

Promoting digital transformation creates breakthroughs to shorten the process of industrialization and modernization of the country

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Abstract

In recent times, with the transformation to a new growth model based on productivity and innovation, reducing dependence on competitive advantages as well as natural resources or human resources. cheap prices, Vietnam's economy has achieved new developments and many achievements. The policy of development based on science, technology, innovation and achievements of the fourth industrial revolution has been affirmed by the Party and State in many documents that define the manufacturing industry. , processing is the key, digital transformation is a groundbreaking new method to shorten the process of industrialization and modernization. The fourth industrial revolution, including digital transformation, has a comprehensive and profound impact on industrialization and modernization in Vietnam in all fields.

Key word: *digital transformation, industrialization, mordernization*

1. Introduction

The Fourth Industrial Revolution has been and is significantly changing life, economy, and society. It brings breakthroughs in industrial equipment, Industry 4.0, and creates many development opportunities. Breakthroughs in artificial intelligence and computer science are changing how humans interact with the world and opening up opportunities for businesses to optimize processes, increase productivity, and reduce costs. Over the past 30 years of innovation, Vietnam has achieved significant milestones in socio-economic development, actively engaging in international integration. Currently, our country is not outside the general trajectory of the world, participating in and being affected by the Fourth Industrial Revolution. This creates opportunities, timing, and difficulties, challenges for Vietnam in the process of industrialization and modernization. The development during the innovation process also creates important prerequisites for Vietnam to approach and implement this industrial revolution. The characteristic of the Fourth Industrial Revolution is not mainly dependent on machines and equipment but relies more on the abilities and intelligence of humans, creative capacity. Therefore, Vietnam can leverage the advantage of being a latecomer, with a golden population (mostly young labor force), a high proportion of smartphone and internet users in the region. On the other hand, the Vietnamese government is concerned and implements measures to grasp and apply achievements and mitigate challenges of the Fourth Industrial Revolution in the country's socio-economic development.

2. The impact of digital transformation on the process of industrialization and modernization of the country.

External impacts:

- The impact of digital transformation changes the following trends:

- The first trend is household services. Our lives are equipped with intelligent support systems, which help us efficiently and intelligently perform tasks in life. Household services play an increasingly important role in our daily lives. For example, they can coordinate and arrange our trips, provide advice, make decisions, suggest work or study, along with recommendations or support for daily workload management. This helps us save a lot of time and effort by assigning tasks such as coordination, research, or data analysis for corresponding household services.

- The second trend is communication technology. New technologies enable people around the world to communicate with each other easily and conveniently. Up to 79% of employees worldwide work together in virtual teams. This helps them connect more closely, ensuring effective mutual assistance in work. This connectivity brings even more efficiency than we think. Anyone can join the conversation, thanks to the internet allowing machines to communicate with each other, and machines can communicate with humans. Industry 4.0 brings many potentials and great opportunities for businesses.

- The third trend is market circulation. Digital transformation will impact all industries, with businesses having a great need for innovation and change. The race towards digitization has begun, driven by increasing cost pressures, increasingly lean value chains, and even some new industries may emerge due to digital technology transformation. In this global competition, only the most adaptable and proactive businesses can survive and thrive. The ambitious pursuit of innovation may also be highly valued in the increasingly invested capital flow.

Internal impacts:

In Vietnam, the Fourth Industrial Revolution brings about inequality in profits compared to investment capital and profits compared to labor due to the process of automation replacing labor with machinery. Additionally, social stratification between "low-skilled/low-wage" and "high-skilled/high-wage" is becoming increasingly serious due to the knowledge factor determining this.

The industrial revolution also strongly affects the following industries:

In agriculture:

The Fourth Industrial Revolution, integrating digital technology, biotechnology, and physical technology, will create a smart production environment, with agriculture being a prioritized area for implementation. For Vietnam, the strong development of the Fourth Industrial Revolution poses significant challenges, including:

- Limited ability to apply and absorb technologies in Vietnam.

- Inequality issues as people with limited skills and capabilities struggle to benefit.

