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Impact of digital transformation on financial decision making at Big4 banks in Vietnam

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Abstract

In the last 4 years, the digital transformation process of the Vietnamese economy in general and the banking system has taken place relatively quickly. This is reflected in important indicators such as, the number of smartphone users is now 55-65% of those who have a phone; banking services via mobile phone to grow strongly in 2020; Electronic payments also took place quickly, growing by 25-30%, one and a half times higher than the region's average. Especially, during and after the COVID-19 epidemic, people's consumer behavior has changed drastically, towards using digital

technology much more than before. These are advantages for Vietnam to accelerate the process of digital transformation in the banking industry to take place more strongly in the coming time. However, experts also believe that the legal corridor on Mobile Money, Fintech, peer-to-peer lending, eKYC needs to be issued earlier, to avoid the institutional phenomenon that is not too late compared to actual requirements. of life; from there, creating conditions to build a complete ecosystem for the digital transformation process of the banking industry.

Keywords: Digital Transformation, Big4, Banks, Vietnam

1. Introduction

The wave of digital transformation is a common development trend in the world because digital transformation helps businesses increase labor productivity, promote innovation and improve competitiveness in the market. The digital transformation can be used in all core business areas, promoting online payment activities, thereby improving the operational efficiency of commercial banks. Digital transformation offers significant benefits to commercial banks, but only if some of the challenges are addressed.

One of the main drivers of digital economy development is the financial sector, which occupies second place, just behind telecommunications (Schepinin & Bataev, 2019). Digital transformation in the financial sector has made rapid progress over the years in the world and in Vietnam. Technology is a special type, although it is constantly updated, there is still a lag when bringing new trends to domestic application due to legal constraints, business environment and social awareness.

The purpose of this article is to review empirical studies on factors affecting the success of digital transformation implementation in the banking industry. The study focuses on discussing empirical results from previous studies related to the topic of digital transformation in the banking industry. The article presents the impact of the product element on the digital transformation process; the impact of strategic and management factors on the digital transformation process, and finally the impact of the staff factor on the digital transformation process in the banking industry.

In the current trend of international integration, digital transformation is an essential condition to increase the competitive position of Vietnamese commercial banks in the market. With the desire to improve the quality of the digital transformation process of commercial banks, the study was conducted to evaluate the factors affecting the quality of the digital transformation process at commercial banks in Vietnam. Vietnam. The data for the research is taken from the survey assessment of 548 leaders, officials and employees of some banks. The study used exploratory factor analysis (EFA), confirmatory factor (CFA) and linear structural analysis (SEM) methods to determine the factors affecting the quality of the digital conversion process. of the bank. The analysis results have shown that there are factors affecting the quality of the bank's digital transformation process, including: Senior leadership, facilities, and capable staff to meet digital transformation requirements. banking and digital transformation environment. Based on the research results, a number of policy implications are made.

In the trend of globalization, along with the strong development of the Fourth Industrial Revolution (Industry 4.0), digital transformation has become one of the central goals and inevitable development strategies for the system. system of banks in

the world. The explosion of digital transformation technologies has led to the development of business units in the Fintech field, along with a change in the perception, requirements and consumption behavior of customers towards new businesses. Digital products and services have posed a number of contemporary challenges for banks today. In that context, banks are faced with a choice: One is to change to develop, the other is to lag behind the times.

However, digital transformation in banking is a long-term plan, lasting for years or even decades. Therefore, this is not a one-time project but a large project, which needs to be planned, implemented methodically and on a large scale. According to statistics, 94% of Vietnamese banks have invested in digital transformation, 40% of banks have put digital transformation into a strategic vision in the next 5-10 years. To achieve these goals, banks need to identify the factors that affect the quality and process of their digital transformation. According to Nguyen Van Tuan (2021), for successful digital transformation, technology only accounts for 30%, the remaining 70% are other issues. Therefore, one of the essential tasks to improve the quality of the digital transformation process at a bank is to research and determine which factors have a strong impact on the quality of the digital transformation process?

Through this study, the authors have made some research contributions to the factors affecting the digital transformation process at big 4 banks. The research results provide information and factors has a strong impact on the quality of the digital transformation process. The results also help banks make accurate assessments of their bank's conversion capacity; thereby offering policies and solutions to improve the quality of digital transformation within the bank and create a development environment for digital transformation.

2. Overview of the research process

2.1 Research overview and theoretical basis

- Digital transformation

According to Gartner, digital transformation is the use of digital technologies to change business models, creating new opportunities, revenue and value. In other words, digital transformation is understood as a process, which is a collection of methods and ways that organizations and businesses use to transform all activities to the direction of deploying digital applications without Accordingly, improving work efficiency and improving service quality and operational quality.

- Digital Bank

According to Chris (2014), digital banking is the operating model of a bank in which operations are mainly based on electronic and digital technology and platforms, which is the core value of banking activities. row. Digital banking is known as a bank that operates on financial applications or website platforms. Digital banking allows to perform most transactions like at a regular bank in online form via the Internet. Digital banking is a trend where all transactions can be done on apps or website platforms, not just money transfers or simple transactions like e-banking. This is almost a trend of the global banking market and is a "hot" topic, receiving much attention from scholars and financial experts in Vietnam.

- Digital conversion process

The process of implementing bank digital transformation is understood as the sequence of steps to carry out digital

transformation in the banking industry. This is a collection of ways to science and systematize the stages that need to be implemented and implemented in the digital transformation of banks. Through studying and studying the documents, the digital transformation process of banks in the world goes through the basic stages, which are summarized as follows:

2.2 Assess the bank's readiness to digitize

During this period, banks will determine their digital transformation goals and strategies for future development; assess current capacity and advantages as well as identify difficulties and challenges in digital transformation. From there, develop a roadmap, development plans and specific digital transformation deployments in the future.

2.2.1 Digitization phase

In this period, banks will apply scientific and technological advances to digitize and encrypt manual procedures, processes and products and services; implement the transformation of service provision, data management, resource management, and operation of the bank's operations from traditional to online form via computer system, connecting to the Internet.

