

**THE RESEARCH HAS BEEN COMPLETED AT
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INTRODUCTION

1. Rationale and Necessity of the Research Topic

In the era of the global Fourth Industrial Revolution, which exerts a profound impact on socio-economic development, the level of productive forces has undergone a quantum leap. This serves as compelling empirical evidence to reaffirm the validity of Marxist-Leninist philosophy regarding the continuous development of productive forces. Concurrently, it necessitates the supplementation and advancement of the theory of productive forces to align with contemporary practice-especially in the current global context characterized by the rapid evolution of digital technology, the Internet, Artificial Intelligence, automation, and the Internet of Things (IoT). This shift signifies a transition from a manufacturing-based economy to a knowledge, service, and information-based economy.

The practice of accelerating industrialization, modernization, and international integration demands that productive forces develop fast enough, strong enough, and more firmly to consolidate the country's position. It can be said that the level of development of any nation depends heavily on the state of development of its productive forces. Vietnam is no exception to the trend of promoting the development of productive forces, thereby improving production relations to meet the country's socio-economic development requirements. Under the leadership of the Party, the cause of national renovation and development has achieved many important milestones of historical and epochal significance, bringing Vietnam firmly into a new era. Our Party always attaches great importance to developing science and technology in tandem with the development of productive forces, on which basis building appropriate and progressive production relations. This has yielded great achievements, first and foremost building an independent and self-reliant economy, serving as a leverage to advance towards socialism.

Resolution No. 57-NQ/TW dated December 22, 2024, of the Political Bureau (Politburo) on breakthrough development of science-technology, innovation, and national digital transformation affirmed that the development of science-technology, innovation, and digital transformation is a foremost important breakthrough and the driving force for rapid and sustainable development of the country. Digital transformation is not merely a choice but an inevitable requirement for developing new productive forces, serving as a breakthrough solution for economic growth.

The Resolution of the 14th National Congress affirmed that developing new productive forces is a strategic requirement associated with renovating the national development model, contributing to the formation of a modern production foundation based on knowledge, technology, data, and innovation capacity. The 14th National

Congress also clearly defined that the path to building new productive forces must be linked with developing foundational, spearhead, and emerging industries; and promoting high-tech sectors, in which priority directions such as artificial intelligence, semiconductor chips, data, and new technologies are becoming increasingly prominent [46, pp.203-204]. As such, science and technology serve as the primary driving force for developing productive forces. Attending to and investing in the development of productive forces means preparing a solid foundation for the era of the nation's rise. Developing productive forces is the vivid manifestation of the era of national development.

Vietnam is a country with numerous strengths in agriculture, ranging from natural resources to human resources; therefore, it has proactively and vigorously implemented digital transformation, particularly applying digital technologies such as artificial intelligence, IoT (Internet of Things), data management, automation, and cloud computing into agricultural production and consumption. Production, business, management, and traceability processes, as well as product supply chains, have been digitally optimized to ensure speed and transparency. This helps enhance competitiveness and elevate the value of Vietnamese agricultural products in the global market.

Implementing Resolution No. 202/2025/QH15 dated June 12, 2025, of the National Assembly on the rearrangement of province-level administrative units—which merged the entire natural area and population size of Hai Phong City and Hai Duong Province into a new city named Hai Phong City—has contributed to expanding administrative boundaries and broadening development space for economic sectors, including agriculture. The new Hai Phong City covers a natural area of 3,194.72 km², with a population of 4,664,124 people and 114 commune-level administrative units (comprising 45 wards, 67 communes, and 2 special zones). Geographically, Hai Phong City is centrally located in the Red River Delta, serving as the primary link in the Northern Key Economic Triangle: Hanoi - Hai Phong - Quang Ninh. The new Hai Phong City converges the long-standing historical and cultural traditions of the 'Intellectual Xu Dong' (Eastern Region) and the 'Heroic Port Land'. This geographical location and socio-cultural characteristics create highly favorable conditions for Hai Phong City to engage in production, business, socio-economic and cultural exchanges, and domestic as well as international tourism development. In particular, following the merger, Hai Phong City possesses numerous advantages regarding land, climate, and human resources to develop agriculture. As a municipality directly under the Central Government, Hai Phong has substantial strengths in developing industries and services; however, agriculture

remains a potential economic sector for the city in terms of both land resources and the agricultural population. Therefore, digital transformation in agricultural and rural development is a major priority that the Party Committee and the People's Committee of Hai Phong City have constantly focused on and directed over the past years.

The positive results in agricultural development over the past 5 years have confirmed that Hai Phong City is on the right track regarding agricultural economic development. The general objective of agricultural economic development is to enhance the value and quality of products, develop concentrated, large-scale commodity production, and apply digital transformation from production to product consumption. This reflects a major political determination of the Party committees, authorities, businesses, and citizens in implementing the guidelines and policies of the Party and the State on socio-economic development, leveraging local potential and strengths in tandem with digital transformation. Following the merger, the Resolution of the 1st Congress of the Hai Phong City Party Committee (for the 2025-2030 tenure) continues to focus on strategic breakthroughs to develop the city, including: comprehensive digital transformation (digital government, economy, and society), implementing specific mechanisms with a next-generation Free Trade Zone, and finalizing planning to create new growth driving zones, including high-tech agriculture and ecological agriculture.

However, compared to other economic sectors, Hai Phong City's agriculture has not yet fully realized its potential. There are many reasons explaining why the city has not maximized this potential, among which are the limitations within the productive forces, such as means of production and labor resources that have not yet met the increasingly high demands of practice. Hence, this raises a demand to review practical realities, apply theory into life, and draw lessons learned to develop productive forces in order to maximize current strengths in Hai Phong City's agriculture. Digital transformation is precisely the crucial 'key' for the city's agriculture to make a 'breakthrough'. For the aforementioned reasons, I have selected the topic: 'Digital Transformation with the Development of New Productive Forces in Agriculture in Hai Phong City Today' as my Doctoral Dissertation in Philosophy.

