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### Impact of Industrial Revolution 4.0 on Banking and Financial Sector

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#### Abstract

The digital revolution or the Industrial Revolution 4.0 has a strong impact on all socio-economic industries and fields, including the banking and finance industry, on the basis of bringing positive aspects, promoting the process of economic development socio-economic development process, creating a lot of opportunities for businesses in the

finance - banking industry to participate in the global value chain, but at the same time, there are limitations that the parties need consider remedial. In this article, the authors analyze in-depth the opportunities and challenges of the Finance - Banking industry in the industrial revolution 4.0 and propose some solutions to the existing limitations.

**Keywords:** Industrial Revolution 4.0, Finance-Banking, Technology

#### 1. Overview of the Industrial Revolution 4.0

Industrial Revolution 4.0 refers to the advent of “cyber-physical systems” involving completely new capabilities for humans and machines. While these capabilities depend on the technology and infrastructure of the third industrial revolution, the fourth industrial revolution represents entirely new ways in which technology is introduced into society. Society and even the human body, including genome editing, new forms of intelligent machines, groundbreaking materials, and governance approaches based on cryptographic methods such as blockchain.

The biggest feature of the 4.0 Industrial Revolution is the connection between subjects and the economic cycle thanks to the development of information technology and the internet, culminating in the internet of things. This connectivity is creating a new trend, whereby direct resource sharing models between individuals are realized thanks to information technology and internet platforms, towards the optimal goal. Resources of the entire society. Thanks to that, Industry 4.0 is shortening the gap between the real world and the virtual world through advanced and constantly creative technologies. Furthermore, the influence and spread of this revolution is taking place on a global scale, at a rapid pace and is expected to change the entire production, management and governance system worldwide. Gender.

The 4.0 Industrial Revolution is predicted to create many opportunities in improving technological levels, enhancing production capacity and competitiveness in the product chain, creating attractive and potential investment opportunities in the industrial sector. Digital technology, internet.

#### 2. Main impacts of the 4.0 Industrial Revolution on the banking and finance industry

##### 2.1 Opportunity

The 4.0 Industrial Revolution with its global influence has had many impacts on Vietnam's finance and banking industry, especially bringing many opportunities and benefits, specifically:

- First: shorten the technology gap with the world

The need to apply and develop high technology in banking operations in Vietnam is increasing. The State Bank's investigation shows that some banks are expected to invest 8% - 10% of their total annual operating costs in information technology. Advances from the digital technology revolution and subsequent Industrial Revolution 4.0 will create favorable conditions for Vietnamese banks to have opportunities to attract investment capital and access international markets; Update modern management and business management levels; absorb smart digital banking models; Technological innovation through the application or transfer of high technology, developing modern banking products and services, promoting the great potential of the banking sector and making timely changes with new technology trends When Vietnam joined the World Trade Organization (WTO) and signed a series of free trade agreements (FTAs), especially the Vietnam - Eurasian Economic Union FTA, or Vietnam - FTA Korea, Vietnam - Japan FTA...

- Second: Improve access to international markets  
Currently, Vietnam has diplomatic and trade relations with most countries and territories in the world, participates in most large-scale FTAs in the world, the presence of the 4.0 Industrial Revolution will be an opportunity. An opportunity for not only large financial and banking institutions but also the entire system to expand beyond its territory, expand its scope of operations and create an international brand under the conditions of a globally level business playing field. Demanding, highly professional. This will open up great opportunities for the financial and banking sector to catch up with world levels, expand markets, and contribute to Vietnam's economic growth.

- Third: Improve the quality of financial and banking products and services in a modern, efficient manner in terms of time, space, cost and increase profits:

The 4.0 Industrial Revolution brings opportunities for the finance and banking industry to apply smart management technology and automation in business processes, helping to accelerate progress towards a standard model in the future. The influence of Industrial Revolution 4.0, specifically the internet, internet of things, large-scale data storage, cloud computing... helps domestic commercial banks reshape their business models, electronic payments, and management. Value... towards building smart digital banks in the future.

In addition, Industrial Revolution 4.0 is based on digital technology and integrates smart technologies, opening up great opportunities in reducing transaction, transportation, and management costs, optimally meeting customer needs. Especially will challenge the traditional model, creating pressure to modernize financial and banking activities if they do not want to be eliminated from the market, creating positive competition for the financial sector. Banking, is what the Vietnamese financial and banking sector needs in the context of international integration and smart technology.