2.2.2 Digital Transformation Stage

In this phase, banks will integrate digital transformation technologies such as the Internet of Things (IoT), big data (Big Data), cloud computing (Cloud Computing), blockchain (Blockchain), intelligence. artificial intelligence (AI) with the bank's digitized data and processes to create banking products and services with automated, online processes, new experiences for customers, and responsiveness. customer needs quickly and conveniently.

2.2.3 Digital regeneration stage

In this phase, banks will combine technology, digital platforms and strategies to distribute digital banking products and services to customers, increasing customer experience with products and services. digital services to generate revenue and profit, and develop the bank's business. The results of this phase will be the basis for banks to recognize and evaluate the effectiveness of their strategies and plans, thereby proposing solutions to improve or change necessary.

2.2.4 Integrating in the above stages

This is the process of forming legal bases, binding terms for users of digital banking services and products as well as regulations on information security and safety. In addition, banks have also established and developed standards to evaluate the operation and effectiveness of their digitalization activities.

2.3 Research overview

The study uses a linear regression model to show that the quality of a bank's digital transformation process is affected by five factors including: digital transformation environment, digital transformation capacity of the bank, senior leadership, facilities and staff, specifically:

2.3.1 Quality of digital transformation process

The quality of the digital transformation process is an assessment of the ability to apply human resources, techniques, facilities, money, etc. to the process of

transforming activities towards digital, applying technology to production and business activities.

2.3.2 Independent variables

Digital transformation environment is all activities and factors, including the internal and external environment of the bank, related to the bank's digital transformation. According to Arcot (2021), the digital transformation environment helps the digital transformation process inside the business become more efficient and productive. Therefore, the digital transformation environment has a positive influence on the quality of the bank's digital transformation process. By practical research, the authors put forward the following hypothesis

2.3.2.1 There is a positive correlation between the factor "Digital transformation environment" and "Quality of digital transformation process of commercial banks in Vietnam".

The bank's digital transformation capacity is the ability to meet technical, professional, and human requirements in the application of information technology to all activities. Brett (2018) has shown that there is a positive relationship between the bank's digital transformation capacity and the quality of the bank's digital transformation process. Therefore, the study proposes the following hypothesis:

2.3.2.2 There is a positive correlation between the factor "Digital transformation capacity of banks" and "Quality of digital transformation process of commercial banks in Vietnam"

Senior leaders are those who play a key role, directly making plans, decisions and monitoring the innovation and operation process. According to Brett (2018), senior leadership is the team leading the digital channel, only when they give the mission to digital transformation can banks become Bank 4.0. Brett (2018) has shown the positive relationship of senior leadership to the quality of the digital transformation process. Therefore, the study proposes the following hypothesis:

2.3.2.3 There is a positive correlation between the factor "Senior leadership" and "Quality of the digital transformation process of commercial banks in Vietnam"

In addition, senior leaders must be really sharp people to recognize future trends as well as assess how the environment is changing in order to promptly make plans for the bank. As a leader, it is necessary to have a clear understanding of the bank's internals, strengths and weaknesses, challenges and opportunities that the bank is facing, thereby accurately assessing the bank's digital transformation capacity. Therefore, research to hypothesize:

2.3.2.4 There is a positive correlation between the factor "Senior leadership" and "The bank's digital transformation capacity"

Digital transformation is not only a technological transformation but also a transformation of strategy and cultural thinking about people. Because resources, the key to the success of any organization is people. Therefore, leadership, using human resources with the right people, at the right job is the necessity for every operation, change and development of every organization, from which, the research team proposes the hypothesis:

2.3.2.5 There is a positive correlation between the factor "Senior Leaders" and "Employees"

In order to apply and implement the proposed commercial bank transformation process plans, facilities play a very important role. However, in order to use and apply it properly and economically, it requires leaders to know what tools are needed, and to make contingency plans so as not to be behind schedule. Therefore, the study proposes the following hypothesis:

2.3.2.6 There is a positive correlation between the factor "Senior Leadership" and "Facilities"

Facilities are the existing foundation, which is a tool to serve the process of transforming the terms of the banks' digital transformation projects into results. According to CemDilmegani (2021), machinery and equipment participate in most applications and transitions in the digital transformation trend of banks. Facilities have a positive influence on the quality of the bank's digital transformation process. Therefore, the authors put forward the research hypothesis:

2.3.2.7 There is a positive correlation between the factor "Facilities" and "Quality of the digital transformation process of commercial banks in Vietnam"

Employees are the human resources that carry out the bank's digital transformation process. According to Brett (2018), the staff needs to have good experts in technology for the bank to become a digital bank. Therefore, in Brett's view, employees have a positive impact on the quality of the bank's digital transformation process. Within the scope of the study, the authors propose the following hypothesis:

2.3.2.8 There is a positive correlation between the factor "Employees" and "Quality of digital transformation process of commercial banks in Vietnam"

2.4 Reality

With the Big4 group including Agribank, Vietcombank, VietinBank and BIDV in the digitalization race, they did not rely on their large scale but were slow to move. This group has the advantage of strong financial capacity and the wholesale and retail customer system of these banks, making the deployed banking digitization models to reach the people soon.

With Agribank, this bank is currently implementing AutoBank CDM 24/7. Automated banking Agribank AutoBank CDM 24/7 using advanced technologies, standard software applications internationally to ensure data is encrypted and highly authentic, transactional safety. In particular, the application is set up with multi-layer protection, decentralization against illegal access. At the same time, Agribank deployed a highly secure anti-cheat system to steal card information, achieving international certificates of EMV, ISO14001, ISO9001, 24/7 Agribank AutoBank AutoBank CDM is capable of stable operation and High durability helps to serve customers most conveniently and safely.

Vietcombank has now launched VCB Digibank Digital Bank. VCB Digibank is built on the consolidation of separate transaction platforms on Internet Banking and Mobile Banking, providing seamless and unified experiences for customers on electronic means such as computers (PC/Laptop) and mobile devices (phones/tablets).

BIDV has deployed SmartBanking digital banking service, which is a unified platform between Internet Banking and Mobile Banking, providing customers with special experiences. Accordingly, SmartBanking is the first and only digital banking service on the market that supports smart watch devices (Apple Watch) and smart keyboard (allows transactions right on the interface of the application). chat like: Zalo, Viber, Messenger, Imessage) the same experience (1 username/1 password).

