

**HO CHI MINH NATIONAL ACADEMY OF POLITICS**

**NGO CAM TU**

**HUMAN RESOURCES FOR DIGITAL ECONOMIC  
DEVELOPMENT IN THAI NGUYEN PROVINCE**

**SUMMARY OF PHD THESIS**

**MAJOR: POLITICAL ECONOMY**

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of Ho Chi Minh National Academy of Politics**

*At 3:00 PM on June 27, 2024*

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## INTRODUCTION

### 1. The necessity of the thesis

In every era, human resources are not only an input in the production process like other resources but also determine the efficiency of exploiting and using other resources. For developing countries, including Vietnam, the core issue is not the lack of natural resources but the lack of quality human resources. Previously, less developed countries believed that growth depended entirely on the level of capital accumulation or attraction of physical capital. However, the ability to effectively use physical capital depends on the quality of human resources. Therefore, the primary task of developing countries is to build and accumulate quality human resources (Waines, 1963; Okoh, 1980).

Many studies have proven that human capital positively influences and is a crucial factor in labor productivity, thereby bringing effective business outcomes for companies. However, in reality, many businesses with a workforce that has higher education and professional skills, along with higher employee income, do not achieve the expected business results. Even companies with high human capital can still experience losses in business activities. According to Karl Marx, labor power is the capacity to work, which plays a decisive role in the production process. Labor efficiency depends on many other material factors, but the decisive element is labor power. This is the social workforce – a crucial resource in socio-economic development. Modern economic theories also indicate that human resources are the most important asset of a country in general, and of a region or locality in particular. The quality of human resources reflects the level of economic development and the quality of life in a society.

The rapid development of science and technology, especially the Fourth Industrial Revolution characterized primarily by "digitalization," connecting, and processing intelligent data, has profoundly changed all aspects of socio-economic life worldwide. In response to this context, our Party and State have implemented policies and strategies to seize opportunities and actively participate in this revolution. Over time, the Party and the State of Vietnam have led and directed all levels and sectors to enhance the application and digital platforms to boost the development of the digital economy. As a result, Vietnam's digital economy has developed rapidly. According to a report by Google, Vietnam's digital economy growth rate is the fastest in Southeast Asia for two consecutive years (28% in 2022 and 19% in 2023), which is 3.5 times higher than the

GDP growth rate. The Ministry of Information and Communications estimates that the digital economy's proportion in Vietnam's GDP reached 16.5% in 2023.

The digital economy has created many job opportunities, increased income, and improved the quality of life for people. However, alongside the achievements, there are many challenges in the development of the digital economy in our country such as: the regulatory and policy framework has many limitations and inadequacies, the infrastructure for digital transformation is still limited, and the structure and quality of human resources have not yet met the requirements for developing the digital economy. To achieve the goal of having the digital economy account for at least 20% of the GDP by 2025 and at least 30% by 2030, there is a strong demand for developing human resources for the digital economy. Therefore, building human resources to support the development of the digital economy in Vietnam, both nationally and locally, is an urgent need.

Thai Nguyen holds a strategic position, bordering the capital Hanoi to the south and serving as an economic gateway between the Red River Delta and the midland and mountainous regions. The province boasts a network of 9 universities and colleges, ranking as the third largest training center for human resources in the country after Hanoi and Ho Chi Minh City. Leveraging its advantageous geographical location, rich natural resources, comprehensive infrastructure, open government, and available human resources, Thai Nguyen has become a province with a high Provincial Competitiveness Index (PCI), ranking 25th out of 63 provinces and cities in 2022. However, to transition to a digital economy, it is necessary to innovate business processes, promote e-commerce, and foster innovation. Thai Nguyen needs to undergo changes in labor structure and enhance the quality of its human resources to meet the demands of the digital transition. Currently, the human resources for digital economic development in Thai Nguyen province face several challenges, including the quantity, quality, and structure of the workforce not meeting the requirements of digital transformation. While training programs have been oriented towards meeting the needs of the economy, their effectiveness remains low. Therefore, it is essential to analyze the current state of human resources for digital economic development in the province, identify the influencing factors and requirements of human resources in the digital economy, and propose solutions for building a workforce that supports digital economic development. These measures will contribute to the implementation of the "National Digital Transformation Program by 2025,

with a vision towards 2030" set by the Prime Minister and the province's socio-economic development strategy.

Based on the reasons mentioned above, the doctoral candidate has chosen the topic: "*Human Resources for Digital Economic Development in Thai Nguyen Province*" for their Ph.D. dissertation in Political Economy at the Ho Chi Minh National Academy of Politics.

## **2. Research purpose and research task**

### **2.1. Research purposes**

The thesis is researched to propose solutions for developing human resources for the digital economy in Thai Nguyen by 2030.

### **2.2. Research tasks**

To address the above research purposes, the thesis defines the following tasks:

First, establish a theoretical framework for human resources for digital economic development at the provincial level, including concepts, roles, and requirements of human resources for digital economic development. Additionally, analyze the content and factors influencing human resources for digital economic development at the provincial level.

Second, analyze and evaluate the current state of human resources for digital economic development in Thai Nguyen province from 2018 to 2022, clarifying the achievements, limitations, and their causes.

Third, propose perspectives and fundamental solutions for developing human resources for the digital economy in Thai Nguyen province by 2030, with a vision towards 2045.

### **2.3. Research question**

From the objectives and tasks of the research, the thesis will focus on answering the following questions:

- How is human resources for digital economic development at the provincial level approached from different perspectives and concepts? What are the content, influencing factors, and criteria for evaluating human resources for digital economic development at the provincial level?