2. Research Objectives and Tasks

2.1. Research Objectives

By analyzing and explaining the theoretical issues regarding digital transformation in the development of new productive forces in agriculture, this thesis evaluates the current state of digital transformation and the development of new productive forces in the agricultural sector of Hai Phong City. From this foundation, the study proposes orientations and solutions to further promote digital

transformation and the development of new productive forces in Hai Phong's agriculture in the coming period.

2.2. Research Tasks

First, to provide a comprehensive overview of existing research related to the topic and identify the core issues that the thesis will focus on addressing.

Second, to analyze, explain, and systematize the theoretical issues regarding new productive forces, the development of new productive forces in association with digital transformation in the agricultural sector, and the vital importance of digital transformation for developing new productive forces in Hai Phong's agriculture today.

Third, to evaluate the current state of digital transformation and the development of new productive forces in Hai Phong's agriculture, while identifying emerging issues that need to be resolved.

Fourth, to propose orientations and solutions aimed at accelerating digital transformation and the development of new productive forces in agriculture in Hai Phong City in the coming period.

3. Research Object and Scope

3.1. Research Object

The research object of this thesis focuses on digital transformation in relation to the development of new productive forces in the agricultural sector of Hai Phong City at present.

3.2. Research Scope

Regarding Content: The thesis examines digital transformation in agriculture and its impacts on the development of new productive forces across all constitutive elements, including the labor force, means of labor, instruments of labor, and tools of production within Hai Phong's agriculture today.

Regarding Time: The study covers the period from 2021 to the present. This includes the use of analytical data from the former Hai Duong province and the updated data of the newly expanded Hai Phong City following the administrative merger effective from July 1, 2025.

4. Theoretical Basis and Research Methodology

4.1. Theoretical Basis

The thesis is conducted and presented based on the theoretical foundations of Marxism-Leninism, Ho Chi Minh Thought, and the viewpoints of the Party and State of Vietnam regarding the development of productive forces and the national digital transformation program across various sectors, including agriculture.

4.2. Research Methodology

The research is grounded in the Marxist philosophical methodology of dialectical materialism and historical materialism, combined with multidisciplinary and interdisciplinary approaches. The author employs a combination of specific key methods, such as:

- Analysis and synthesis
- Classification and systematization
- Logical and historical methods
- Induction and deduction

Additionally, the thesis utilizes qualitative research methods, including in-depth interviews, case studies, and observation, as well as quantitative research methods, such as large-scale surveys and the calculation of aggregate data from individual statistics.

5. New Scientific Contributions

First, to analyze the concept of new productive forces and their components in agriculture under the impact of digital transformation.

Second, to analyze the specific agricultural model of the expanded Hai Phong City (following the merger of provinces and cities since July 1, 2025).

Third, to clarify the contradictions between digital productive forces and traditional production relations in the current agriculture of Hai Phong City.

Fourth, the dissertation provides a scientific basis and practical solutions for developing new productive forces in the agricultural sector—one of the urgent issues in Hai Phong City today. Addressing this issue will not only narrow the gap in agricultural development levels between Hai Phong City and other provinces but also accelerate the overall development of the Northern region relative to the rest of the country.

Fifth, the dissertation proposes basic, comprehensive, and feasible groups of solutions to promote digital transformation in tandem with the development of new productive forces in Hai Phong City's agriculture in the coming time.

6. Theoretical and Practical Significance

6.1. Theoretical Significance

The dissertation contributes to a comprehensive analysis of the concept of digital transformation, as well as the connotations, manifestations, and roles of the constituent elements of new productive forces, alongside the role of digital transformation in developing new productive forces in agriculture within Vietnam in general, and Hai Phong City in particular.

6.2. Practical Significance

On the basis of generalizing practice, the dissertation contributes to supplementing the theoretical framework with new issues that warrant research. At the same time, the comprehensive and profound assessments of the current state of digital transformation in Hai Phong City's agriculture will contribute to formulating policies that drive the development of Hai Phong City in general, and its agricultural sector in particular.

The research findings of this dissertation can serve as a reference material for researching and teaching Marxist-Leninist theory at universities, colleges, and provincial or municipal political schools. Furthermore, the dissertation can be utilized in researching issues regarding socio-economic development guidelines during the current renovation period of various localities in our country.

7. Thesis Structure

The main body of the thesis is organized into 4 chapters and 13 sections. In addition, the thesis includes an introduction, a conclusion, a list of the author's published research works related to the topic, a list of figures and tables, and a bibliography to support the research content.

Chapter 1: LITERATURE REVIEW

1.1. Theoretical Research Works on Digital Transformation

International Research Works: Six international works on digital transformation were selected and summarized in this thesis. The authors provided a general overview of digital transformation and identified its characteristics across various global industries and professions. In addition to highlighting how the core features of digital transformation yield significant socio-economic results, these works also pointed out the challenges facing each nation, government, organization, and individual in avoiding being left behind or becoming obsolete amidst the world's general development trends.

Domestic Research Works: This section includes 06 reference books, 02 general reviews, 03 research projects, and 05 research articles in newspapers and journals. The works and writings of these authors provide the PhD candidate with useful information regarding the concept, characteristics, and role of digital transformation-especially the role of laborers in the digital transformation process-as well as the positive aspects and limitations of digital transformation in Vietnam today. However, these studies primarily focus on a macro level; to date, no research has systematically or fundamentally (from a philosophical perspective) examined the current state of digital transformation for the development of productive forces in agriculture specifically in Hai Phong City. This is the issue that this thesis will

continue to investigate in depth.