VietinBank has applied VietinBank iPay Mobile Digital Bank, customers can log in with their fingerprints, monitor the chart of balance fluctuations over the months, and manage personal cash flows. VietinBank also provides the latest services, applying the most modern technologies such as: Transfer money via mobile phone, withdraw money anytime and anywhere, transfer money via QR Code, scan QR code and make one-to-one payments in a convenient way

According to the State Bank of Vietnam, as of December 2020, the number of individual accounts nationwide reached 105.6 million, up 35.5% over the same period in 2019; Total circulation of cards reached 111 million cards (including 94 million domestic cards and 17 million international cards); ATM/POS network covers the whole country with 19,636 ATMs and 276,273 POS;

The number and value of payment via Internet channels reached 297.4 million transactions with 21.4 million billion VND; The number and value of payment via mobile phone channel reached 696.3 million transactions with nearly 7.8 million billion VND; Payment via POS reached more than 232 million items with 395.86 trillion VND; Payment via ATM reached 660 million items with 1,818.58 trillion VND Thus, Vietnamese banks are entering the digital transformation period with the rapid development of digital services, which requires banks to make more efforts in this race to meet the requirements of competition. Motivation 1. Importance of the customer

Banking systems cannot 'say no' to a digital platform when most of their customers are already on it. And not just "migrating" to digital, banks also have to ensure the ability to meet expectations and maximize customer experience, such as:

Provide personalized services and products

Seamless, convenient experiences

High transparency

Good security mechanism comes with user satisfaction

And much more depending on each customer segment or file - such as requiring fast, convenient and highly personalized experiences with each product (accumulation, investment). And if you want to retain or expand your existing customer file, change is inevitable

Nudge 2. Modernization in digital infrastructure

Advances in digital infrastructures now allow banks to perform many 'impossible' operations in the past. For example, the current payment system has been significantly upgraded and improved from functionality, security to customer experience.

Therefore, along with the explosion in technology and availability in the system platform at banks, digital transformation will be an 'insurmountable' path for banks that have made a good investment.h and sustainable development following the general trend.

Developing and analyzing big data is becoming increasingly important to the banking and financial industries: not only to

personalize services, but also to anticipate and develop products that match the needs of the customers. 'continuous change' in the industry. And to collect, connect and turn Distributed data becomes a strategic foundation for the organization, digital transformation is an inevitable trend.

At the same time, talent and business data analysis capabilities also need to be developed soon to lay the first important foundations for the transformation plan!

Nudge 4: A market that 'goes digital everywhere'

Banking is just one segment of a large market. When most of the remaining fields are more or less 'migrating' to the digital platform, especially the impact of e-commerce channels, a big wave is gradually forming: not only the related fields. Involved in the digital transformation race, but at the same time "nourishing" cultures, technologies and talents in related fields, creating favorable conditions for the 4.0 enterprise in all industries.

Difficult

However, digital transformation of banks still has many barriers to overcome. Prominent among them are:

Legal regulations on electronic transactions, signatures, electronic documents, identification and authentication of electronic customers.

Data sharing, information security

In addition, banks often play an important role in digital ecosystems of many fields such as investment, e-wallet, eCommerce, fintech, etc. Therefore, the ability to synchronize and connect is 'not standardized' between banks. Banking system and other industries are also one of the challenges that make many digital transformation projects often take longer than expected.

Besides the difficulties in the industry, the limitation from the human factor is also a barrier in the digital transformation of banks. Because the bank's leadership is often quite old, it is difficult for digital capabilities to keep up with the current pace of change. In addition, with a cumbersome, multi-tiered, multi-tiered apparatus, the decision to focus on one person should slow down the implementation of new projects. These are also issues to keep in mind when the banking and finance industry leads itself into the 4.0 race.

Digital transformation in the banking industry in Vietnam has always been focused. According to the report of the Deputy Director in charge of the Payment Department of the State Bank of Vietnam at a seminar on digital transformation of banks, the banking industry has initially invested VND 15,000 billion in digital transformation activities and has obtained significant benefits. very positive results. Up to now, Vietnam is one of the leading digital banking application countries, with a growth rate of 40% in a short time.

Connecting digital banking services with many other digital services in the economy has brought seamless experiences and great benefits to service users in the digital space.

Statistics show that, in the first 8 months of 2022, mobile payments increased by 107% in quantity and 92% in value. Inside:

Many banking operations such as opening payment accounts, money transfer payments, deposit/savings deposits have been fully digitized 100%, allowing customers to perform completely on digital channels;

Many leading Vietnamese banks in digital transformation have recorded a rate of more than 90% of customer

transactions made via digital channels with an optimal cost-to-income ratio (CIR) of only 30 - 40%

These figures partly reflect the effectiveness of digital transformation and development of digital banking services. Previously, at the beginning of August 2022, during the event of Digital Transformation of the banking industry organized by the State Bank, Prime Minister Pham Minh Chinh gave specific instructions and guidelines on issues related to digital transformation. change bank number. Accordingly, the Prime Minister emphasized the inevitable trend of digital transformation in economic development in general and the banking industry in particular. In particular, the banking industry has all the necessary conditions to pioneer in the digital transformation process.

The State Bank has also actively coordinated with the Ministry of Public Security to deploy Project 06 to develop the application of population data, identification and electronic authentication for national digital transformation in the period of 2022 - 2025. looking to 2030. However, the Prime Minister also mentioned the difficulties and challenges in the digital transformation process such as identification and electronic verification that have not been effectively implemented, the information technology infrastructure is still lacking, many restrictions, technology criminals more and more tricks.

Regarding this issue, according to Mr. Nguyen Quoc Hung, General Secretary of the Banking Association in the press, although positive results have been achieved in the digital transformation process, according to him, the process of converting The argument also brings difficulties and challenges for commercial banks from both inside and outside. Specifically, currently, over 90% of deposit-related payment services can implement digital transformation. The remaining loans and other services related to ministries and branches cannot yet be deployed.

Meanwhile, assessing the process of digital transformation of the banking industry, economist Pham Xuan Hoe said that this process has many challenges that banks have to face. Whereby:

The legal corridor is lacking and asynchronous.