- What are the limitations of human resources for digital economic development and what are the causes of these limitations?

- What solutions are needed to develop human resources for digital economic development in Thai Nguyen province by 2030?

## **3. Subject and scope of research**

### **3.1. Research subjects**

The thesis focuses on researching issues related to human resources for digital economic development in Thai Nguyen province from a political economy perspective.

### **3.2. Research scope**

- *About the content:* The thesis focuses on researching the issue of human resources for digital economic development from two perspectives:

+ In terms of the productive forces, human resources for digital economic development are considered the most crucial component, reflected in quantity, quality, and structure. Therefore, to build human resources with a reasonable quantity, quality, and structure to meet the requirements of digital economic development, it is necessary to carry out activities to attract, train, develop, and use human resources effectively.

+ In terms of production relations, the thesis approaches human resources for digital economic development as state management subjects at the local government level, influencing other entities in the economy through the development of mechanisms and policies aimed at harmonizing the interests of human resources for provincial digital economic development. This includes promoting policies, issuing documents, and providing reasonable incentives and benefits for human resources involved in provincial digital economic development.

- *About space:* The dissertation focuses on analyzing and evaluating the current state and proposing solutions for developing human resources for digital economic development in Thai Nguyen province. Additionally, it expands the scope to include practical experiences of human resources for digital economic development from other selected provinces and cities.

- *About time:* Research on human resources for digital economic development in Thai Nguyen province using secondary data from the period 2018 - 2022 and primary data collected over five months (from October 2022 to February 2023), with solutions projected up to the year 2030.

## **4. Theoretical basis, approach and research methods**

### **4.1. Theoretical basis:**

The thesis uses the methodologies of dialectical and historical materialism; it incorporates the basic principles of Marxism-Leninism on human resources for economic development during the fourth industrial revolution. It also includes the views and policies of the Communist Party of Vietnam, and national and provincial laws and policies regarding human resources for the digital economy. Moreover, the dissertation builds upon and develops the theoretical perspectives of both domestic and international scholars related to its topic

## **4.2. Research approach**

### **4.3. Research methods**

The thesis utilizes the following specific research methods: (1) Scientific abstraction method; (2) Analytical-synthetic method; (3) Statistical-comparative method; (4) Forecasting method; (5) Information collection method

## **5. New contributions of the thesis**

- *Theoretical contributions:* The thesis has systematized and clarified some theoretical issues about human resources for digital economic development at the provincial level. Specifically, it defines the concept and content of human resources for digital economic development, thoroughly examines the requirements for such human resources, and thereby shapes a team of human resources tailored to the specific characteristics of a provincial locality, including assessment criteria and factors influencing human resources for digital economic development at this level.

- *Practical contributions:* By analyzing and evaluating the current state of human resources for digital economic development in Thai Nguyen province from 2018 to 2022, the thesis proposes perspectives and fundamental solutions to develop human resources for digital economic development in Thai Nguyen province from now until 2030.

## **6. Theoretical and practical significance of the thesis**

First, the thesis discusses theoretical issues regarding human resources for digital economic development.

Second, the results of the thesis can serve as essential reference material for researchers interested in the topic; policymakers related to the thesis subject, and as reference material in research and teaching about human resources, human resources for digital economic development...

## **7. Structure of the thesis**

In addition to the introduction, conclusion, list of references and appendices, the main content of the thesis is structured into 4 chapters of 10 sections.

### **Chapter 1**

#### **OVERVIEW OF RESEARCH WORKS HAS BEEN PUBLISHED RELATED TO THE THESIS TOPIC**

##### **1.1. RESEARCH WORKS RELATED TO THESIS TOPIC**

###### **1.1.1. Group of research projects on human resources and human resource development**

- Research projects on human capital
- Research projects on the role of human capital in economic development

- Research projects on human resource development

### **1.1.2. Group of research projects on digital economy and digital economic development**

- Research works on digital economy: Nguyen Thi Huong (2019) in the article: "Identifying and measuring the contribution of the digital economy to economic growth in Vietnam"; Tran Thi Ai Cam, Do Thuy Trinh (2022) in the book "Digital Economy;

- Research works on digital economic development: Bui Kim Thanh, Le Minh Hang (2020) "Digital economic development of some ASEAN countries and implications for Vietnam"; Nguyen Van Thao, Nguyen Manh Hung (2023), "Digital economic development in Vietnam".

### **1.1.3. Group of research projects on human resources for digital economic development**

- Research works on the concept, characteristics, and role of human resources for the digital economy: Freeman et al. (1999), The Supply of Information Technology Workers in the United States; Ribble and Bailey (2007) Digital Citizenship in School; Isman, Gungoren (2014) in the article Digital citizenship; Noula (2019), Digital Citizenship; Citizenship with a Twist?; Valentina Pulyaeva et al (2019) Practical aspects of HR management in digital economy; Human resources in digital economy (by Anna Volkova, Dina Konstantinova (2020); Nikpour Amirreza, Semushkina Svetlana (2021) Digital shifts in human resource management in the global economy; Characteristics and Its Transformation of Human Resources in Digital Economy by Wangke Yu; Shuqiu Dong (2021); Jiaoning Zhang; Xiaoyu Ma; Jiamin Liu (2022) in the article How Can the Digital Economy and Human Capital Improve City Sustainability; Jie Zhang & Zhisheng Chen (2023) in the article Exploring Human Resource Management Digital Transformation in the Digital Age.