1.2. Research Works on New Productive Forces and the Development of New Productive Forces

1.2.1. Research Works on New Productive Forces

From the perspective of approaching contemporary new productive forces: 02 books; 01 national conference proceeding titled "New Productive Forces – Global Trends and Vietnamese Practices" (2025); and 04 articles in newspapers and journals.

From the perspective of approaching the constituent elements of new productive forces: 01 book; and 03 in-depth research articles in newspapers and journals.

Through the research process, the author notes that numerous research works have focused on clarifying theoretical issues regarding productive forces in general and new productive forces in particular. These constitute a highly useful source of reference materials for the PhD candidate to inherit, develop, and supplement the theory, while integrating theoretical application into practice during the execution of this dissertation topic.

1.2.2. Research Works on the Development of New Productive Forces

On the science and technology factor in developing new productive forces: 01 book; and 03 research articles in newspapers and journals.

On the human factor in the development of productive forces: 03 books; 01 ministry-level research project; 01 national-level scientific research project; and 02 research articles published in newspapers and journals.

On the dialectical relationship between productive forces and production relations: 03 research articles published in newspapers and journals.

On the role of industrialization, modernization, and the knowledge-based economy in developing productive forces: 03 books; and 02 articles in newspapers and journals.

Through studying, reading, and analyzing 07 books, 02 scientific research projects, and 10 in-depth research articles on the development of productive forces, the author observes that: The development of productive forces is a process that causes productive forces to move and change in an upward trend. This is manifested in the quality of labor resources, the advancement of instruments and means of labor, and the progress of science and technology to meet the requirements of practical production.

1.3. Research Works on Digital Transformation with the Development of New Productive Forces in Agriculture

1.3.1. On the Role and Importance of Digital Transformation in the Development of Productive Forces

The dissertation author has studied 02 in-depth articles on the role and importance of digital transformation in developing productive forces and improving production relations. Digital transformation encompasses a fundamental change in institutions, culture, and operational models; therefore, it contributes to the development of productive forces and the improvement of production relations to meet the requirements of the new era.

1.3.2. On the Role of Digital Transformation in Developing New Productive Forces in Agriculture

During the research process, the dissertation author selected 04 research works from various perspectives to clarify the role of digital transformation in developing new productive forces in agriculture, thereby proposing solutions tailored to practical demands.

1.3.3. On the Current Status and Solutions for Accelerating Digital Transformation to Develop Productive Forces in Agriculture

The dissertation synthesizes and analyzes 08 articles on the current status of digital transformation in relation to the development of productive forces in agriculture from various facets. In particular, examining research works on the current situation in specific localities with outstanding achievements in agricultural digital transformation—ranging from agricultural mindsets to digital transformation-applied agricultural practices—provides critical reference materials for this dissertation.

1.4. Summary of Relevant Scientific Research Findings and Issues for the Dissertation's Focus

1.4.1. General Evaluation of Previous Research Findings

First, the aforementioned research works have presented in a relatively detailed manner the fundamental theoretical issues regarding digital transformation, new productive forces, and their constituent elements, as well as digital transformation in relation to the development of productive forces in general and in agriculture in particular.

Second, from various specific perspectives, these research works have analyzed the advantages and limitations of digital transformation aimed at developing productive forces in the agricultural sector during the country's industrialization and modernization period in general, and in Hai Phong City in particular.

Third, the previous studies have also proposed several perspectives and major solutions to continue developing productive forces nationwide, particularly regarding digital transformation to lay the foundation for developing productive forces in Hai Phong City in the subsequent period.

1.4.2. Issues Requiring Further Resolution by the Dissertation

1.4.2.1. Theoretical Issues Requiring Further Resolution

First, to clarify the contradictions between traditional production relations and new productive forces under the impact of digital transformation in the current agriculture of Hai Phong City.

Second, to analyze clearly the characteristics of productive forces in Hai Phong City's agriculture today, evaluating the favorable conditions and difficulties in comparison with other regions.

Third, to identify the factors influencing digital transformation in the agriculture of Hai Phong City today.

1.4.2.2. Practical Issues Aimed at Accelerating Digital Transformation for the Development of Productive Forces in Current Hai Phong City

First, the dissertation analyzes and evaluates the achievements in implementing digital transformation to develop productive forces in Hai Phong City's agriculture today.

Second, to identify the limitations that need to be overcome in order to develop productive forces in agriculture in tandem with the digital transformation process.

Third, the dissertation continues to research feasible and practically grounded perspectives and solutions for Hai Phong City in the process of accelerating industrialization and modernization associated with the knowledge-based economy and international integration.

Summary of Chapter 1

Through the literature review, relevant research works have been logically interconnected by content, creating a scientifically rigorous and cohesive framework for the issues that the dissertation needs to clarify. The dissertation has referenced and generalized research works on digital transformation and its role in developing new productive forces; new productive forces and their constituent elements in agriculture; research works on the development of new productive forces in agriculture; as well as research works on the role, current status, perspectives, and solutions for accelerating digital transformation in tandem with the development of productive forces in agriculture. On this basis, the research gaps that require further resolution within the scope of this dissertation have been identified.

Chapter 2

THEORETICAL ISSUES OF DIGITAL TRANSFORMATION AND THE DEVELOPMENT OF NEW PRODUCTIVE FORCES IN CONTEMPORARY AGRICULTURE

2.1.Theory of Digital Transformation and Its Importance in Agriculture

2.1.1. The Concept of Digital Transformation in Agriculture

2.1.1.1. The Concept of Digital Transformation

Digital Transformation (DX) is the process of integrating digital technologies to transform the structure and culture across all aspects of an organization, business, or nation. Its core objective is not merely automation, but a complete overhaul of operational methods and mindsets in production, organization, and management leadership to generate outstanding new values. By applying advancements in digital technology—such as cloud computing and Big Data—into all activities of agencies, organizations, and businesses, DX aims to deliver high efficiency while driving revenue growth and brand development. DX is not simply changing the way work is done from traditional manual methods (such as paper-based logging or face-to-face meetings) to utilizing technology to reduce human labor.