Investment capital for information technology is very large

Digital transformation takes time to train personnel

Frauds and attacks in cyberspace. Fraudsters have used many different tricks to get into a bank account, so there is always a risk of losing money

Customers' awareness of digital transformation and use of digital products has not kept pace with developed technology.

Currently, in order to solve the above-mentioned difficulties, the banking industry is developing and submitting to the Government two decrees on non-cash payments to replace Decree 101 and the Decree on a controlled trial mechanism. financial technology in the banking sector.

Bank digital transformation is a long-term problem that requires an investment of time and effort, making a huge difference in the development process of each bank. Banks need to pay due attention, making digital technology development one of the most important goals of the bank.

2.5 Solutions

Suggestion 1. Put the customer at the center of the problem solving

Let's look at the big picture. Solving the big problems businesses are facing with their customers at the center will

help the bank identify the right priorities and goals, as well as the resources such as talent and capacity needed to support the process. converter.

Suggestion 2. Clearing up operational bottlenecks

The cumbersome apparatus and complicated processes are one of the bottlenecks that hinder the development or innovation of enterprises. Therefore, one of the top priorities of the banking industry is:

Digitize documents – reduce delays caused by dependence on documents and the presence of management in the office, especially when sudden business trips are always typical of the industry.

Process digitization – administrators can easily manage the overall status and progress of the work in just a cup of coffee, thereby detecting problems that need quick and urgent intervention. Branch departments can coordinate smoothly together according to a certain standard, making the work flow smooth and transparent about responsibilities.

Suggestion 3. Development of data analysis and management systems

Banking is an industry known for its huge amount of data – which cannot be analyzed manually. Therefore, after digitizing paper documents, banks need to develop systems soon:

Data governance – integrating all banking data into one place to classify, store, and manage

Automate data – analyze and exploit data according to predefined programs, thereby giving appropriate insights for each activity

Applying machine learning to data analysis systems (big data)

In theory, sustainability is understood as a guarantee for the "now", but not at the expense of "the future". This concept is related to three aspects: economic, environmental and social responsibility. In the banking sector, sustainability is recognized by the increase in value for owners combined with environmental protection and social development.

Therefore, the assessment of business performance of enterprises should not only focus on economic value, but also take into account the effects of business activities on society and the environment.

The "hot" development of digital banks when focusing on increasing profits to offset the costs of technological activities or cutting manual personnel ... can lead to concerns related to maintaining the integrity of the digital bank. industry sustainability. In this section, we give some recommendations that need to be considered to address the limitations of digital transformation in the banking sector, specifically as follows:

- Firstly, despite developing in the direction of technologyizing products and services and automating service supply processes, the banking industry needs to continue to maintain the orientation and strategy of green credit development, strengthen effectiveness of business models with the incorporation of digital services and addressing sustainability concerns.

Similar to the traditional banking model, digital banking products and services still need to take green development as the core goal; integrate appraisal criteria in an environmentally friendly and easily identifiable manner, avoiding financial provision for unsustainable projects and activities.

This content can be inherited from the existing processes of traditional banks combined with the exploitation of

information from large data sources about customer history, as well as information stored in the digital environment to assessment of behavior, risks of harm to society and the environment.

Second, digital transformation in business operations can only be sustained when it does not damage relationships with customers. Regarding the issue of user data protection, we can see that the use of internet and IoT in the banking sector such as Mobile Banking, online banking, digital banking is creating a "waterfall" transactions and generate massive amounts of data that banks use to provide customers with trusted personalized experiences.

The data collected in the process of providing services by banks, including transaction history, payment points for online and mobile transactions, credit scores, etc., is considered valuable information. and should be properly protected.

Therefore, it is necessary to have the active and active participation of state management agencies in order to promptly issue regulations to maintain the stability and sustainable development of the banking system, as well as protect the interests of customers and promote the development and application of technological innovation in the banking sector.

Currently, the management and use of third-party information technology services in the banking sector is regulated in Circular No. 09/2020/TT-NHNN dated October 21, 2020 of the Governor of the State Bank of Vietnam. information security in banking operations. However, the object of application of Circular 09/2020 does not include third parties providing information technology services to banking service providers.

Therefore, the responsibility of this subject is only specified and expressed in the service provision contract, signed between the bank and a third party.

Accordingly, the division of responsibility based on the agreement of the parties to the contract may lack the binding of joint responsibility, or reduce the liability of one of the parties, even if the contract does not. With clear regulations, it is not possible to determine responsibility when incidents related to information technology risks occur.

Therefore, the content of Circular 09/2020 needs to be reviewed to complete and supplement the applicable subjects, as well as stipulate the legal responsibilities of third parties providing information technology services to organizations. providing banking services, and at the same time adding joint responsibility when violations occur, leading to information technology risks.

- Thirdly, regarding the human resource issue in the banking sector, many countries have recorded the transformation of business model when there is innovation and creativity in information technology, leading to the reduction of the number of employees. number of offices and branches of the banking system. At the same time, the participation in the banking market of new financial service providers also raised concerns about an increase in the unemployment rate of the banking workforce.

Thus, it is clear that the banking sector is strongly influenced by digitization not only in terms of operations, but also in the reallocation of the industry's workforce. Since 2018, international banking leaders have recognized that the replication of digital technologies and applications, especially artificial intelligence, is gradually changing the

workforce in the banking sector. and is expected to have a far-reaching impact in the next 3-5 years.

However, the reality in the past years shows that the above shift will not affect the workforce with digital competence, even the demand for human resources with expertise in the fields of analysis. big data, network security, information and communication technology (ICT)... will increase. Similarly, a part of customers still prefer to use the services of banks over the services of financial technology institutions, which also promotes the need to recruit digitally competent personnel in the banking sector. commercial Bank.

This trend calls for a review of training and recruitment strategies to prepare for technology-driven retraining, identify the skills and expertise needed to compete in the future, and attract talented employees. appropriate digital capacity.

Therefore, education and training institutions as well as human resources departments of commercial banks need to conduct research to determine the necessary digital competencies for specific positions at the bank, in which it is necessary to separate the group of basic digital capabilities that every level of personnel must have, as well as specialized digital competencies - applied to certain personnel positions, this will help direct the training and recruitment of the right resources quality workforce.