- Research projects on lessons learned in building human resources for digital economic development: Dyatlov; Selishcheva; Feigin (2018), The Impact of Network Human Capital on Economic Growth of Supply Chain in Digital Economy; Adriana Grigorescu, Elena Pelinescu (2021), Human Capital in Digital economy: An Empirical Analysis of Central and Eastern European Countries from the European Union; Ho Tu Bao (2019), Digital human resources and new labor skills; Dang Thi Viet Duc (2020), "Digital economy: Current status and development direction in Vietnam"; Nguyen Hai Hoang (2020), "Developing digital human resources to meet the requirements of the digital economy"; Pham Viet Dung (2020), "Digital economy - a breakthrough opportunity for Vietnam"; Nguyen Thi Mien



(2021), "Developing the digital economy in the spirit of the 13th Party Congress"; Nguyen Thanh Chung (2023) The role of digital human resources in the context of national digital transformation in Vietnam today.

#### **1.1.4. Group of research projects related to building human resources and human resources for digital economic development in Thai Nguyen province**

Pham Thi Minh Nguyet (2020), Developing agricultural human resources applying high technology in Thai Nguyen province until 2025; Phung Tran My Hanh (2020), Developing human resources for small and medium-sized enterprises in Thai Nguyen province in the context of the 4.0 industrial revolution; Dinh Thi Thuy Duong (2020) in the article "Developing high-quality human resources in administrative agencies of Thai Nguyen province"; Hoang Thi Thu Hang (2022) Human resource development in Thai Nguyen province: Current status and solutions.

### **1.2. OVERVIEW OF THE RESULTS OF PUBLISHED RESEARCH WORKS RELATED TO THE THESIS TOPIC AND ISSUES THESIS RESEARCH FOCUSED**

#### **1.2.1. General assessment of published research results**

From an overview of a number of research projects related to human resources for digital economic development in the country and abroad in recent times, it can be seen that although the authors have approached and interpreted from many different angles, However, each project has certain scientific contributions as a basis for the thesis to absorb, supplement and develop. It can be summarized on the following basic contents:

*First, the research works have clarified a number of theoretical issues about human resources and human resource building*

*Firstly*, some studies have explored the concept of human resources, highlighting their role in economic development. Although there are various perceptions about human resources and their roles, it is generally agreed that human resources are a crucial component of the workforce of an organization, business sector, or economy. Regarding the role of human resources, research consistently affirms that they are a critical factor in the socio-economic development of each country, locality, or organization, especially in the context of the current fourth industrial revolution.

*Secondly*, some research suggests that building appropriate human resources is necessary to drive socio-economic development. To develop human resources, it is essential to first plan for human resources and improve their quality, focusing on training to enhance the capabilities of workers. There should also be appropriate policies and mechanisms for recruitment, utilization, and treatment of workers.

*Second, a number of research projects have studied the digital economy and digital economic development.*

Several studies have explored the concept of the digital economy, its role, and the role of government management in its development. According to the authors, developing the digital economy requires a shift in mindset and increased awareness of digital economic development. From there, it is essential to build and improve the institutional and legal environment, invest in infrastructure for digital transformation, and prepare human resources for the development of the digital economy.

*Third, a number of research projects have studied human resources for digital economic development.*

*Firstly,* a number of works have researched the concept, characteristics, and role of human resources for digital economic development. In the digital economy, there are digital citizens with new requirements for skills in using digital tools. Human resources in the digital economy need to develop a positive attitude, have high labor productivity, and be responsible for lifelong learning.

Second, on building human resources for digital economic development. Based on pointing out the necessity of digital economy transformation, a number of works have shown that to build human resources for digital economic development, it is first necessary to change human resource management (resource planning). human resources, training and development, performance management, salaries and benefits). In some studies, the authors focus deeply on solutions for developing digital human resources in the aspect of training human resources to meet digital transformation requirements.

### **1.2.2. Issues the thesis focuses on in research**

Although there have been a number of works published at home and abroad researching some aspects related to the research problem of the thesis topic, up to now there are still some important issues in the thesis topic. The project has not been researched and resolved in a direct, comprehensive and in-depth manner under the approaches of political economy, specifically as follows:

#### ***- The theoretical gap needs to be further clarified***

Explaining tool concepts: human resources, human resources for digital economic development, characteristics and roles of quality human resources in the digital economy; concepts and characteristics of the digital economy; human resource requirements in the digital economy; Criteria for evaluating human resources for digital economic development.

***- Practice gaps need to be researched***

Through an overview of the research situation related to the thesis topic, the author finds that there is no updated, systematic research on human resource development for digital economic development in Thai Nguyen province. Therefore, there are still many open issues such as:

Current status of human resources, especially human resources for digital economic development in Thai Nguyen province.

What are the results and limitations of the current situation of building human resources, especially human resources for digital economic development in Thai Nguyen province recently?

In particular, what solutions can be proposed to build human resources for digital economic development in Thai Nguyen province in the coming period? That means that the thesis needs to continue to clarify the following practical issues:

Research the current situation and analyze human resources for digital economic development in Thai Nguyen province.

Assess the current state of human resources for digital economic development in Thai Nguyen over the past time, find out the achieved results and remaining limitations, and find out the causes of the limitations.

Propose some perspectives and solutions based on international and local experiences and the province's current situation to build human resources for digital economic transformation in Thai Nguyen province.