2.1.1.2. The Concept and Characteristics of Digital Transformation in Agriculture

Digital transformation in agriculture is the process of altering agricultural production methods through the application of digital technologies to transform how agricultural products are produced, managed, and traded. This process shifts agriculture from an experience-based model to a data-driven model, establishing a smart agricultural framework based on digital technology to replace the traditional production model.

From the perspective above, the author draws several key characteristics of digital transformation in agriculture as follows:

First, digital transformation in agriculture is a holistic and comprehensive transition across all activities of the agricultural economy, spanning from production and processing to distribution and consumption.

Second, data serves as a critical resource in agricultural production for implementing digital transformation.

Third, digital transformation in agriculture yields high production efficiency and ensures sustainable development.

2.1.2. The Role and Importance of Digital Transformation in Vietnam's Agriculture Today

Firstly, digital transformation in agriculture contributes to enhancing production efficiency.

Secondly, digital transformation acts as a new "operating system" that optimizes management performance for both government agencies and agricultural enterprises.

Thirdly, digital transformation in agriculture generates stable, long-term income for farmers, stimulates the development of other sectors, and motivates farmers to adopt a sustainable agricultural development mindset.

Fourthly, digital transformation plays an essential role in climate change adaptation.

Fifthly, digital transformation in agriculture enhances the role and status of the agricultural sector within the national economic structure while expanding its competitiveness in the international market.

2.2. Theory of New Productive Forces in Agriculture

2.2.1. The Concept and Constituent Elements of New Productive Forces

2.2.1.1. The Concept of New Productive Forces

By inheriting the perspectives of Marxist-Leninist philosophy and Ho Chi Minh Thought, building upon the research findings of scientists, and synthesizing the practical realities addressed in the Party documents of Vietnam and China (the two nations that currently articulate the concept of new productive forces most clearly), the thesis author contends that: New productive forces is a concept used to denote the aggregate of advanced and modern material-technical elements utilized by highly skilled workers to act upon nature for the production of material wealth. New productive forces reflect the quantum leap in science and technology, as well as the escalating role of knowledge and innovation in creating material wealth for society. Particularly in the current period, as Vietnam enters a new era, the concept of new productive forces does not merely encompass science and technology elements that drive a faster and more robust digital transformation process, but it also carries profound political significance. The Resolution of the National Party Congress dedicated an entire component to establishing a new growth model, restructuring the economy, and accelerating industrialization and modernization, with a core focus on science, technology, innovation, and digital transformation. One of the major guiding viewpoints set forth by the Congress is the necessity to dismantle institutional bottlenecks, unblock, and liberate productive forces along with all resources for development. This demonstrates that developing new productive forces is not merely a technical or technological issue, but a strategic imperative closely linked to the renewal of the national development model.

2.2.1.2. The Constituent Elements of New Productive Forces

(1) The Laborer Factor

The laborer is the most critical and decisive factor within the new productive forces. In the modern era, the knowledge content and technological skills of laborers have become increasingly pivotal. These represent the novel characteristics and qualities that impart new traits to the laborer factor in each historical period.

(2) The Means of Production Factor Instruments of Labor:

These constitute the most dynamic and revolutionary element within the productive forces because they are continuously improved and innovated to enhance productivity and reduce human labor. Humans constantly seek ways to improve outdated instruments of labor or invent new, more modern ones (evolving from rudimentary tools to machinery, automation, and AI) to boost work efficiency. This rapid evolution drives the advancement of the entire production process and socioeconomic landscape, marking revolutionary turning points in the instruments of labor. Infrastructure of Labor: In the digital age, the infrastructure of labor extends beyond traditional physical tools to encompass digital elements, software, and automated systems. Objects of Labor: As science and technology advance, the scope of the objects of labor expands progressively. Humans no longer merely exploit naturally available resources but also create artificial objects of labor (such as synthetic materials, nuclear materials, and nanotechnology).

2.2.2. The Concept and Constituent Elements of New Productive Forces in Agriculture

2.2.2.1. The Concept of New Productive Forces in Agriculture

Based on the concept of new productive forces presented in section 2.2.1.1 of this thesis, the author approaches the concept of new productive forces in agriculture as follows: New productive forces in agriculture is a concept used to denote the aggregate of advanced and modern material-technical elements utilized by highly skilled laborers to act upon nature for the production of material wealth within the agricultural sector.

2.2.2.2. The Constituent Elements of New Productive Forces in Agriculture

(1) The Agricultural Laborer Factor

Agricultural laborers are the very ones who connect the means of production with the objects of labor, transforming natural potentials into concrete economic values in agriculture. Consequently, training a digital workforce is the key to transitioning from traditional production to a smart agricultural economy. This process enhances specialization and the division of labor. The development of laborers' skills leads to the formation of specialized farming zones, agricultural value

chains, and new-style cooperatives. This alters the structure of productive forces, shifting from self-sufficiency to large-scale commodity production.

(2) The Means of Production Factor in Agriculture

2.3. Theoretical Framework on the Development of New Productive Forces in Agriculture

2.3.1. Concept of Developing New Productive Forces in Agriculture

The development of new productive forces in agriculture is the process of transitioning from traditional to modern agriculture through the advancement of science and technology, combined with the progressive skill levels of agricultural workers. Developing productive forces encompasses the application of high technology, automation, and digital technology into agricultural production systems, thereby transforming scientific knowledge into the primary resource to enhance the productivity and quality of agricultural products.

2.3.2. The Role of Digital Transformation in the Development of New Productive Forces in Agriculture

2.3.2.1. Digital Transformation and the Subjects of Developing New Productive Forces in Agriculture

The subjects driving the development of new productive forces in agriculture include the Party, the State, scientists, enterprises, and laborers in the agricultural sector (particularly farmers). Under the impact of digital transformation, these key actors are considered the "engine" that drives breakthroughs in research, technology transfer, and the commercialization of agricultural products.