On the other hand, technological advances of the Digital Revolution contribute to promoting the formation of new financial service products in the banking industry such as: M-POS, e-wallet, chip card technology, mobile banking, internet banking... The introduction of these new financial service products will facilitate the use of modern banking services and contribute to saving transaction costs for people.

In the context of the 4.0 Industrial Revolution, computer networks connect global financial markets into a unified and continuously operating market. This contributes to overcoming obstacles in time and space, saving costs; at the same time, it facilitates international banking transactions to be carried out quickly and easily, bringing great opportunities for financial traders and banks.

- Fourth: The construction of large data centers helps scientific analysis and data management in the finance and banking industry become increasingly advantageous.

Collecting, analyzing and processing big data will create new knowledge, support quick and effective decision making, thereby contributing to reducing costs and creating competitive advantages for banks. Banking, especially statistics and forecasting of banking and financial activities become much easier.

- Fifth: Help change business models, business processes, product and service structures towards digitalization.

The 4.0 Industrial Revolution helps banks gradually become digital banks, providing new utilities, experiences and

practical benefits to customers. The application of technology also helps banks simplify processes. Paperwork. At the same time, the 4.0 Industrial Revolution also helps financial and banking institutions use distribution channels, reach users on digital platforms, and interact with customers through smartphone applications and social networks... and applying digital technologies to improve internal system operational efficiency and optimize business processes, banks can improve customer relationship management capabilities, helping banks gain a deep understanding learn more about customer habits and preferences to provide appropriate products and services and support risk portfolio management.

Thus, advances from the 4.0 Industrial Revolution are a springboard to help domestic financial and banking institutions develop and compete with advanced banks in the region and the world in terms of grasping and adapting. And change promptly with new technology trends.

## 2.2 Challenge

In the context of Industrial Revolution 4.0, besides the benefits, there are always new challenges. The Finance - Banking industry, which is considered the leading field in information technology application, will certainly not be left out of the spiral and will be greatly influenced by the continuous development of the 4.0 Industrial Revolution era. First, challenges for the State Bank:

Industrial Revolution 4.0 is developing so quickly that many countries, including Vietnam, are truly confused in designing legal frameworks. In addition, banking products and services are increasingly diverse and business risks are more complex, making it difficult for many countries to control risks based on traditional methods and banking supervision mechanisms. Products in each country are no longer suitable. Therefore, the State Bank needs to develop appropriate legal regulations to manage and supervise new elements of the financial and banking sector, such as: cryptocurrency, electronic money (e-money), Fintech companies... and manage licensing, monitor operations as well as control payment cash flow from these organizations.

Second, challenges facing the finance and banking industry today:

- Changing business models and governance models: uneven technology development among financial and banking institutions hinders the application of industry-wide operations, challenges in connecting there is a systematic nature of organizations to jointly exploit and develop various types of banking services for the economy.
- Reducing the number of employees in financial and banking institutions: the labor market in the financial and banking sector will also change, due to the application of the achievements of this revolution, banks will reduced the number of employees. However, the demand for high-quality human resources will increase, requiring employees to be good in both professional expertise and information technology. Furthermore, competition through expanding the network of bank branches will gradually end, due to high operating costs, replaced by modern banking technology.
- Gradually reduce the role of branches: the future trend, the market economy will exist without the need for

traditional banks today, business banks mainly rely on capital mobilization and lending activities. Loans, the scale of the banking sector will also shrink significantly.

- Regarding security and high-tech crimes: the increasingly rapid development of Industry 4.0 leads to an increase in security holes, creating conditions for high-tech criminals, hackers - hackers to operate more and more every day. More often. In addition to paralyzing all transactions of financial institutions - banks, high-tech criminals are always lurking to attack accounts, counterfeit card blanks and steal customers' money. Hackers can also attack customers. Directly into a bank's system, making large-scale money transfers. Financial and banking organizations need to have high security mechanisms, multi-layered prevention mechanisms to prevent attacks, and apply new defense methods. Industrial Revolution 4.0 creates many opportunities for financial and banking organizations but also poses many challenges, specifically:
  - Setting requirements forcing financial and banking organizations to quickly transform their management and operating models, business models, restructure products and services to adapt to digital generation customer trends, the digital economy needs to establish an effective framework and mechanism to prevent cybersecurity risks and protect customer information confidentiality in the digital era.
  - The big challenge for the banking and finance industry is investing in equipment development to adapt to advances in digital science and technology. Investing in technological equipment will help bring many efficiency, however investment costs are a matter of concern for the entire industry.
  - Industrial Revolution 4.0 poses new requirements on the quantity and quality of employees, especially in the context that many activities can be performed by robots, so it has a big impact on the labor market when there is a lack of human resources. High Quality. Resolving limitations in the qualifications and capabilities of officials and employees and arranging work for a number of employees is not an easy problem for the finance and banking industry in the context of the 4.0 Industrial Revolution.