## **Chapter 2**

### **THEORETICAL AND PRACTICAL BASIS OF HUMAN RESOURCES FOR DIGITAL ECONOMY DEVELOPMENT AT THE PROVINCIAL LEVEL**

#### **2.1. CONCEPT, ROLE AND REQUIREMENTS OF HUMAN RESOURCES FOR DIGITAL ECONOMIC DEVELOPMENT AT THE PROVINCIAL LEVEL**

##### **2.1.1. Concepts of human resources, digital economy and human resources for digital economic development**

- Human resources: Based on references to research and approaches from the perspective of political economy, the researcher believes that: *Human resources refer to the entire human capital engaged in the economic activities of an organization, locality, or country.*

- Digital economy: *Digital economy is understood as an economy in which economic activities are based on the application of digital*

*technology and digital platforms to traditional industries and fields to increase labor productivity, create New and increased economic value includes activities such as: e-governance, e-commerce, smart agriculture, smart production, smart tourism, etc.*

- Human resources for digital economic development: From the concepts of human resources, digital economy and digital human resources mentioned above, the PhD student offers the concept of human resources for digital economic development at the provincial level: *Human resources for digital economic development encompass the total labor capacity (including physical strength, intellectual capability, and emotional resilience) of individuals engaged in digital economic activities at the provincial level.*

### **2.1.2. The role of human resources in digital economic development at the provincial level**

*First*, human resources are the subject to build the digital economy nationally and locally.

*Second*, human resources are considered a decisive factor for digital economic development.

*Third*, human resources are the driving force of digital economic development.

*Fourth*, human resources have a role in developing information technology infrastructure to facilitate the digital transformation of the economy.

### **2.1.3. Requirements for human resources for digital economic development at the provincial level**

*First, requirements for the quantity of human resources*

Firstly, human resources for digital economic development must be of sufficient scale to meet the digital transformation needs of various economic sectors.

Secondly, there is a need for continuous and regular human resource development planning to keep up with the rapid growth of the digital economy.

Thirdly, a support workforce is essential to ensure that production and operational activities are continuous and efficient.

*Second, requirements for the quality of human resources.*

First, human resources must possess sufficient professional expertise to utilize and manage digital technology equipment within the digital transformation environment.

Second, to meet the continuous development demands of science

and technology, workers must be able to quickly adapt to the digital work environment and new advancements.

Third, in the digital economy, workers need to maintain a disciplined work style and a strong sense of compliance to operate effectively.

Fourth, in the current context of digital transformation, workers should uphold ethical standards and discipline to advance in their careers.

Fifth, within the digital transformation landscape, workers need to be innovative and possess breakthrough thinking.

*Third, requirements for the structure of human resources.*

Firstly, the structure of human resources should be organized to directly support the digital economic development goals and strategies of the province.

Secondly, the human resource structure should prioritize the digital economic sectors that the province aims to develop.

## **2.2. CONTENT, EVALUATION CRITERIA AND FACTORS AFFECTING HUMAN RESOURCES FOR THE DEVELOPMENT OF THE DIGITAL ECONOMY AT THE PROVINCIAL LEVEL**

### **2.2.1. Human resources content for the development of digital economy at provincial level**

#### ***2.2.1.1. The constituent factors of human resources for the development of digital economy at provincial level***

- Quantity of human resources for digital economic development.
- Quality of human resources for digital economic development.
- Structure of human resources for digital economic development.

#### ***2.2.1.2. Human resource development activities for digital economic development at the provincial level***

- Establishing institutional frameworks for human resources in provincial-level digital economic development.
- Training and nurturing human resources to meet the demands of digital economic development.
- Attracting and efficiently utilizing human resources for digital economic development at the provincial level.

### **2.2.2. Evaluation criteria for human resources for the development of the digital Economy at the provincial Level.**

#### ***2.2.2.1. Basic criteria for evaluating the quantity of human resources***

The quantity is determined by two indicators:

Absolute indicator: the number of workers and the number of job positions.

Relative indicator: a percentage-based index depending on the research purpose.

### ***2.2.2.2. Basic criteria for evaluating the quality of human resources***

- Physical indicators.
- Mental indicators: educational level, professional level, computer skills, language proficiency.
- Psychological indicators.

### ***2.2.2.3. Basic criteria for evaluating the structure of human resources***

The human resource structure that meets the requirements for the development of the digital economy is evaluated through several indicators:

- Human resource structure suitable for the orientation of digital economy development.
- Human resource structure that meets the digital transformation of key sectors.
- Human resource structure by age group.

### **2.2.3. Factors affecting human resources for the development of the digital economy at the provincial level**

*First*, the guidelines and policies of the Party; the laws and policies of the State.

*Second*, the level of socio-economic development of the locality in the process of developing the digital economy.

*Third*, the training, fostering, and utilization of human resources.

*Fourth*, the information technology infrastructure.

*Fifth*, the development of the labor market in connection with the development of the digital economy.

*Sixth*, international economic integration and the division of labor domestically and internationally.

## **2.3. INTERNATIONAL AND DOMESTIC EXPERIENCE IN DEVELOPING HUMAN RESOURCES FOR THE DIGITAL ECONOMY**

### **2.3.1. Experience of some countries**

#### ***2.3.1.1. Experience of Singapore***

- Overview of Singapore's digital economy development strategy and human resource development for the digital economy.

- Singapore's human resource development strategy and application impact various aspects to ensure that people are well-equipped with the necessary professional competencies and skills for the digital economy:

- + Focus on building a team of digital technology experts and digital leaders in businesses.
- + Singapore considers attracting talent, especially foreign talent, as a top priority strategy.

- + Develop training and advanced training programs to equip workers with digital skills.

### **2.3.1.2. Experience of Thailand**

- Overview of Thailand's strategy for digital economic development and human resource development for the digital economy.

- The government's strategy for developing digital human resources in Thailand:

- + Investment of the government budget to train technology and science professionals.

- + Increasing the number of teachers in the field of science and technology.

- + Preparation of human resources for the "Thailand 4.0" policy.