2.3.2.2. Digital Transformation and the Core Components of Developing New Productive Forces in Agriculture

The core components of developing new productive forces in agriculture associated with the digital transformation process include improving the quality of human resources regarding knowledge, experience, skills, and the capacity to apply science and technology. It also involves modernizing the means of production—such as instruments of labor, means of labor, and objects of labor—across all fields of contemporary agricultural production.

2.3.2.3. Digital Transformation and the Methods of Developing New Productive Forces in Agriculture

Methods for Developing Agricultural Human Resources: Under the impact of digital transformation, developing agricultural workers is a process carried out through vocational training integrated with science and technology, alongside international cooperation, aimed at enhancing the quality of laborers in terms of intellect, physical health, and professional dedication.

Methods for Developing Means of Production in Agriculture: To develop agricultural means of production in line with digital transformation, the digitalization of production inputs—particularly the modernization of production tools—is a crucial component to establish baseline data for agricultural production.

Methods for Strengthening Financial Resources and Expanding Markets: This is a vital approach to developing productive forces in the current digital transformation era. Financial resources (credit capital, state budget, investment) play a pivotal role in developing agricultural productive forces, helping to modernize infrastructure, apply high technology, enhance labor productivity, and transition toward green agriculture.

2.4. Factors Influencing Digital Transformation in the Development of New Productive Forces in Agriculture

2.4.1. Objective Factors

Firstly, the global impact of the Fourth Industrial Revolution (Industry 4.0).

Secondly, the worldwide impact of climate change on agriculture.

Thirdly, the influence of geographical location and natural conditions.

2.4.2. Subjective Factors

Firstly, the guidelines and policies of the Party and the State regarding digital transformation in agriculture.

Secondly, the quality of human resources in the agricultural sector (the proficiency level in applying science and technology to production, consumption, management, etc.).

Summary of Chapter 2

On the basis of analyzing and generalizing theoretical issues, the thesis has clarified the concept of new productive forces (NPF) and analyzed each individual element of NPF under the contemporary impact of digital transformation. New productive forces reflect the quantum leap in science and technology, as well as the escalating role of knowledge and innovation in creating material wealth for society. Within the productive forces, as science and technology become more modern, their constituent elements develop accordingly; as a result, humanity's capacity to conquer and reform nature becomes increasingly powerful and efficient.

Therefore, it is essential to deeply perceive this issue to recognize the role and importance of digital transformation, as well as the factors influencing digital transformation, in order to develop new productive forces in agriculture today. From the analysis of the factors affecting the digital transformation process in Vietnam's agriculture in general, we can discern these impacts specifically on Hai Phong City. These constitute vital theoretical foundations that serve as a benchmark for evaluating

and synthesizing the practical realities of agricultural production activities in Hai Phong City at present.

Chapter 3

DIGITAL TRANSFORMATION IN THE DEVELOPMENT OF NEW PRODUCTIVE FORCES IN AGRICULTURE IN HAI PHONG CITY TODAY - SITUATION AND DEMANDS

3.1. The Situation of Developing New Productive Forces in Agriculture in Hai Phong City Today

3.1.1. General Overview of Agricultural Development in Hai Phong City Today

3.1.1.1. Natural Conditions

3.1.1.2. Characteristics and Situation of Agricultural Production

Hai Phong City possesses substantial potential and advantages for agricultural and rural development. Guided by specific and clear orientations, the city's agricultural economic structure has shifted correctly toward commodity production, accelerating the application of technical advances and new technologies. It can be stated that agriculture in Hai Phong City is currently developing in both scale and production level by leveraging its potential and advantages in soil, water, marine, forest resources, and biodiversity. Consequently, this has elevated the material life of the population and contributed significantly to driving local socioeconomic development. Hai Phong's agriculture remains the foundation for stabilizing people's livelihoods, contributing to accelerating the implementation progress of the city's current National Target Program on New Rural Development.

3.1.2. Achievements and Causes of Digital Transformation in the Development of New Productive Forces in Agriculture in Hai Phong City Today

3.1.2.1. Achievements

Regarding the achievements of digital transformation in developing the laborer factor in agriculture in Hai Phong City today:

With major strides in the quality of human resources (encompassing physical capacity, intellect, and ethical-mental dedication), agricultural laborers in Hai Phong City have progressively acclimated to data utilization, standard procedures (VietGAP, GlobalGAP), and machinery application to liberate human labor, enhance agricultural product quality, and preserve as well as promote professional ethics. Over the past years, the agricultural sector of Hai Phong City has gradually developed toward commodity production, shifting from traditional methods to modern, smart production and management operations, thereby achieving numerous vital milestones.

Regarding the achievements of digital transformation in developing the means of production in agriculture in Hai Phong City today:

Firstly, digital transformation has contributed to shaping new objects of labor and instruments of labor within the agricultural sector of Hai Phong City toward greater modernization, yielding higher value in agricultural production.

Secondly, digital transformation has contributed to diversifying the infrastructure of labor within the agricultural sector of Hai Phong City today.

Regarding the results of combining the laborer factor and the means of production in agriculture through digital transformation:

The combination of the laborer factor and the means of production in agriculture through digital transformation has step-by-step actualized the potential for developing high-tech commodity agriculture in Hai Phong City today.

3.1.2.2. Causes

Firstly, from the perspective of the subjects developing the productive forces, all parties have paid close attention to accelerating digital transformation in tandem with the development of productive forces in agriculture.

Secondly, the expansion of designated agricultural land areas has created favorable conditions for implementing digital transformation to develop new agricultural productive forces, particularly in developing new elements of the means of production.

