

Digital transformation: Opportunities and challenges for the Vietnamese economy

Pham Viet Huong

Thai Nguyen University of Technology

ABSTRACT

This paper examines the impact of digital transformation on the Vietnamese economy. Through a comprehensive analysis of opportunities and challenges, the paper discusses the significant role of digital transformation in shaping the future of the nation's economy. In the analysis section, the paper focuses on three main areas: Information and Communication Technology (ICT) Economic Growth, Entrepreneurship and Innovation, and Enhancing Competitive Capacity. ICT not only creates new opportunities but also drives the development of the information technology industry in Vietnam. Entrepreneurship and innovation open doors for new businesses and foster digital innovation. Enhancing competitive capacity through optimizing production processes and data analysis helps Vietnam strengthen its position in the global market. However, the paper also highlights the challenges that Vietnam faces, including technological disparities, cybersecurity, and the adaptability and innovation capability of businesses and society. The conclusion of the paper suggests the necessity of collaboration among the government, businesses, and the community to achieve flexible and effective adaptation to digital transformation.

Keywords: Digital transformation, Vietnam, economy, challenges, opportunities.

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I. INTRODUCTION

In a world interconnected by technology, Digital Transformation has become an undeniable factor in shaping the global economy. Vietnam, a rapidly developing nation, is no exception. Transitioning from an agrarian-based economy to an industrialized and modernized one, Vietnam is witnessing a digital revolution.

In this introduction, we delve deeper into the profound impact of Digital Transformation on the Vietnamese economy. From unveiling new opportunities to addressing challenges, understanding and accurately assessing these factors are crucial in determining the country's developmental trajectory.

We begin by examining the opportunities that Digital Transformation brings to the Vietnamese economy, from technology-driven economic growth to the emergence of startups and innovation. Subsequently, we explore the challenges that Vietnam faces in adapting to and harnessing the potential of Digital Transformation. With a comprehensive and insightful perspective, we realize that Digital Transformation is not just a trend but a reality reshaping the face of Vietnam's economy. This raises important questions about the country's direction in the era of Digital Economy.

1. The Digital Transformation Campaign in Vietnam

The Fourth Industrial Revolution (4IR) has begun in recent years and is continuing vigorously, understood as a revolution in smart production based on breakthroughs in information technology, biotechnology, nanotechnology... with the foundation being the breakthrough of digital technology. The 4IR, a new technological revolution, is particularly different from previous industrial revolutions. In terms of speed, it increases exponentially; In terms of scope and depth, this is a revolution based on digital networks and integrates multiple technologies, leading to unprecedented changes in economic and social models; In terms of systemic impact, it involves the transformation of the entire system, nationwide, enterprises, industries, and society as a whole. To successfully implement this revolution, not to lag behind, governments, in general, and Vietnam, in particular, must undergo "Digital Transformation". From the implementation perspective, the 4IR integration includes: The Internet of Things (IoT) platform; Information technology (IT) and Artificial Intelligence (AI); Scientific and technological workforce to meet new requirements; Cloud computing; Big Data; Material technology; Biotechnology; Mechanical engineering, automation.

Recognizing the importance of digital transformation, many countries worldwide have implemented national strategies/programs on digital transformation. The content of digital transformation in each country varies depending on the economic and social development strategy and the specific characteristics of each country.

In Vietnam, digital transformation in state management agencies, in sectors, and fields has begun but has not been comprehensive, widespread, and standardized. The government and authorities at all levels have been building electronic governments/electronic authorities. Some provinces/localities have started to develop and issue digital transformation plans/projects based on Decision 749/QD-TTg approving the "National Digital Transformation Program by 2025, with orientation to 2030" to implement Resolution 52-NQ/TW of the Politburo and Resolution No. 50/NQ-CP. Recently, the Prime Minister issued the National Strategy for the 4IR until 2030 in Decision No. 2289/QD-TTg dated December 31, 2020, the National Strategy for Research, Development, and Application of Artificial Intelligence until 2030 in Decision No. 127/QD-TTg dated January 26, 2021, and the Government's Development Strategy towards the Digital Government phase 2021-2025, orientation to 2030.