- + "Talent Development and Mobility" policy.

### **2.3.2. Experience of some provinces and cities in Vietnam**

#### **2.3.2.1. Experience of Da Nang City**

- Overview of Da Nang City's plan for developing the overall socio-economic and digital economy.

- Construction and implementation of projects to increase the quantity and quality of human resources: "Developing IT human resources in the private sector" and "Training and attracting talented IT personnel to participate in digital transformation"

#### **2.3.2.2. Experience of Binh Duong Province**

- Overview of Binh Duong Province's plan for developing the overall socio-economic and digital economy.

- Implementation of policies to attract, support training, and improve the quality of human resources.

### **2.3.3. Lessons learned from building human resources for the digital economic development of Thai Nguyen province**

*First*, building human resources for digital economic development must be closely linked to the local digital transformation and digital economic development strategy.

*Second*, enhancing the skills and knowledge of workers to serve the process of digital economic development through education and training.

*Third*, building human resources for digital economic development through a system of effective management, attraction, retention, and utilization policies.

*Fourth*, valuing domestic and international cooperation in the process of building human resources for digital transformation and digital economic development.

## **Chapter 3**

### **THE CURRENT SITUATION OF HUMAN RESOURCES FOR DIGITAL ECONOMIC DEVELOPMENT IN THAI NGUYEN PROVINCE**

#### **3.1. OVERVIEW OF THE SOCIO-ECONOMIC DEVELOPMENT AND DIGITAL ECONOMIC DEVELOPMENT IN THAI NGUYEN PROVINCE**

##### **3.1.1. Overview of the Socio-Economic Development of Thai Nguyen Province**

Under the leadership of the Party, Government, and people of various ethnic groups, Thai Nguyen Province has always been united, innovative, and resilient, overcoming difficulties and challenges to achieve certain accomplishments. From a poor province with slow economic development, Thai Nguyen Province has risen to become one of the fastest-developing provinces in the region and the country. During the period from 2012 to 2022, the economy of Thai Nguyen experienced strong growth, averaging 12.89% annually, surpassing the national average growth rate during this period.

##### **3.1.2. Overview of the development of digital economy in Thai Nguyen province**

Thai Nguyen Province has consecutively ranked 8th out of 63 provinces and cities nationwide for two years in a row in the Digital Transformation Index (DTI) and is among the top 10 localities in terms of digital infrastructure.

#### **3.2. CURRENT SITUATION OF HUMAN RESOURCES FOR DIGITAL ECONOMIC DEVELOPMENT IN THAI NGUYEN PROVINCE IN THE PERIOD OF 2018 - 2022**

##### **3.2.1. Current status of elements constituting human resources**

###### ***3.2.1.1. Number of human resources for digital economic***

- Number of state management human resources at the provincial level in a number of key economic sectors of Thai Nguyen province in the period of 2018 - 2022. To implement digital transformation in general, digital economic development in particular depends not only on human resources at businesses but also largely on human resources at state management agencies in major economic sectors. Statistics show that the number of state management civil servants in the provincial area has not changed much with 1,167 people in 2018, reaching 1,068 people in 2022. In particular, civil servants of the Departments of Industry and Trade, the Department of Information and Communications and the Department of Agriculture all have a decreasing trend. However, the number of civil servants in the



Province has helped Thai Nguyen Provincial People's Committee make decisions and implement policies related to the digital economy.

- Number of human resources in the field of information technology in Thai Nguyen province. The human resources department that plays a decisive role in the digital transformation process of businesses and localities is information technology human resources. From 2017 to 2019, the total number of workers in the IT industry increased slightly from 62,000 people to 70,074 people. In particular, IT product manufacturing workers increased sharply from 59,200 in 2017 to 67,462 in 2019; IT service workers increased from 800 people in 2017 to 1012 people in 2019 while distribution business workers decreased from 2000 people in 2017 to 1600 people in 2019. In the period from 2020 - 2022, due to the epidemic situation Covid disease, labor in the IT industry has many fluctuations, so Thai Nguyen Department of Information and Communications has not compiled specific statistics.

- Human resources and information technology infrastructure in the e-commerce index of Thai Nguyen province. In the period 2018 - 2023, the human resources and IT infrastructure index of Thai Nguyen province has the ability to meet appropriate human resources in the field of e-commerce.

Digital Transformation Steering Committee: The Steering Committee for implementing the digital transformation program in Thai Nguyen province was established under Decision No. 337/QD/TU dated April 13, 2021 with the task of advising and assisting the Provincial Party Standing Committee, Provincial Party Executive Committee and Thai Nguyen Provincial People's Committee, lead, direct and implement Resolution No. 01-NQ-TU.

The Provincial Digital Transformation Steering Committee consists of 53 people, including 01 head, 03 deputy heads and 47 members. Full-time and part-time information technology officers of state agencies in 2022: Number of civil servants specialized in Information Security: 250 people; Number of part-time civil servants in Information Security: 500 people.

### ***3.2.1.2. Human resource quality for digital economic development in Thai Nguyen province***

- Physical fitness: Every year, officers, employees and workers at agencies, organizations and businesses in Thai Nguyen province receive periodic health checks. According to statistics and surveys, 100% of workers have average or better health to meet job requirements in the process of digital transformation of the economy.

- About mentality:

+ Professional qualifications: Under the Party's leadership along with the requirements of the process of international economic integration and

digital transformation, human resources are officials and civil servants from district level and above in Thai Nguyen province. Stop improving professional qualifications.