Thirdly, against the backdrop of robust digital transformation—an inevitable trend for developing all sectors including agriculture—the method of connecting laborers and the means of production in Hai Phong's agriculture has been completely revolutionized. This serves as a vital cause contributing to the development of agricultural productive forces, helping to realize the potential for high-tech agricultural development in Hai Phong City today.

3.1.3. Limitations and Causes of the Digital Transformation Process in the Development of New Productive Forces in Agriculture in Hai Phong City

3.1.3.1. Limitations and Difficulties

Certain limitations regarding agricultural laborers:

Firstly, the level of digital skills remains low.

Secondly, a segment of the workforce is still slow to innovate their mindset in adapting to the agricultural digital transformation process.

Thirdly, there are limitations in data-driven analysis and decision-making capabilities.

Fourthly, difficulties exist in fostering professional ethics and compliance within the digital environment.

Fifthly, obstacles remain in developing a high-quality digital human resource base in agriculture.

Certain limitations regarding the elements of the means of production in agriculture:

Firstly, the objects of labor (land) remain fragmented and show signs of shrinkage.

Secondly, instruments of labor are outdated and lack synchronization.

Thirdly, the digital technology infrastructure in agriculture is unsynchronized and incurs high costs.

Fourthly, difficulties persist regarding financial resources and technology transfer.

3.1.3.2. Causes

First, digital transformation in agriculture is a relatively new phenomenon; thus, awareness among various levels, sectors, and agricultural laborers is only progressively taking shape.

Second, there is a lack of specific mechanisms and tailored policies to promote digital transformation for the development of new productive forces in agriculture.

Third, investment expenditure for digital transformation aimed at developing new agricultural productive forces remains low and disproportionate to the actual potential.

Fourth, the practical effectiveness of combining digital transformation with the development of the constituent elements of productive forces has not been high.

3.2. Issues Raised Regarding Digital Transformation in the Development of New Productive Forces in Agriculture in Hai Phong City Today

3.2.1. The contradiction between the demands of digital transformation for developing new productive forces and the unsynchronized leadership and management mechanisms in the agricultural sector of Hai Phong City today

3.2.2. The contradiction between traditional relations of production and the new productive forces in the agriculture of Hai Phong City today

3.2.3. The issue of contradiction between the proficiency level of laborers and the means of production that meet digital transformation requirements in the agriculture of Hai Phong City today

3.2.4. The contradiction between the current potential and strengths of Hai Phong City's agricultural sector and the commensurate underdev

Summary of Chapter 3

On the basis of analyzing the strengths and limitations of the digital transformation process in the development of new productive forces (NPF) in the agriculture of Hai Phong City today, the thesis author has researched and clarified several issues raised from both theoretical and practical perspectives. Examined through theoretical lenses, these issues involve the contradiction between the productive forces and the relations of production within the agricultural sector of Hai Phong City, as well as the explanation of the laborer factor within the new productive forces under the impact of digital transformation in the city's current agricultural

sector. This holds immense practical significance for the agricultural sector of Hai Phong City in the coming period.

Hai Phong City has been keeping pace with the general development of the entire country in the new context; however, it still requires more time to maximize the potentials that constitute its new source of strength following administrative mergers. Numerous factors rooted in traditional production methods and social life are no longer suitable for the current situation, thereby raising demands for change. Although the Party and the State have paid special attention to investing in local socioeconomic development in general and the development of productive forces in particular, the constituent elements of productive forces in Hai Phong City still exhibit various limitations compared to several other domestic provinces and international standards.

Particularly, with the achievements of the Fourth Industrial Revolution, digital technology is becoming a direct productive force across sectors, including agriculture. Digital transformation permeates every element of the productive forces, most importantly the human factor. Ultimately, all guidelines, policies, the application of science and technology, responses to climate change, and the quality of human resources are decisively determined by the human element. It can be asserted that humans constitute the most fundamental issue among those aimed at developing new productive forces associated with digital transformation in the agriculture of Hai Phong City today. This is also the core element for researching the orientations and solutions to enhance the role of digital transformation in developing new productive forces in the agriculture of Hai Phong City today

Chapter 4

ORIENTATIONS AND SOLUTIONS TO ACCELERATE DIGITAL TRANSFORMATION FOR DEVELOPING NEW PRODUCTIVE FORCES IN AGRICULTURE IN HAI PHONG CITY IN THE COMING PERIOD

4.1. Forecasting the context for developing new productive forces in agriculture in Hai Phong City in the coming period

Regarding the National Context

Regarding the Local Context

4.2. Orientations to Accelerate Digital Transformation for Developing New Productive Forces in Agriculture in Hai Phong City in the Coming Period

4.2.1. *Raising the awareness of organizations and individuals regarding the role of digital transformation in developing new productive forces in agriculture in Hai Phong City*

4.2.2. *Continuing to improve mechanisms and policies for implementing digital transformation to develop new productive forces in agriculture*

4.2.3. Accelerating digital transformation to enhance the quality of laborers in the agricultural sector

4.2.4. Constructing and perfecting new means of production to serve the agricultural sector

4.2.5. Stepping up the application of digital technology to perfect the relations of production in agriculture

4.3. Solutions to Accelerate Digital Transformation for Developing New Productive Forces in Agriculture in Hai Phong City in the Coming Period

4.3.1. Group of Solutions to Enhance Leadership and Management Capacities to Achieve Digital Transformation Goals for Developing New Productive Forces in Agriculture

First, accelerate propaganda and thoroughly grasp the Resolutions on digital transformation in agriculture, as well as the position and role of farmers and rural areas associated with new rural development; actively shift mindsets and awareness regarding the inevitability of digital transformation in developing new productive forces to meet the requirements and tasks of the coming period.

Second, focus on the training and retraining of grassroots leadership and management teams, especially within the agricultural sector of Hai Phong City.