- Fourth, it is necessary to continue to improve policies on digital infrastructure development, to meet the demand for connection and data processing through the development of high-quality broadband infrastructure across the country, to develop and upgrade mobile network infrastructure, expanding domestic, regional and international internet connections.

Applying innovative technology in industries and fields is always expected to bring efficiency, increase labor productivity and improve all aspects of life. In the banking sector, digital transformation brings new experiences to users and has a significant positive effect on the activities of entities involved in providing banking services. However, modernization and automation present many challenges for the regulator in maintaining the sustainability of the banking industry.

Therefore, management agencies need to closely monitor to identify limitations, determine solutions to overcome, including requiring credit institutions to persistently implement sustainable development goals and increase growth. strengthen the protection of customer information, take responsibility for information technology risks arising in the course of their operations as well as those of partners; improve the digital capacity of the workforce in the banking sector and synchronously develop digital infrastructure, creating conditions to support people and businesses to fully exploit digital banking services.

3. Conclusion

For banking service providers and the banking industry in general, digital transformation in the banking sector is also recognized as an effective way to reduce the likelihood of a bank's failure due to guaranteeing debt ratios. less bad and the banking sector is more efficient. This result is made on the basis of the application of AI, ML, Big Data technologies, making customer assessment more accurate, objective and comprehensive, and an effective tool for

supply organization. Banking services speed up the credit appraisal and disbursement process.

It can be seen that the digitization of banking products and services brings many benefits to the industry and should be prioritized for implementation. However, this process requires infrastructure and legal framework to ensure step by step digital transformation, without causing disturbance or loss of security and safety for the economy.

Thus, it is clear that the banking sector is strongly influenced by digitization not only in terms of operations, but also in the reallocation of the industry's workforce. Since 2018, international banking leaders have recognized that the replication of digital technologies and applications, especially artificial intelligence, is gradually changing the workforce in the banking sector. and is expected to have a far-reaching impact in the next 3-5 years.

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Implementing digital transformation in banks is no longer a matter of choice but shaping the future. Banks should study the actual conditions, come up with strategies and use the right tools to achieve future success. Banks have realized that investing in digital technology is the way forward to better serve customers. The journey of digital transformation in banking is not an easy thing and requires many resources. As technology develops and improves, the banking industry will also grow more and more.

4. References

1. <https://www.tinnhanhchungkhoan.vn>
2. <https://www.tinnhanhchungkhoan.vn>
3. <https://ndh.vn>
4. <https://ndh.vn>
5. Anh DBH, Dung HT, On PV, Tam BQ. Factors impacting customer satisfaction at Vietcombank in Vietnam. *Himalayan Journal of Economics Business and Management*. 2021; 2(4):98-107.
6. Anh DBH, Vu NT, Bien BX, Anh VT, Dat NV. Factors impacting customer satisfaction at BIDV Bank in Vietnam. *Himalayan Journal of Economics Business and Management*. 2021; 2(4):89-97.
7. Anh DBH, Vu NT, On PV, Duc PM, Hung NT, Vang VT. Customer service culture at VPBank in Vietnam. *Himalayan Journal of Economics Business and Management*. 2021; 2(4):78-88.
8. Anh DBH, Diem PT, Duc PM, Vu NT, Dung HT, Dat NV. Customer service culture at VIB bank in Vietnam. *Himalayan Journal of Economics Business and Management*. 2021; 2(4):70-77.
9. Anh DBH, Diem PT, Vu NT, Dung HT, Bien BX, Anh VT, On PV. Customer service culture at TechComBank in Vietnam. *Himalayan Journal of Economics Business and Management*. 2021; 2(4):61-69.
10. Anh DBH. Japanese Innovation Policy and Development of High-Quality Human Resource: Experiences for Vietnam. *Proceedings of International Scientific Conference in Economics and Business (ICYREB) on: "National Entrepreneurship and Innovation"*, Hanoi, 30 October 2018, Academy of Finance in partnership with IPAG Business Institute (France), York University (Canada) and Waikato University (New Zealand), 2018, 108-114.
11. Anh DBH. *Global Strategic Marketing Management*. Ementon Publisher, Warsaw, 2017.
12. Anh DBH. Comparative analysis of the process of economic integration of EU and ASEAN, *International Journal of Commerce and Management Research*. 2019; 5(3):96-99.
13. Anh DBH, Ngoc NM, Nhi DTY. Sustainable Social Entrepreneurship in Vietnam. *International Journal of Entrepreneurship*. 2019; 23(3):1-12.
14. Anh DBH, Thuc TD. *Global Supply Chain and Logistics Management*, Academic Publications, Delhi, India, 2019.
15. Anh DBH. Trade Freedom and Protectionism of Leading Economies in Global Trade System, *International Journal of Commerce and Management Research*. 2019; 5(3):100-103.
16. Anh DBH, Ngoc NM. Corporate Financial Performance due to Sustainable Development in Vietnam. *Corporate Social Responsibility and Environmental Management*. 2019; 27(2):1-12.
17. Anh DBH. Gaining competitive advantage from CSR policy change: case of foreign corporations in Vietnam, *Polish Journal of Management Studies*. 2018; 18(1):403-417.
18. Anh DBH, Duc LDM, Ngoc PB. Subjective Well-Being in Tourism Research. *Psychology and Education*. 2021; 58(5):3317-3325.
19. Bien BX, Tien NV. Solutions enhancing competitiveness of made-in Vietnam brands in Vietnamese market, *International Journal of Research in Marketing Management and Sales*. 2019; 1(2):93-99.
20. Diem PT, Vu NT, Nhan VK, Vang VT. The Strategy of CRM System Development at Mega Market Vietnam. *International Journal Multidisciplinary Research and Growth Evaluation*. 2021; 2(4):802-806.
21. Diem PT, Vu NT, Dung HT, Dat NV. The Process of CRM System Implementation at Dien May Xanh in Vietnam. *International Journal Multidisciplinary Research and Growth Evaluation*. 2021; 2(4):761-768.
22. Diem PT, Vu NT, Dung HT, Bien BX, Duc PM. Customer Care and Customer Relation ship Maintenance at Ministop, Family Mart and CoopSmile in Vietnam. *International Journal Multidisciplinary Research and Growth Evaluation*. 2021; 2(4):744-751.
23. Diem DL, Trang TTT, Ngoc PB. Development of