+ Information technology level: According to the annual report of the Department of Home Affairs of Thai Nguyen province, the situation of civil servants and public employees at district level and above in the period 2018 - 2022: In 2018, there were 2,572 people out of a total of 2,608 people with Information technology certificate or higher. In 2022, the number of people with computer qualifications has increased to 1,820 people out of a total of 1,832 people. This shows that officials and civil servants of Thai Nguyen province are always trying to improve their computer skills towards 100% of officials and civil servants having computer skills to meet digital transformation requirements. The digital skills of full-time and part-time staff are still limited in data analysis and exploitation skills.

+ Soft skills: Survey results show that 46.1% of workers think they have communication skills (both online and face-to-face); Likewise, the majority (61.5%) of workers think they have good teamwork and cooperation skills.

- In terms of mental strength: Survey results show that the working attitude and responsibility of employees is 100% good or very good; 100% of employees have a scientific working style of good or better; Responsibility in performing work well and very well. Most of them have a spirit of compliance with discipline, labor regulations and a progressive spirit.

### ***3.2.1.3. Human resource structure for digital economic development in Thai Nguyen province***

- Regarding labor structure by gender.
- Regarding labor structure by industry and economic sector.
- Regarding labor structure according to training.

### **3.2.2. Current status of human resource building activities for digital economic development in Thai Nguyen province**

#### ***3.2.2.1. Current status of building and implementing human resource institutions for digital economic development in Thai Nguyen province***

#### ***3.2.2.2. Current status of training and fostering human resources for digital economic development in Thai Nguyen province***

- Training and fostering to raise awareness of digital transformation
- Digital skills training for workers
- Training human resources in digital technology and digital business
- Number of universities and colleges with majors in IT and communications in the province

### ***3.2.2.3. Current status of attracting and using human resources for digital economic development in Thai Nguyen province***

## **3.3. ASSESSMENT OF THE SITUATION OF HUMAN RESOURCES FOR DIGITAL ECONOMY DEVELOPMENT IN THAI NGUYEN PROVINCE IN THE PERIOD OF 2018 - 2022**

### **3.3.1. These achievements**

#### ***3.3.1.1. In terms of quantity, quality and structure of human resources for digital economic development***

Basically, human resources at organizations, agencies, and businesses in the province have met the needs, however, there is still a shortage of specialized information technology officers, mainly part-time, so we face many difficulties. Difficulties in managing and operating the information technology system at the unit.

#### ***3.3.1.2. Regarding human resource building activities***

*First*, on building and implementing human resource institutions for digital economic development

*Second*, on training and human resource development for digital economic development

### **3.3.2. Limitations and causes of limitations**

#### ***3.3.2.1. Limitations***

*Firstly*, the number and structure of human resources for digital economic development have not met the requirements of economic development in Thai Nguyen province. The structure of the leadership and management team is not truly balanced and reasonable; There is a situation of both surplus and shortage of staff; lack of communication between levels and sectors. The number of full-time/part-time IT staff has increased, but the number of total employees is still small.

*Second*, the quality of the province's human resources is not uniform, not really proficient in skills in using software and applying information technology.

*Third*, human resource development training for digital economic development has not met the requirements.

*Fourth*, the competitiveness in the labor market for digital economic development of Thai Nguyen province's human resources is still not high.

#### ***3.3.2.2. Cause of limitation***

*First*, the awareness of management leaders and people about the position and role of human resources in digital economic development is still limited.

*Second*, the Party's leadership in some places and at some times is still limited

*Third*, the work of building and planning human resources for digital economic development has not received adequate attention.

*Fourth*, mechanisms and policies to develop human resources to provide quality human resources for digital economic development are still weak and lacking; Education and training have not yet met the requirements.

## **Chapter 4**

### **PERSPECTIVES AND SOLUTIONS FOR HUMAN RESOURCES BUILDING FOR DIGITAL ECONOMIC DEVELOPMENT IN THAI NGUYEN PROVINCE UNTIL 2030**

#### **4.1. VIEWPOINT ON BUILDING HUMAN RESOURCES FOR DIGITAL ECONOMY DEVELOPMENT IN THAI NGUYEN PROVINCE TO 2030, VISION TO 2045**

##### **4.1.1. Forecast of the possibility of digital economic development and human resource needs for digital economic development in Thai Nguyen province to 2030, vision to 2045**

###### ***4.1.1.1. Forecasting the possibility of developing the digital economy and the impacts on the trend of shifting human resources for the digital economy***

The need for human resources for the development of the digital economy in Vietnam is increasing, especially human resources in the IT industry. It is forecast that from now until 2024, Vietnam will lack about 150,000 to 200,000 IT engineers each year..

###### ***4.1.1.2. Human resource needs for digital economic development in Thai Nguyen province to 2030, orientation to 2045***

Nhu cầu nhân lực cho phát triển kinh tế số ở tỉnh Thái Nguyên được thể hiện trong chiến lược phát triển kinh tế tỉnh Thái Nguyên thời kỳ 2021-2030, tầm nhìn 2045 như sau: Mở rộng quy mô ngành công nghiệp và xây dựng; Tăng quy mô các ngành lĩnh vực dịch vụ tương ứng với quy mô các ngành công nghiệp - xây dựng; Giảm tỷ trọng ngành nông, lâm nghiệp và thủy sản. Trong lĩnh vực công nghiệp cần tập trung vào: (i) Sản xuất thông qua công nghiệp 4.0; (ii) Công nghệ cao; (iii) Thương mại hóa các sản phẩm khoa học và công nghệ; Trong các ngành dịch vụ cần tập trung vào: (i) Phát triển du lịch; (ii) Dịch vụ chăm sóc sức khỏe và y tế; (iii) Logistics và vận tải; (iv) Giáo dục và đào tạo; Trong ngành nông, lâm nghiệp và thủy sản, tăng cường áp dụng công nghệ cao. The need for human resources for digital economic development in Thai Nguyen province is expressed in the economic development strategy of Thai Nguyen province

for the period 2021-2030, vision to 2045 as follows: Expanding the scale of industry and construction; Increase the scale of service sectors corresponding to the scale of industry - construction sectors; Reduce the proportion of agriculture, forestry and fisheries. In the industrial sector, it is necessary to focus on: (i) Production through industry 4.0; (ii) High technology; (iii) Commercialization of science and technology products; In service industries, we need to focus on: (i) Tourism development; (ii) Health care and medical services; (iii) Logistics and transportation; (iv) Education and training; In the agriculture, forestry and fisheries sectors, increase the application of high technology.