In education:

Opportunities and challenges for educational institutions under the impact of the Fourth Industrial Revolution are intertwined. Specifically:

- Impact on curriculum: The development of the industrial revolution requires workers to have specialized skills, demanding education to provide learners with both academic knowledge and soft skills.

- Impact on teaching methods and classroom organization: Technological advancements change teaching methods, shifting towards online learning. Virtual models allow for effective management and organization of classes and personnel.

- Creating high-demand training for educational institutions: The Fourth Industrial Revolution creates opportunities to train new individuals and upskill existing ones, from workers to engineers, all needing to update their knowledge and skills to a higher level.

- Changing activities in educational institutions: New teaching models like online education without classrooms and teachers physically present are emerging.

In healthcare:

In healthcare, the Fourth Industrial Revolution has brought about numerous breakthroughs. Machines with large memory capacities help doctors analyze medical images more quickly and accurately, such as genetic testing and molecular biology. Robot surgery and computer-assisted surgery minimize invasion and allow surgeons to control operations either directly through remote control or via computer control.

In the banking sector:

The banking sector is less affected by the Fourth Industrial Revolution, but significant changes include:

- Changes in product distribution channels, traditional banking services shifting to digital channels, enabling online banking transactions.
- Changes in business models, business processes, and management methods due to strong AI development.
- The development of online services is increasingly common, reducing the need for banking manpower.
- Expansion and improvement of banking database systems.

Some major commercial banks like Vietinbank, VPBank, etc., are encouraging the use of Internet banking services by offering additional interest rates for savings account holders using this service.

In other industries:

Besides the aforementioned sectors, the Fourth Industrial Revolution also impacts other groups of industries in Vietnam:

Tourism:

The tourism sector, promising and playing a crucial role in Vietnam, is less affected by globalization. Global tourism is showing good growth trends, and Vietnam possesses numerous tourist attractions and majestic wonders. The tourism industry faces less global competition, and its products are less internationally competitive.

Textile industry:

In Vietnam, the textile industry has achieved high export growth rates. However, in recent years, the prospects of the textile industry have been precarious, leading operating businesses to call for no further investment in this sector.

Electronics industry:

Vietnam's electronics industry currently employs approximately 510,000 workers, with about 66% being female workers. In the near future, breakthrough technologies such as 3D printing, robotics, and the Internet of Things are being heavily deployed.

3. The current situation of digital transformation in Vietnam comes with many significant challenges and obstacles:

- Vietnam primarily remains in the phase of assembly and processing, while the world is advancing into the Fourth Industrial Revolution. Statistics show that 97% of Vietnamese businesses are small and medium-sized, with limited competitiveness, technological expertise, and particularly poor quality of human resources.
- The majority of Vietnamese labor force lacks formal training, both in theoretical knowledge and practical skills, especially in specialized knowledge and English proficiency for communication. This poses a major challenge for Vietnamese businesses entering the Fourth Industrial Revolution with inadequately prepared human resources and limited high-tech infrastructure, fragmented and small-scale production, and lack of integration. Hence, in the long run, the state needs to develop suitable industrial strategies and policies to keep up with global trends, not to miss the boat again.
- Skill training and physical capabilities of Vietnamese labor are still limited, industrial discipline is not high, and Vietnam's labor productivity lags behind neighboring countries like Thailand, Malaysia, and Indonesia. Therefore, under the impact of the Fourth Industrial Revolution, the competitive advantage of cheap labor will decline, especially in labor-intensive industries such as textiles, leather, and footwear. In reality, Vietnamese labor must be trained with higher professional qualifications, must be proficient in mastering machinery and information technology, and must have a good command of English communication skills.
- Accessing the trends of this revolution is slow, and implementation is not as fast as the application of science and technology, especially the digitization of administrative activities, public services of state agencies, in the process of building an upright state, creating development, and acting for businesses and people. This requires unified awareness and synchronized involvement of ministries, localities, businesses, as well as each civil servant and citizen.
- The shift in mindset from an administrative mechanism of "command" and "request - grant" to a service-oriented administration, considering citizens and businesses as "partners, customers" in providing public services, still faces many obstacles due to incomplete legal documents.