Third: information technology risks, security, technology crimes with the increasingly rapid development of Industry 4.0 and the gradual shift to cloud computing, security vulnerabilities may increase, leading to huge challenges in terms of security risks. These risks can cause huge losses to the financial and banking system, thereby affecting financial security and reducing the Government's operating credibility.

### 3. Some recommendations for the finance and banking industry in the era of Industry 4.0

Faced with the opportunities and challenges posed by the 4.0 Industrial Revolution, it is necessary to synchronously implement a number of solutions to develop the finance and banking industry in the new context. Specifically:

First: institutional and policy solutions

Institutions and policies play an important role in creating the fundamental framework for the development of financial and banking institutions. Currently in Vietnam, there are still many legal documents that when issued, the products

and activities of Industry 4.0 have not yet been born and therefore there are points that are not consistent with the development trend. Therefore, the State Bank needs to review and amend current legal documents in the direction of creating conditions for the application, transactions, and development of Industry 4.0 products. In addition, the State Bank needs to improve in the same direction as or approach the standards of technology, institutions, and international law; Promptly issue regulations on the responsibilities and powers of state management agencies, especially inspection and supervision departments in accordance with the regional context, and at the same time develop solutions and policies to Encourage financial technology companies to expand their scale in both the Vietnamese and international markets.

Second: solutions for financial and banking institutions

- Raise awareness of all officials and employees to make them clearly understand the importance and impact of the 4.0 Industrial Revolution on the finance and banking industry. From there, each individual needs to proactively study and improve their professional and scientific and technological qualifications to adapt to the new requirements of the 4.0 era.
- Develop a strategy for developing human resources in the finance and banking industry, focusing on innovation and strengthening the training of high-tech human resources; Increase the ability to apply information technology, build a team of qualified and ethical banking staff to meet banking management and business requirements, contribute to improving competitiveness and shortening the gap. Differences in qualifications compared to the region and the world.
- Accelerate the progress of building and completing a comprehensive financial strategy, which emphasizes the role of information technology application, encouraging the development of cooperation between banks and financial technology companies; promote the development of the ecosystem, becoming part of the ecosystem in the supply chain of modern financial and banking products and services.
- Invest and complete information technology infrastructure to modernize and automate most banking processes, develop banking services through the application of digital technology, Build a modern branch model, based on the technology platform of automation, multi-dimensional connection and intelligence of the digital revolution.
- Develop strategies for developing the finance and banking industry in the short and long term. The strategy is built based on the current situation of the finance and banking industry and the issues posed by the 4.0 Industrial Revolution, ensuring synchronous operations, effective operations, quality, and compliance with market mechanisms and adapt to the scientific and technical advances of the Digital Revolution.
- Create a legal corridor for new activities, services and products formed in the context of the digital revolution; Build a management and supervision mechanism appropriate to the Vietnamese context and common standards and good practices of the world.

Third: focus on network security.

Financial and banking institutions need to invest and equip security and confidentiality solutions, regularly check and monitor compliance with security and confidentiality

regulations; detect and promptly handle security vulnerabilities; improve financial capacity, banking management, especially risk management; Ensuring the confidentiality of customer information and ensuring the safety of customer assets.

#### **4. Conclusion**

The 4.0 Industrial Revolution has been taking place at a fast pace and has a great impact on the development of the Finance and Banking industry. To adapt to new achievements and avoid falling behind, Vietnam's finance and banking industry needs to proactively shift research and development investment to seize opportunities and expand the supply of banking products and services. Suitable products for customers... There needs to be unity and determination to innovate throughout the industry, coordination between domestic financial and banking institutions to improve competitiveness and ability to attract customers. Approaching and adapting to the scientific and technical advances of the 4.0 Industrial Revolution while accelerating the process of industrialization and modernization, positively contributing to the country's growth.

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