#### **4.1.2. Perspectives on building human resources for digital economic development in Thai Nguyen province to 2030, vision to 2045**

*First*, building human resources for digital economic development must be based on the viewpoints, guidelines and policies of the Party and State and plans of the Provincial Party Committee and People's Committee of Thai Nguyen province on digital economic development. is a thorough and dominant viewpoint.

*Second*, building human resources for digital economic development must meet the requirements of comprehensive human development.

*Third*, building human resources for digital economic development must always focus on human resource management issues.

*Fourth*, harmonize the interests between state management entities and related entities in building human resources for digital economic development in Thai Nguyen province.

### **4.2. SOLUTIONS TO BUILD HUMAN RESOURCES FOR DIGITAL ECONOMIC DEVELOPMENT IN THAI NGUYEN PROVINCE UNTIL 2030, VISION 2045.**

#### **4.2.1. Raise social awareness about the role and position of human resources for digital economic development in Thai Nguyen province**

To achieve the goal of "making Thai Nguyen a digital transformation center of the Northern midland and mountainous region", raising awareness of the position and role of human resource building is extremely important. . Therefore, to carry out this task, there needs to be synchronous coordination between State agencies, businesses, workers and people in the province in the following specific contents:

- Regarding goals, propagate to the management staff of economic sectors, fields and localities in the province, and the team of businessmen managing businesses; The residential community, especially the students who are in the process of participating in vocational training, understand the correct position, role, and potential for digital economic development

in the future, thereby orienting their construction. human resources for the province's digital economic development.

- Regarding the subject and how to organize implementation: The Provincial People's Committee needs to conduct systematic surveys and assessments through independent organizations to form in public opinion a positive view of the project. promote digital transformation in all aspects and develop the digital economy. Departments and branches need to coordinate to orient the culture of using the Internet for all classes of people, propagating people's awareness about the benefits of the Internet and information technology products and services; Promote training programs and support people, pupils and students to exploit and use information technology services and information technology services effectively and reasonably.

- Raise awareness of the entire society about the digital economy.

#### **4.2.2. Develop strategies and human resource planning for digital economic development**

*First*, it is necessary to promote education and training reform in the following directions: (i) Based on the needs and planning of human resource development in general and human resources for digital economic development in particular; (ii) Enhance autonomy and competition among vocational training institutions, and build a capable and quality vocational training quality accreditation system

*Second*, it is necessary to encourage scientific and technological activities in state agencies and labor-employing enterprises in the following forms: (i) Encourage and support state agencies and enterprises to apply Applying high science and technology to management and production and business organizations through various preferential measures; (ii) Incentives and favorable conditions for foreign partners to export and transfer high technology to businesses; (iii) There needs to be mechanisms and policies and proactively create conditions for scientific research facilities, laboratories, and scientists (domestic and foreign) to set up shop, work and transfer. Technology for businesses to promote the digital economy.

*Third*, to improve the quantity and quality of human resources for digital economic development, Thai Nguyen province needs to focus on the following main tasks:

*Firstly*, perfect the human resource development policy mechanism to provide quality human resources suitable for digital economic development.

*Secondly*, complete policies and strategies for digital economic development to attract quality investment resources to attract human resources from other localities as well as attract human resources in the

province. Screening can help improve the quality of human resources in terms of physical, mental and spiritual strength.

#### **4.2.3. Improve mechanisms and policies to create motivation to attract, use and train human resources for digital economic development**

##### ***4.2.3.1. About human resources recruitment policy***

Recruiting human resources for digital economic development needs to attract qualified people with technical expertise and problem-solving skills.

The human resource recruitment mechanism for digital economic development needs to be scientific, strict and strict on the basis of established staff standards.

##### ***4.2.3.2. Regarding salary policy and benefits***

*First*, perfect the salary policy and remuneration regime.

*Second*, perfect the emulation and reward regulations of agencies and enterprises.

##### ***4.2.3.3. Regarding education, training and fostering policies to build human resources for digital economic development***

*First*, improve physical health by periodically conducting health checks for human resources at agencies and businesses.

*Second*, plan and implement training solutions to improve human resources.

#### **4.2.4. Strengthen the leadership of Party committees and authorities at all levels and promote the role of heads of agencies, organizations and enterprises**

To build human resources for successful digital economic development, leadership from Party committees and authorities at all levels is indispensable. The management, direction and motivation role of the State apparatus is an objective necessity. Therefore, to strengthen the leadership of Party committees and authorities at all levels, it is necessary to:

(1) Perfecting the human resource management apparatus for digital economic development, innovating management methods, improving the capacity, effectiveness and efficiency of the management apparatus for building human resources for economic development number.

(2) Leaders of party committees, governments, and businesses need to be decisive, dare to think, dare to do, dare to take responsibility, dare to face difficulties and challenges, and act for the common good; Promoting well the qualities of a political leader to achieve the set goals in building human resources for digital economic development.