- Tourism in South Central Coastal Provinces of Vietnam. *Journal of Archeology of Egypt/ Egyptology*. 2021; 18(8):1408-1427.
24. Diep, Vu LH, Hai DT, Thuan TTH. China and USA in Vietnam's International Relations in the Region. *Journal of Archeology of Egypt/ Egyptology*. 2021; 18(8):2681-2710.
 25. Duc LDM, Thuy Cooperative, Yen NTH. Corporate Social Responsibility and Corporate Financial Performance Case of Listed Vietnamese Companies, *Zeszyty Naukowe Politechniki Czestochowskiej. Zarzadzanie*. 2018; 32:251-265.
 26. Duc LDM, Mai NP. Enhancing Sustainability in the Contemporary Model of CSR: A Case of Fast Fashion Industry in Developing Countries. *Social Responsibility Journal*, 2020.
 27. Dung HT, Tien NV. Branding building for Vietnam tourism industry reality and solutions, *International Journal of Research in Marketing Management and Sales*. 2019; 1(2):63-68.
 28. Dung NTH, Trang TT, Hien VT, Editor Phuong. Factor Affecting Tourists' Return Intention: A Case of Binh Quoi Village in Ho Chi Minh City. *Journal of Archeology of Egypt/Egyptology*. 2021; 18(9):493-507.
 29. Dung NTH, Trang TT, Ngoc PB. Assessing Customer Satisfaction for Can Gio Tourist Destination in Ho Chi Minh City. *Journal of Archeology of Egypt/Egyptology*. 2021; 18(14):249-268.
 30. Giao NQ, Trang TTT, Mai NP. Sustainability Issues in the Development of Higher Education Industry. *Hong Kong Journal of Social Sciences*. 2021; 57:79-90.
 31. Hung NT, Vu NT, Bien BX. Risks of Vietnamese Enterprises in Trade Relations with China. *International Journal of Research in Finance and Management*. 2020; 3(1):1-6.
 32. Mai NP. Green Entrepreneurship Understanding in Vietnam. *International Journal of Entrepreneurship*. 2020; 24(2).
 33. Minh HTT, Dan PV. Branding building for Vietnam higher education industry: Reality and solutions, *International Journal of Research in Marketing Management and Sales*. 2019; 1(2):118-123.
 34. Minh, Diep NH, Vu LH, Hai DT, Thuan TTH. ASEAN and China in Vietnam's International Relations in the Region. *Journal of Archeology of Egypt/ Egyptology*. 2021; 18(8):2661-2680.
 35. Ngoc PB, Trang TTT. Current Path to Community Based Sustainable Tourism Development of Khanh Hoa Province in Vietnam. *Journal of Archeology of Egypt / Egyptology*. 2021; 18(9):508-525.
 36. Ngoc NM, Nhan VK. Family business in Vietnam and in Poland: Review of characteristics and trend of development, *Journal of Southwest Jiaotong University*. 2020; 54(6):1-19.
 37. Ngoc NM. Branding Strategy for Gamuda Land Real Estate Developer in Ho Chi Minh City Vietnam. Celadon City Project. *Psychology and Education*. 2021; 58(5):3308-3316.
 38. Ngoc NM, Thu TH. The Impact of Financial Structure on Financial Performance of Logistic Service Providers Listed at Ho Chi Minh City Stock Exchange. *Journal of Archeology of Egypt/Egyptology*. 2021; 18(2):688-719.
 39. Ngoc NM, Chau PB, Khuyen TL. The Impact of Financial Structure on Business Performance of Real Estate Enterprises Listed at Ho Chi Minh City Stock Exchange. *Journal of Archeology of Egypt/Egyptology*. 2021; 18(8):92-119.
 40. Ngoc, Trang TT, Minh HTT. Brand Building and Development for the Group of Asian International Education in Vietnam. *Psychology and Education*. 2021; 58(5):3297-3307.
 41. Ngoc NM. Comparative Analysis of Advantages and disadvantages of the Modes of Entering the International Market, *International Journal of Advanced Research in Engineering and Management*. 2019; 5(7):29-36.
 42. Ngoc NM. Related and Non-related Diversification Strategy of Domestic Business Groups in Vietnam, *International Journal of Advanced Research in Engineering and Management*. 2019; 5(7):12-17.
 43. Nhi DTY, Chi DTP. CRM Application in Agricultural Management in the Mekong Delta. *International Journal of Multidisciplinary Research and Development*. 2019; 6(10):123-126.
 44. Phu PP, Chi DTP. The role of international marketing in international business strategy, *International Journal of Research in Marketing Management and Sales*. 2019; 1(2):134-138.
 45. Tam BQ, Diem PT, Duc PM, Dung HT, Dat NV, Nhan VK. The Strategic Customer Relationship Management at CoopMart in Vietnam. *International Journal Multidisciplinary Research and Growth Evaluation*. 2021; 2(4):794-801.
 46. Tam BQ, Diem PT, On PV, Anh VT, Dat NV. The History of Development of CRM System at AEON Vietnam. *International Journal Multidisciplinary Research and Growth Evaluation*. 2021; 2(4):737-743.
 47. Tam BQ, Diem PT, On PV, Anh VT, Hung NT. The Formation and Development of CRM System at Thien Hoa Electronics Supermarket in Vietnam. *International Journal Multidisciplinary Research and Growth Evaluation*. 2021; 2(4):752-760.
 48. Thai TM, Hau TH, Vinh PT, Long NVT. Solutions for Tuyen Quang and Binh Phuoc Tourism Industry Sustainable Development. Comparative Analysis. *International Journal of Research in Marketing Management and Sales*. 2020; 2(1):101-107.
 49. Thao VTT, Hung Anh DB. Sustainability issues in social model of corporate social responsibility. Theoretical analysis and practical implications, *Journal of Advanced Research in Management*. 2019; 19(1).
 50. Tin NH. *International Economics, Business and Management Strategy*, Academic Publications, Delhi, India, 2019.
 51. Tin NH. *Principles of Management*. Financial Publisher. Ho Chi Minh City, 2020.
 52. Tin NH. *Leadership in Social Responsible Enterprises*. Ementon Publisher, Warsaw, 2015.
 53. Tien NH. *Change Management in a Modern Economy. Modeling Approach*. PTM Publisher, Warsaw, 2012.
 54. Tin NH. *Competitiveness of Enterprises in a Knowledge Based Economy*. PTM Publisher, Warsaw, 2012.
 55. Tin NH. *Competitiveness of Vietnam's Economy. Modeling Analysis*. PTM Publisher, Warsaw, 2013.
 56. Tin NH. *Develop Leadership Competencies and Qualities in Socially Responsible Businesses: Reality in Vietnam*, *International Journal of Research in Management*. 2019; 1(1):1-4.