Third, the Party committees and authorities need to focus on innovating leadership methods, ensuring comprehensive, close, and effective leadership over agricultural development in general and the elements of agricultural productive forces in particular. Strengthen inspection, supervision, experience-sharing, and the practical review of the execution of the Party's guidelines and resolutions on agricultural development to make timely, reality-aligned adjustments.

Fourth, enhance the capacity of state management officials within the agricultural sector of Hai Phong City.

4.3.2. Group of Solutions to Perfect Tailored Mechanisms and Policies to Accelerate Digital Transformation for Developing New Productive Forces in Agriculture in Hai Phong City

First, formulate regulations on the management and sharing of shared agricultural databases.

Second, formulate policies to incentivize investment in "smart agriculture."

Third, perfect the mechanisms for training and developing "digital farmers" (the new productive forces).

Fourth, establish specific mechanisms for digital quality control and traceability of agricultural products.

Fifth, formulate policies to promote the digital economy in rural areas.

4.3.3. Group of Solutions on Digital Transformation to Enhance the Quality of Laborers in the Agricultural Sector of Hai Phong City

First, strengthen the leadership and direction of Party committees and authorities, as well as the synchronous and timely coordination among various levels, sectors, and the entire political system regarding vocational education and training for rural laborers.

Second, implement solutions to innovate and raise the quality of vocational training for rural laborers.

Third, attract and maximize support from domestic and international experts.

4.3.4. Group of Solutions to Perfect and Develop the Means of Production in Agriculture Associated with Digital Transformation in Hai Phong City

First, modernize the land means of production through biotechnology and sensors.

Second, upgrade the crop varieties and livestock breeds means of production through genetic technology and digitalization.

Third, "smartize" the machinery and tools means of production (synchronized mechanization 4.0).

Fourth, "localize" technology applications in agriculture.

Fifth, develop "data" into a new means of production to reasonably regulate the production structure among various fields within the agricultural sector.

4.3.5. Solutions to Accelerate the Application of Digital Technology to Perfect the Relations of Production in Agriculture in Hai Phong City

First, digitalize and transparentize data ownership relations.

Second, restructure management organizations through the digital cooperative model.

Third, optimize distribution relations through digital value chains.

Fourth, transform the "Four-Party" linkage model (State - Farmer - Scientist - Enterprise) into a 360-degree digital linkage chain.

4.3.6. Group of Solutions for the Synchronous Development of the Agricultural Sector to Leverage the Potentials and Strengths of Hai Phong City's Agriculture

First, coordinate to create tailored mechanisms, policies, and specific financial resources.

Second, establish concentrated production zones and shape the structural framework of the City's agricultural sector for the coming years.

Summary of Chapter 4

With the rapid development pace of various provinces and cities in the current context of administrative mergers, the new productive forces (NPF) in the agriculture of Hai Phong City are standing before monumental opportunities, yet simultaneously facing numerous challenges. Finding the answer to the question of how to develop agricultural productive forces in Hai Phong City rapidly and sustainably is a difficult and complex task. Currently, although Hai Phong City has achieved significant

milestones in the agricultural sector-particularly in high-tech agriculture, which demonstrates the advanced developmental level of the City's new agricultural productive forces—the journey has just begun. Within the agricultural domain, the City has taken initial strides in developing and managing smart agriculture; nonetheless, many challenges persist regarding institutions, technology, human resources, and infrastructure. Only when there is a profound shift from management mindsets to implementation organizational methods can Hai Phong City fully exploit its potential in land, labor, and innovative resources to build a sustainably developing, smart agricultural sector.

Stemming from the specific conditions of Hai Phong City, any successful execution of digital transformation to develop new productive forces in agriculture must begin with its constituent elements. First and foremost is the development of the laborer factor within the agricultural sector. To achieve this, it is essential to nurture human development comprehensively-in terms of physical capacity, intellect, and character-particularly through education that equips laborers with knowledge and skills regarding digital transformation in agriculture. The thesis author has pointed out specific solutions for developing the laborer factor within agricultural productive forces in Hai Phong today from the perspectives of both leaders/managers and production laborers.

From the leadership and management perspective, it is imperative to enhance the leadership capacity of the Party Committees and the management capacity of the local government regarding the development of new productive forces in Hai Phong City's agriculture. In particular, focusing on transforming the mindset and working methods of the agricultural sector-from state management to agricultural production toward digital transformation-plays a crucial and decisive role in successfully building a high-tech, smart, and sustainably developing agricultural framework. From the laborer's perspective, it is necessary to innovate and raise the quality of vocational training for rural laborers, while simultaneously expanding the utilization of both domestic and international experts within the agricultural sector.

In addition, there are groups of solutions for developing the means of production in agriculture, as well as groups of solutions for institutional innovation aimed at strengthening coordination among various levels and sectors to realize the goal of developing new agricultural productive forces associated with digital transformation. The novel contributions of this thesis are established through the analysis and evaluation of practical realities, thereby proposing practical groups of solutions to accelerate digital transformation for the development of new productive forces in the agriculture of Hai Phong City in the coming period.

CONCLUSION

Digital transformation (DX) serves as the pivotal driving force propelling the development of productive forces in the new era, fundamentally altering the ways in which humanity creates value and boosting socioeconomic development. Practical realities have proven that the Marxist-Leninist theory regarding the role of science and technology in the development of productive forces retains its full scientific validity to this day. DX is precisely the comprehensive application process of scientific and technological achievements that reshapes the constituent elements of productive forces, forging a "new quality" of productive forces across different historical stages, thereby driving the continuous advancement of production processes and the upward progression of social life.