(3) Strengthen the leadership of party committees, Party, government, heads of party committees, authorities and businesses in innovation, based on the need to improve policies and laws, create an environment , conditions for leaders to boldly propose and implement innovative and groundbreaking

ideas in building human resources for digital economic development.

(4) Strengthen coordination between levels, sectors and fields participating in building human resources for digital economic development.

#### **4.2.5. Building human resources for digital economic development based on developing high-tech industrial human resources in the province**

To create a breakthrough and build human resources for digital economic development based on developing high-tech industrial human resources in the province, Thai Nguyen province needs:

*First*, strongly innovate the training methods of universities and training centers in the area, especially Thai Nguyen University with the goal of increasing the quantity and ensuring the quality of training approaching standards. internationally for industries and fields serving the development of high-tech industry.

*Second*, promote the planning, training, fostering and use of high-tech industrial human resources in the province with specific roadmaps, goals and steps in developing high-tech industrial human resources , on that basis, determine plans for training, fostering and using high-tech industrial human resources.

*Third*, improve the quality of training at local vocational schools. This is an important and necessary solution today because local vocational schools provide a large number of workers every year for high-tech enterprises.

#### **4.2.6. Building human resources for digital economic development based on developing high-tech industrial human resources in the province**

The goal of the international cooperation process is to attract foreign resources to train human resources for digital economic development in Thai Nguyen as well as in Vietnam, especially information technology and human resources. High Quality. To achieve this task, the Government and the Provincial People's Committee need to:

(1) Actively expand and diversify bilateral and multilateral relations to create a legal basis to promote and expand international cooperation in human resource development for digital economic development. (2) Build and regularly update the legal system on construction and human resource development in general, and human resources for digital economic development in particular to suit the development level of Thai Nguyen and Vietnam. but not contrary to international practices and laws in this field that Vietnam participates, signs, and commits to implement. (3) Pay attention to building policy mechanisms to innovate the role of state management agencies in higher education organizations to suit the



conditions of international integration. (4) The process of international cooperation in human resource training to serve digital economic development is carried out in the direction of integrating Vietnam's training program system with modern training programs in the world. (5) Expand forms of international training cooperation in Vietnam. (6) Implement policies to attract brainpower by calling on Vietnamese scientists abroad to build the country or make scientific contributions to the country. (7) Create an internationally coordinated higher education environment that operates transparently, flexibly, and autonomously. (8) Strengthen international cooperation to train good lecturers (including new training and refresher training, domestic and foreign training) at all educational levels. (9) Strengthen international cooperation in training students, especially in some key fields such as oil and gas, digital electronics industry, telecommunications, new material technology, nuclear energy core.... (10) Create a favorable environment and conditions to attract talented and experienced teachers and scientists from abroad and overseas Vietnamese to participate in the process of university human resource training and research. scientific and technological research at Vietnamese higher education institutions.

## **CONCLUDE**

Research on "Human resources for digital economic development in Thai Nguyen province" aims to contribute to building human resources to meet the requirements of digital transformation and promote digital economic development in Thai Nguyen province. This is an issue of concern to the Provincial Party Committee, People's Committee as well as Departments, branches, localities and people in the province. During the research process, the thesis drew the following conclusions:

1. On the basis of inheriting the basic theories of Marxism-Leninism and the Communist Party's views on human resources and human resources for digital economic development; Along with inheriting the results of previous research projects, PhD students have built the concept of human resources for digital economic development, the role of human resources in digital economic development at local levels. conscious. From there, clearly indicate the requirements of human resources for digital economic development. From those requirements, the thesis proposes contents to build human resources for digital economic development at the provincial level. The thesis also points out evaluation criteria and factors affecting human resources for digital economic development at the provincial level.

2. After summarizing the digital economic development situation in

Thai Nguyen province, the thesis goes into in-depth analysis and has data to demonstrate the current state of human resources in Thai Nguyen province. The thesis has drawn out the remaining limitations, of which the biggest limitation is that the quantity and quality of human resources do not meet the requirements of Thai Nguyen province's digital economic development and competitiveness in the market. The labor force of this group is not high. On that basis, the thesis has pointed out 4 causes of those limitations and the reasons why human resource development mechanisms and policies to provide quality human resources for digital economic development are still weak and lacking. This is the basis for proposing solutions in chapter 4.

3. The thesis has made forecasts about the possibility of developing the digital economy and the need for human resources for digital economic development, and the perspective of building human resources for digital economic development. From there, we propose 6 feasible solutions to build human resources for digital economic development in Thai Nguyen province by 2030, with a vision to 2045: Raising social awareness of roles and positions. of human resources for digital economic development in Thai Nguyen province; Develop strategies and plans for human resources for digital economic development; Improve mechanisms and policies to create motivation to attract, use and train human resources for digital economic development; Strengthen the leadership of Party committees and authorities at all levels and promote the role of heads of agencies, organizations and enterprises; Building human resources for digital economic development based on developing high-tech industrial human resources in the province; Building human resources for digital economic development based on developing high-tech industrial human resources in the province.

4. Human resources for digital economic development in Thai Nguyen province is a new, large-scale topic that requires systematic and research on many different aspects. From the perspective of Political Economy, the thesis has initially built a number of meaningful methodological contents. Besides the results achieved, it is difficult to avoid certain shortcomings in the research, so in the coming time, PhD students will continue to supplement, expand and develop deeper research issues, contributing to clarifying Demonstrates the theoretical and practical foundations surrounding the issue of human resources for digital economic development in Thai Nguyen province in particular and in Vietnam in general.

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