Digital transformation is the main content and solution to proactively participate in the 4IR; initially, it is for the government, authorities, businesses, society not to fall behind or even go bankrupt; but can take advantage of trends, technologies for prosperity, changing rankings. The National Digital Transformation Program sets the vision to 2030 as "Vietnam becomes a digital nation, stable and prosperous, pioneering and experimenting with new models; fundamental innovation, comprehensive management and operation of the government, business production activities, people's way of life and work, developing a safe, humane digital environment, widespread" with the dual goal of "developing digital government, digital economy, digital society, and forming Vietnamese digital technology enterprises with global capabilities." At the same time, the Program identifies: transforming the entire operation of state agencies into a digital environment; consider digital transformation as mandatory, default; State agencies use digital technology and digital data to make decisions, create development, and manage economic - social efficiently, leading to digital economic, social development; Development of digital government closely linked with ensuring cybersecurity, network security, and protecting national digital sovereignty.

The national digital transformation program by 2025, orientation to 2030 focuses on implementing digital transformation on 03 pillars: Digital government, digital economy, digital society, and 08 priority areas including healthcare; education; finance - banking; agriculture; transportation and logistics; energy; resources and environment; and industrial production; defining 05 groups of tasks, solutions to lay the foundation for digital transformation (including: Perception transformation; Institutional innovation, Infrastructure development; Digital platform development; Cybersecurity; International cooperation, research, development, and innovation) and tasks, solutions for developing digital government, digital economy, digital society, and 08 priority areas. Thai Nguyen Provincial Party Committee: Based on the Government's direction in implementing the national digital transformation project, Thai Nguyen Province issued Resolution No. 01-NQ/TU

2. Opportunities of digital transformation for the Vietnamese economy

**Information and communication technology (ICT) economic growth:* Information and communication technology (ICT) is increasingly playing a vital role in driving economic growth in Vietnam. With the rapid development of the information technology industry, Vietnam's economy has been presented with a plethora of new opportunities.

ICT has facilitated global connectivity, enabling businesses in Vietnam to access international markets more easily. Companies can conduct transactions more flexibly and efficiently through e-commerce platforms and online payment systems.

The development of the ICT industry has created numerous job opportunities for the workforce in Vietnam. Information technology and communication companies are ramping up recruitment to meet the growing demands of the market.

ICT is not only a field for employment but also an environment for innovation and entrepreneurship. Vietnam is witnessing the emergence of many technology startups, from mobile applications to online services, creating significant opportunities for young entrepreneurs.

ICT helps optimize production processes and supply chain management, thereby enhancing productivity and reducing costs. Enterprises can leverage new technologies such as artificial intelligence and the Internet of Things to improve production processes and economic growth.

By incorporating information technology into business operations, enterprises can enhance their competitiveness in the international market. Vietnam is becoming one of the leading centers for software development and information technology services in the region, attracting interest from investors and international partners.

In the future, investing in the ICT industry and promoting innovation and creativity will continue to be key to Vietnam fully harnessing the potential of digital transformation and driving sustainable economic growth.

**Entrepreneurship and innovation*

Entrepreneurship and innovation have become an integral part of the business landscape in Vietnam, and Digital Transformation has opened up many new opportunities in this field.

Digital transformation has created favorable conditions for the development of startups and small and medium-sized enterprises (SMEs). With the emergence of crowdfunding platforms and startup conferences, seeking investment capital and promoting products has become easier than ever.

The startup community in Vietnam is growing rapidly, with support from organizations, businesses, and the government. Training programs, mentoring, and legal support have helped startups enhance the knowledge and skills needed for success.

Digital Transformation has spurred innovation in the technology sector, from mobile applications to software solutions and online services. Vietnam is becoming a hub for innovative information technology products, attracting interest from investors and international partners.

Innovation and entrepreneurship not only create new business opportunities but also enhance the competitiveness of the economy. Vietnam is promoting innovation to develop value-added products and services, thereby enhancing competitiveness in the international market.

By combining creativity with technology, startups in Vietnam have significant growth potential. Vietnam is attracting interest from investors and international businesses, opening up new opportunities for economic development.

In the future, continued support for and encouragement of innovation and entrepreneurship will help Vietnam fully leverage the potential of Digital Transformation and drive sustainable economic growth.

**Enhancing competitive capacity*

Digital transformation is not only an opportunity but also a crucial factor in enhancing the competitive capacity of the Vietnamese economy, especially in the context of global economic integration and international competition.

Digital transformation helps businesses optimize production processes, improving labor productivity and reducing production costs. Vietnam can leverage technologies such as artificial intelligence and automation to enhance production capacity and competitiveness in the international market.

Digital transformation provides businesses with the ability to collect and analyze data more efficiently. Vietnam can use data analysis to gain deeper insights into customer needs and market trends, thereby developing flexible and effective business strategies.

Digital transformation opens up opportunities to develop online services, from banking services to education and healthcare. Vietnam can leverage the widespread use of the internet to provide convenient services for citizens and businesses.