The research findings of this thesis reaffirm that digital transformation plays a monumental role in developing the new productive forces (NPF) in the agriculture of Hai Phong City today. Specifically, DX improves the quality of human resources by encouraging laborers to shift toward a digital mindset and develop new skills; modernizes the means of production to enhance labor productivity and inspires new production models that optimize resources; and shapes new relations of production that compel management processes to transition from centralized, hierarchical structures into flexible, networked connectivities. A profound perception of this issue will supplement scientific theoretical arguments for solutions aimed at generating fundamental, core transformations, thereby securing the socioeconomic growth strategies of Hai Phong City in general and its agricultural sector in particular at present. It can be stated that the thesis has successfully fulfilled its set objectives as follows:

First, the thesis clarifies several fundamental theoretical issues regarding the relationship between digital transformation and the development of productive forces in agriculture. Within this scope, it elucidates the concept of DX in agriculture, the concept of NPF, and the constituent elements of NPF in agriculture, as well as the role of DX in developing NPF in agriculture and the subsequent issues raised.

Second, it evaluates the practical situation from the perspectives of both achieved milestones and existing limitations/difficulties in implementing DX to develop agricultural productive forces in Hai Phong City today. Particularly, the thesis analyzes the underlying causes and identifies "gaps" to serve as a foundation for researching and proposing practical solutions to solve the burning issues in reality.

Third, the thesis proposes key orientations and groups of solutions to accelerate DX for developing NPF in the agriculture of Hai Phong City, targeting the goal of building a smart and sustainably developing agricultural sector in the coming period.

The research results of this thesis possess profound theoretical and practical value, contributing directly to guiding the comprehensive development orientation of Hai Phong City's agricultural sector up to 2030, towards building a modern, ecological, high-tech, green-growth, and sustainable agriculture. On the basis of systematizing theories and synthesizing practical realities, the thesis proposes a highly feasible system of solutions to synchronize coordination among various levels and sectors in promoting DX aligned with the development of NPF in Hai Phong City's agriculture today. These contributions not only reinforce the existing maritime economic status of Hai Phong City but also generate the momentum to transform the locality into one of the key agricultural hubs of the Northern region, contributing to the nation's shared socioeconomic development in the new context of integration and growth.

Furthermore, the research findings of this thesis can be utilized as reference materials in researching and teaching Marxist-Leninist theories. They provide a rich repository of practical data to be integrated into the lecture contents of universities, colleges, and provincial/municipal political schools, serving the research, teaching, and learning activities of both lecturers and trainees.

Based on the research findings, the author puts forward several recommendations to accelerate digital transformation aimed at developing productive forces in the agriculture of Hai Phong City in the coming period as follows:

Recommendations for the People's Committee of Hai Phong City

Perfecting the Legal Framework and Tailored Mechanisms/Policies: It is crucial to soon promulgate a dedicated Resolution/Project on "Promoting Comprehensive Digital Transformation in Agriculture for the 2026–2030 Period." Within this framework, priority should be given to mechanisms that attract private investment flows and strategic digital technology enterprises to invest in agriculture and rural areas.

Planning Ecological Agricultural Economic Spaces: Harmoniously intertwine the maritime economy development strategy with the agricultural economy strategy. Specifically, clear zoning is required for high-tech agricultural areas and ecological agricultural zones integrated with experiential tourism, creating a new growth pole alongside the city's traditional strength in seaports.

Prioritizing Public Resource Allocation: Make budgetary breakthroughs for agricultural digital infrastructure (including broadband telecommunications networks, land database infrastructure, and smart monitoring stations) and logistics infrastructure serving the agricultural supply chain.

Recommendations for the Department of Agriculture and Rural Development of Hai Phong City

Regarding Laborers: Take the lead in coordinating with universities and research institutes to develop a "Digital Farmer" training program, equipping farmers with technology operation skills, market data analysis, and business management capacities on digital platforms.

Regarding the Means of Production: Promote the legal accumulation and concentration of land to build a production scale large enough to facilitate the synchronous application of mechanization and automation technologies.

Building a Local Agricultural Data Ecosystem: Urgently perfect the digital database system regarding soil quality, diseases, water sources, and agricultural product traceability for Hai Phong City, directly connecting it with the Northern regional agricultural trading floor.

Recommendations for the Department of Information and Communications in coordination with the Department of Science and Technology

Commissioning and Transferring Core Technologies: Encourage domestic digital technology enterprises to research and develop software solutions and IoT devices tailored to the specific soil characteristics, cultivation scales, and financial capacities of cooperatives and farms in Hai Phong.

Supporting Information Security and Digital Transformation for Cooperative Models: Formulate guidebooks and establish mobile task forces to provide direct digital technical support to production subjects, ensuring network security and cybersecurity in agriculture.

Instruments of Labor: In agriculture, new instruments of labor are shaped by the integration of digital technology into production and consumption processes, delivering higher efficiency, flexibility, and connectivity that is not just domestic or local, but global in nature.

Infrastructure of Labor: In the digital age, the infrastructure of labor in agriculture extends beyond traditional physical tools to encompass digital elements, software, and automated systems.

Objects of Labor in Agriculture: In the digital era, databases are no longer merely a strategic resource; they have become the "green energy source" that nurtures the developmental progress of every industry and sector.

LIST OF AUTHOR'S PUBLISHED WORKS RELATED TO THE THESIS TOPIC

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2. Pham Thi Phuong Thanh (2025), *Human resource training for high-tech agricultural development in Vietnam*, Journal of Education and Society, No. 167 (228), February 2025, ISSN: 1859-3917.
3. Pham Thi Phuong Thanh (2025), *Human resource training in Vietnam's agriculture: Current status and solutions*, Journal of Theoretical Education, No. 1385, March 2025, ISSN: 0868-3492.
4. Pham Thi Phuong Thanh (2025), *Current status and emerging issues of digital transformation in developing new productive forces in agriculture in Hai Phong City today*, State Management Review, ISSN: e-2815-5831.
5. Pham Thi Phuong Thanh (2025), *Solutions to accelerate digital transformation in developing new productive forces in agriculture in Hai Phong City today*, State Management Review, ISSN: e-2815-5831.