possible, especially focusing on the completion and application of the Regulatory Sandbox for financial technology development. Currently, the State Bank of Vietnam is in the process of developing an experimental technology legal framework for financial (Fintech Regulatory Sandbox). The experimental regulatory framework should clearly define the scope of activities, products, and services, taking into account the interests of consumers and the economy. It should also outline the test level, report registration process, testing, monitoring, announcement of successful products and services, and the potential for replication.

*Thirdly*, the State Bank needs to strengthen communication through various forms such as seminars, workshops, and organizing the implementation of numerous scientific studies on digital applications for the banking industry in the context of the Fourth Industrial Revolution. Additionally, the State Bank should promote financial education and communication programs to improve the workforce's knowledge and skills in accessing financial products and services.

### 5.3. Some recommendations for the commercial banking system

*First:* Banks need to promote innovation and the application of modern technologies. Banks should prioritize the development of the following technology platforms to serve banking activities in the future: Big Data, cloud computing, biometrics, artificial intelligence, and the Internet of Things. These technologies will have a far-reaching influence on banking activities in Vietnam. Besides, Big Data must be effectively used in conjunction

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with all three of the aforementioned technological platforms. Additionally, other modern technologies such as sensor systems, control systems, communication networks, business applications, and customer service should also be a key concern for banks. Banks can also build electronic portals that integrate with electronic services on the Internet.

Second: Banks need to orient towards building a modern branch model that optimizes customer experience and helps customers interact better. The construction of these branches is mainly based on the automation technology platform, multidimensional connectivity, and the intelligence of the Fourth Industrial Revolution. Accordingly, branches with modern and convenient transaction spaces, attractive and timely seating, and large TV/tablet screens can help customers interact and experience services without the assistance of traditional tellers, along with the support of technologies such as web-chat and Skype communication. Additionally, banks must discover a transactional mechanism that can appeal to some customers' new behavior while also satisfying the psychological needs of traditional customers who are unable to alter their behavior.

*Third:* Banks can coordinate with technology companies to develop new software that is suitable for the specific operation of banks. Additionally, based on assessments of challenges facing State management agencies and reference to international experiences, banks can deploy in three stages to create a development environment suitable for their needs in the Fourth Industrial Revolution. These stages include setting up a consultation group, organizing a pilot or setting up a sandbox for new technology applications, and building a legal framework. Throughout these three phases, the State management agency will play a key role, acting as a supervisory unit, coordinating resources and participating units, and resolving disputes and outstanding problems. Moreover, experts especially emphasize the importance of organizing a pilot program or setting up a test environment (phase two). The sandbox model will help to effectively and quickly put breakthrough new technologies to the test in an independent environment and also help "zone" for management, avoiding

complex effects and potential risks of breaking existing regulations. In case the test results show that there is a need to adjust and supplement the legal framework, the State management agency will also have a more complete information base in persuading and coordinating with ministries, committees, and relevant industries to design appropriate regulations.

#### Conclusion

Digital transformation is an inevitable and irreversible trend in the global economy. Generally, digital transformation in the commercial banking industry plays an important role in promoting the digital revolution. Nowadays, the commercial banking sector in Vietnam has experienced substantial changes recently as a result of the country's digital revolution. However, for this strategy to be truly effective, the government, the State Bank, the pertinent ministries and agencies, as well as each commercial bank itself, must all work together to create new value.

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