By using digital transformation to strengthen competitive capacity, Vietnam can confidently participate in the international market and compete with other countries in the region and worldwide.

In the future, investing in digital transformation and enhancing competitive capacity will help Vietnam fully realize its potential and contribute to the sustainable development of the national economy.

3.Challenges of digital transformation for the Vietnamese economy

**Security and privacy*

While digital transformation presents numerous opportunities, it also poses significant challenges regarding information security and privacy, especially in the context of the increasingly digital business environment. Vietnam is facing the risk of data breaches due to increasingly sophisticated cyberattacks. Failure to protect customers' personal information and important business data can lead to significant losses and affect the country's reputation in the international market. Vietnam is challenged in establishing and enforcing regulations on cybersecurity and personal data protection. Lack of clarity and consistency in law enforcement may weaken the nation's cybersecurity capabilities. Digital Transformation opens the door to fraudulent activities and online crimes. Inability to fully control unethical behaviors on the internet can have serious consequences for businesses and consumers. Another challenge for security and privacy is the human factor, including users' lack of awareness and education about online risks. Enhancing awareness and education can help strengthen cybersecurity for both individuals and organizations. The final challenge is the constant innovation of cyberattack methods and online fraud. Vietnam needs to invest in research and development of security technologies to cope with new threats and advancements in cybercrime. In summary, facing and overcoming challenges regarding security and privacy will require close collaboration between the government, businesses, and the user community. Only through this collaboration can Vietnam ensure safety and security throughout the digital transformation process and promote sustainable economic development.

**Adaptation and Innovation*

Although digital transformation brings many opportunities, it also poses challenges for the Vietnamese economy, particularly in adaptation and innovation. Vietnam still faces infrastructure deficiencies, especially in rural areas. Disparities in internet access and information technology create a digital divide between regions, resulting in inequality in accessing business and educational opportunities. Adapting to digital transformation

requires a skilled, flexible, and continuously learning workforce. However, Vietnam's education and training system still faces many challenges in providing the necessary skills for the modern labor market. Some businesses and individuals in Vietnam may struggle to adapt to the changes brought about by digital transformation. Resistance from the grassroots level can be a significant barrier to innovation and needs to be overcome through enhanced education and awareness. The development of digital transformation poses new legal challenges for the Vietnamese economy. Adjustments and improvements to the legal framework are necessary to ensure safety and transparency in the use and management of personal information and business data. Businesses in Vietnam may easily fall into a state of self-protection, maintaining traditional processes and methods without adapting to new technologies. This can slow down the innovation process and put the economy at risk. Adaptation and innovation are essential parts of Vietnam's digital transformation process. To overcome these challenges, close collaboration between the government, businesses, and the community, as well as strong investment in education and skills training for the workforce, are necessary. Only through concerted efforts can Vietnam truly leverage the potential of digital transformation and progress on its path in the digital age.

**Technological Disparity*

Although digital transformation brings many opportunities for Vietnam, it also poses numerous challenges, particularly regarding technological disparity between urban and rural areas.

One of the significant challenges for digital transformation in Vietnam is the uneven distribution of technology between regions. While urban areas rapidly develop with modern technology, many rural areas still face a shortage of technological infrastructure.

The lack of internet access is a major barrier to digital transformation in Vietnam. Despite significant progress in internet development in recent years, many rural areas still lack full access to the internet.

Technology literacy deficiency is another challenge that Vietnam is facing. Especially in rural areas, many people still lack full access to knowledge about information technology and communication, making it difficult to implement digital transformation.

The digital divide between urban and rural areas is gradually widening. This not only creates inequality in accessing business and educational opportunities but also leads to economic development disparities between regions.

Technological disparity can lead to unemployment in the economy. Workers without information technology skills may struggle to find employment or even lose their jobs due to competition from technology.

Technological disparity is one of the significant challenges for Vietnam's digital transformation. To overcome this challenge, there is a need for strong investment in technological infrastructure, technology literacy education for the population, and the establishment of a fair and sustainable business environment in both urban and rural areas.

II. CONCLUSION

Digital transformation is not just a trend but a reality unfolding, and Vietnam cannot deny its crucial role in shaping the nation's economic future. It emphasizes that adaptation and innovation are the keys to success in the Digital Economy era. Overcoming challenges such as technological imbalance, security and privacy, as well as the adaptation and innovation capacity of businesses and society, will determine Vietnam's success in seizing the opportunities of digital transformation. This underscores the vital necessity of cooperation between the government, businesses, and the community to achieve flexible and effective adaptation to digital transformation. Only through unity and collective effort can Vietnam stand firm and progress on its path in the digital era.

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