57. Tin NH. Challenges and opportunities for enterprises in the world of the 4th industrial revolution, Proceedings of National Scientific Conference on "Accounting, Auditing and Vietnam Economy in the Face of 4.0 Industrial Revolution", November 2017, Quy Nhon University, Quy Nhon, Binh Dinh province, 2017, 441-445.
58. Tin NH. Develop Leadership Competencies and Qualities in Socially Responsible Businesses: Reality in Vietnam. *International Journal of Research in Management*. 2019; 1(1):1-4.
59. Tin NH. Solutions for Sustainable Development of Binh Duong Tourism. Proceedings of University Science - Conference on: "Binh Duong Tourism, Enhancing Competitiveness towards Sustainable Development", Binh Duong Department of Culture, Sport and Tourism. December 2018, 2018, 55-67.
60. Tin NH. Hanoi Culture of Cuisine as Factor Attracting Tourists to Vietnam. Proceedings of University Scientific Conference on: "Values of Gastronomic Culture in Tourist Activities", Faculty of Social Science and Humanities, Department of Culture and Tourism. May 21, 2018, Tien Giang University, 2018, 101-105.
61. Tin NH. Sustainable Development of Higher Education: A Case of Business Universities in Vietnam. *Journal of Hunan University Natural Sciences*. 2020; 47(12):41-56.
62. Tin NH. Solutions for Tuyen Quang and Binh Phuoc International Tourism Products and Services Development: Comparative Analysis. *International Journal of Research in Marketing Management and Sales*. 2019; 2(1):131-137.
63. Tin NH. Trade Freedom and Protectionism of Leading Economies in Global Trade System. *International Journal of Commerce and Management Research*. 2019; 5(3):100-103.
64. Tin NH. Comparative Analysis of Advantages and disadvantages of the Modes of Entering the International Market. *International Journal of Advanced Research in Engineering and Management*. 2019; 5(7):29-36.
65. Tin NH. Related and Non-related Diversification Strategy of Domestic Business Groups in Vietnam. *International Journal of Advanced Research in Engineering and Management*. 2019; 5(7):12-17.
66. Tin NH. Social Entrepreneurship and Corporate Sustainable Development. Evidence from Vietnam. *Cogent Business and Management*, Taylor and Francis Publisher. 2020; 7(1):1-17.
67. Tin NH. Staff Motivation Policy of Foreign Companies in Vietnam. *International Journal of Financial Management and Economics*. 2020; 3(1):1-4.
68. Tin NH. Working Environment and Labor Efficiency of State-Owned Enterprises and Foreign Corporations in Vietnam. *International Journal of Financial Management and Economics*. 2019; 2(2):64-67.
69. Tin NH. International Distribution Policy: Comparative Case Study of Samsung and Apple. *International Journal of Research in Marketing Management and Sales*. 2019; 1(2):24-27.
70. Tin NH. Sustainability of Coastal Tourism Development: Comparative Analysis of Vietnam's Northern and Southern Provinces. *Journal of Southwest Jiaotong University*. 2021; 55(6):1-19.
71. Tin NH. Knowledge Management in the Context of Industrial Revolution 4.0. *International Journal of Commerce and Economics*. 2020; 2(1):39-44.
72. Tin NH. Knowledge Management in Strategic Alliances and Foreign Joint Ventures. Proceedings of University Scientific Conference of: "Young Lecturers and MBA Students", Faculties of Economics, TDM University. Binh Duong 15 June 2018, 2018, 141-149.
73. Tin NH. Application of CRM in Agricultural Management. Proceedings of National Scientific Conference on: "Development of High-tech Agriculture in the Highlands in the Context of Regional Linkage and International Integration", April 2019, Institute of Social Science in Central Region, Vietnam Academy of Social Science, 2019, 216-223.
74. Tin NH. CRM Application in Managing Hotel, Restaurant and Tourism Services in Vietnam. *International Journal of Research in Management*. 2019; 1(1):14-17.
75. Tin NH. CRM Application in Customer Service Management at Big4 Banks in Vietnam. *International Journal of Research in Management*. 2019; 1(1):9-13.
76. Tin NH. Human Resource Management. VHU Publisher, Ho Chi Minh City, Vietnam, 2020.
77. Tin NH. Strategic International Human Resource Management. Ementon Publisher, Warsaw, Poland, 2017.
78. Tin NH. Responsible and Sustainable Business. Eliva Press, Chisinau, Moldova, 2020.
79. Vang VT, Hung NT. Comparative Analysis of Business Environment in Binh Duong, Dong Nai and Ba Ria Vung Tau of Vietnam Using EFE Matrix. *International Journal Multidisciplinary Research and Growth Evaluation*. 2021; 2(4):769-778.
80. Viet PQ, Duc NM, Tam VT. Sustainability of Tourism Development in Vietnam's Coastal Provinces. *World Review of Entrepreneurship Management and Sustainable Development*, 2020.
81. Vu NT, Dung HT, Duc LDM. Determinants of real estate bubble in Vietnam, *International Journal of Research Finance and Management*. 2019; 2(2):75-80.
82. Vu NT, Tien NV. The role of brand and brand management in creating business value case of Coca-Cola Vietnam, *International Journal of Research in Marketing Management and Sales*. 2019; 1(2):57-62.
83. Vu NT, Bien BX, Anh VT. The Development Process of CRM System at VinMart in Vietnam. *International Journal Multidisciplinary Research and Growth Evaluation*. 2021; 2(4):728-736.
84. Anh DBH. CSR Policy Change: Case of International Corporations in Vietnam. *Polish Journal of Management Studies*. 2018; 18(1):403-417.
85. Trang TTT. Sustainable Development of Higher Education Institutions in Developing Countries: Comparative Analysis of Poland and Vietnam. *Contemporary Economics*. 2022; 16(2):195-210.
86. Zheng WL. Impact of Energy Efficiency, Technology Innovation, Institutional Quality and Trade Openness on Greenhouse Gas Emissions in Ten Asian Economies. *Environmental Science and Pollution Research*, 2022.
87. Ahmad AF. The Nexus among Green Financial Development and Renewable Energy: Investment in the wake of the Covid-19 pandemic. *Economic Research*. 2022; 35(1):5650-5675.
88. Ye F. The Impact of Corporate Social Responsibility on