Negative aspects of the Fourth Industrial Revolution:

Alongside the benefits that the industrial revolution brings, there still exist several negative aspects of the Fourth Industrial Revolution, including:

- Threats to cybersecurity and privacy.
- Low level of education and skills among the workforce.
- Increasing global inequality, widening income and asset gaps between low-skilled labor and high-skilled labor.
- Limitations in machinery and equipment.
- High costs of investing in high-tech equipment.

4. Exchange, propose solutions, and policies to institutionalize, specify perspectives, tasks, and major solutions

Firstly, build and enhance the institutional and policy framework to promote industrialization and modernization of the country. This includes prioritizing the development and improvement of specialized legal systems for national industrial development and specific industries such as digital technology, defense industry, security, and energy.

Additionally, establish a legal framework for smart manufacturing, smart factory models, and promulgate national standards for smart production.

Secondly, develop and implement a national program to enhance the independent, self-reliant, and self-sufficient capacity of Vietnam's production sector by 2045 (Make in Vietnam 2045). This program should focus on enhancing autonomy in terms of resources, technology, production, and market, strengthening creative and design capabilities, developing industries that use advanced technologies with high added value, and low-carbon emission industries. Encourage businesses to invest in innovation, technology absorption, and mastery, especially core and source technologies.

Thirdly, industrialize and modernize agriculture and rural areas; continue to restructure the service sector based on science and technology platforms, fostering innovation.

Fourthly, develop high-quality human resources in science, technology, innovation, and creativity to meet the demands of industrialization and modernization.

Fifthly, develop comprehensive and modern infrastructure; promote rapid and sustainable urbanization, closely link and motivate industrialization and modernization of the country.

Sixthly, develop economic components to promote industrialization and modernization.

Seventhly, regarding financial and credit policies, promote digital transformation and green transformation.

Eighthly, improve legal documents to further enhance the legal system regarding the application of information technology in state agencies, accelerate the development of e-government, and the Administrative Procedure Law.

Lastly, efficiently manage and utilize resources, protect the environment, proactively adapt to climate change; enhance deep and effective international integration, which goes hand in hand with protecting and developing the domestic market.

5. Suggestions

Recognizing the importance of using digital platforms to promote business activities directly impacts industrialization and modernization. Implementing core solutions to upgrade digital infrastructure has been rapidly promoted, including: widespread distribution of smartphones to citizens; widespread adoption of broadband fiber optic Internet to households; widespread adoption of cloud computing for businesses, with Vietnam leading in core technology. Plans to discontinue 2G broadcasting and transition 2G bandwidth to more advanced mobile technologies such as 4G, 5G; collaborating with technology companies to provide low-cost smartphones, tablets suitable for the economic conditions and income of citizens. Digital payment platforms should also be promoted. It can be said that Vietnam has taken the right direction by issuing an early strategy for implementing the 4.0 industrial revolution and developing a digital economy, digital society. Many related policies and initiatives have been issued, notably: Decision No. 749/QĐ-TTg dated June 3, 2020, of the Prime Minister approving the "National Digital Transformation Program by 2025, vision to 2030"; Decision No. 411/QĐ-TTg dated March 31, 2022, approving the "National Strategy for Digital Economy and Digital Society Development by 2025, vision to 2030"... The strategy for developing the digital technology industry by 2025, vision to 2030 needs to be prioritized and implemented to fully grasp and quickly operationalize the Party's direction and state policies on national development, directing the development of the digital technology industry as a foundational industry, a driving force for promoting the development of various economic and social sectors.

6. References:

- "Ba đề xuất của Ban Kinh tế Trung ương về công nghiệp 4.0" - VnEconomy Magazine (baomoi.com)

- "Cách mạng Công nghiệp 4.0: Thời cơ và thách thức đối với Việt Nam" - Vietnam Integration and Development Journal (vietnamhoinhap.vn)
- "Chuyển đổi số và tác động của chuyển đổi số trong giai đoạn hiện nay" - Journal of Industry and Trade (tapchicongthuong.vn)
- "Nhìn lại năm 2022: Tiên phong thúc đẩy chuyển đổi số, phát triển kinh tế số" - CafeF.vn
- "Cách mạng công nghiệp 4.0 và những tác động đối với Việt Nam" - The Bank Magazine (thebank.vn)