- the Sustainable Financial Performance of Italian Firms: Mediating Role of Firm Reputation. *Economic Research*. 2022; 35(1):4740-4758.
89. Feng SC. The Role of Technology Innovation and Cleaner Energy towards Sustainable Environment in ASEAN Countries: Proposing Policies for Sustainable Development Goals. *Economic Research*. 2022; 35(1):4677-4692.
 90. Duc LDM. Enhancing Auditor Independence in Auditing Enterprises in Vietnam. *Cogent Economics and Finance*. 2019; 7(1):1-16.
 91. Mai NP. Social Entrepreneurship and Corporate Sustainable Development. Evidence from Vietnam. *Cogent Business and Management*. 2020; 7(1):1-17.
 92. Thuong TM. Enhancing Independence of Local Auditing Services by Profiting from International Experiences of the Big4 Group (KPMG, Deloitte, PWC E&Y) Operating in Vietnam Market. *Cogent Business & Management*. 2019; 6(1):1-14.
 93. Tien NH. Corporate Financial Performance due to Sustainable Development in Vietnam. *Corporate Social Responsibility and Environmental Management*. 2019; 27(2): 694-705.
 94. Tien NH. Natural resources volatility and financial development during Covid-19: Implications for economic recovery. *Resources Policy*, 2019.
 95. Ka YC. Exploration of Green Energy and Consumption Impact on Sustainability of Natural Resources: Empirical Evidence from G7 Countries. *Renewable Energy*. 2022; 196:1241-1249.
 96. Ngoc NM. Solutions for Development of High-Quality Human Resource in Binh Duong Industrial Province of Vietnam. *International Journal of Business and Globalisation*, 2023.
 97. Huong LTM. Factors Impacting State Tax Revenue in ASEAN Countries. *International Journal of Public Sector Performance Management*, 2023.
 98. Ngoc NM. Impact of Accreditation Policy on Quality Assurance Activities of Public and Private Universities in Vietnam. *International Journal of Public Sector Performance Management*, 2023.
 99. Ngoc NM. Quality of Scientific Research and World Ranking of Public and Private Universities in Vietnam. *International Journal of Public Sector Performance Management*, 2023.
 100. Viet PQ. Sustainability of Tourism Development in Vietnam's Coastal Provinces. *World Review of Entrepreneurship Management and Sustainable Development*. 2021; 17(5):579-598.
 101. Tien NH. Vietnamese Family Business in Poland and in Vietnam. *Comparative Analysis of Trends and Characteristics*. *International Journal of Entrepreneurship and Small Business*. 2021; 42(3):282-299.
 102. Anh DBH. Sustainable Development of Social Entrepreneurship: Evidence from Vietnam. *International Journal of Entrepreneurship and Small Business*. 2022; 45(1):62-76.
 103. Mai NP. Green Entrepreneurship: A Game Changer in Vietnam Business Landscape. *International Journal of Entrepreneurship and Small Business*, 2023.
 104. Ngoc NM. Enhancing efficiency of real estate brokerage activities in Vietnam. *International Journal of Business and Globalisation*, 2023.
 105. Ngoc NM. Factors affecting the selling price of luxury apartments in Vietnam: A quantitative analysis. *International Journal of Business and Globalisation*, 2023.
 106. Mai NP. Enhancing Sustainability in the Contemporary Model of CSR: A Case of Fast Fashion Industry in Developing Countries. *Social Responsibility Journal*. 2021; 17(4):578-591.
 107. Ngoc NM. Sustainable Integration in Vietnam's Tourism Industry. *World Review of Entrepreneurship Management and Sustainable Development*, 2023.
 108. Ngoc NM. The relevance of factors affecting real estate investment decisions for post pandemic time. *International Journal of Business and Globalisation*, 2023.
 109. Massoud M. Impact of non-renewable energy and natural resources on economic recovery: Empirical evidence from selected developing economies. *Resources Policy*. 2023; 80:103221.
 110. Hieu VM. Socially Sustainable Entrepreneurship of Chinese Community in Southern Vietnam. *International Journal of Entrepreneurship and Small Business*, 2023.
 111. Ngoc NM. Factors affecting the willingness to pay for management services of apartments in Vietnam. *International Journal of Business and Globalisation*, 2023.
 112. Toan TT. Opportunities and challenges for quality of human resource in public sector of Vietnam's logistics industry. *International Journal of Public Sector Performance Management*, 2023.
 113. Lan TTN. Market development strategy of renewable energy industry in Vietnam. *International Journal of Business and Globalisation*, 2023.
 114. Huong LTM. Assessment of green economic growth in the current specific socio-economic context of Vietnam. *International Journal of Business and Globalisation*, 2023.
 115. Lan TTN. A global trend of sustainable development of agribusiness in Vietnam. *International Journal of Business and Globalisation*, 2023.
 116. Vinh PT. Global performance of Vietnamese small enterprises due to internal and external drivers. *International Journal of Business and Globalisation*, 2023.
 117. Tuan LHA. The entrepreneurial pathway of Vietnamese super-rich. The sources of their successful business performance. *International Journal of Entrepreneurship and Small Business*, 2023.
 118. Hai DH. The influence of global climate change on economic growth in Vietnam. *International Journal of Business and Globalisation*, 2023.
 119. Tien NH. Global product purchasing intention of consumers in Vietnam. *International Journal of Business and Globalisation*, 2023.
 120. Duc LDM. The impact of quality of financial accounting information on SMEs' business performance. *International Journal of Business and Globalisation*, 2023.