NGUYEN HONG SAM

HUMAN RESOURCES IN THE FINANCIAL INDUSTRY IN THE CONTEXT OF DIGITAL TRANSFORMATION

ABSTRACT OF DOCTORAL THESIS: POLITICAL ECONOMY

HANOI - 2025

<div align="center">**The project was completed at**
Ho Chi Minh National Academy of Politics</div>

Science Instructor: ASSOC. PROF., DR. LE QUOC LY

                          DR. TA THI DOAN

Criticism 1:   ....

                       ....

Criticism 2:   ....

                       ....

Criticism 3:   ....

                       ....

The thesis will be defended before the Academy-level Thesis Grading Council meeting at the Ho Chi Minh National Academy of Politics

<div align="center">*Come on.... hours...., dates... month... in 202...*</div>

<div align="center">**The thesis can be found at the National Library**
and the Ho Chi Minh National Academy of Politics</div>

INTRODUCTION

1. The urgency of the topic

In the context of the strong development of the global digital economy, human resources, especially high-quality human resources in the public sector, are increasingly becoming determinants of the effectiveness of national governance and the competitiveness of the economy. For Vietnam, the finance sector plays a key role in macro management, allocation and use of national financial resources, directly reflecting the State's public financial management capacity. Therefore, the quality of human resources in the finance sector is particularly important for the efficiency of the socialist-oriented market economy and the process of international integration.

In theoretical terms, digital transformation is not only a process of technology application but also a fundamental change in the governance model, organizational and operating methods of the state apparatus. This process poses a requirement to innovate management thinking, standardize professional processes and improve the quality of human resources, in which human resources in the financial sector play a central role in budget management, financial data and ensuring national financial security.

In practice, although the finance sector is one of the pioneering fields in digital transformation, the period 2016-2024 shows that there are still limitations in the quality, structure and digital capacity of cadres, civil servants and public employees. The training, fostering and mechanisms for attracting and retaining high-quality human resources have not kept up with the requirements of digital transformation, creating "bottlenecks" affecting the effectiveness of modernizing public financial management.

From the above theoretical and practical requirements, the research on the topic **"Human resources in the financial sector in the context of digital transformation"** is necessary, has profound scientific and practical significance, contributing to providing arguments for strategic planning of human resource development in the financial sector to meet the requirements of national digital transformation and international integration.

2. Research objectives and tasks

2.1. Research objectives:

The thesis analyzes and evaluates the current situation of human resources in the financial sector in the context of digital transformation in Vietnam, thereby proposing solutions to develop human resources in the financial sector to meet the requirements of digital transformation to 2030, with a vision to 2045.

2.2. Research tasks:

In order to achieve the above-mentioned research objectives, the thesis focuses on solving the following tasks:

- Firstly, an overview of research works related to human resources in the financial sector in the context of digital transformation, finding research gaps and approaches of the thesis;

- Secondly, systematize and clarify the theoretical basis of human resources in the financial sector in the context of digital transformation from the perspective of

political economy, including concepts, characteristics, development contents, evaluation criteria and influencing factors; at the same time, studying international experiences and drawing lessons for reference for Vietnam;

- Thirdly, analyze and evaluate the current situation of human resources in the financial sector in the context of digital transformation according to the identified criteria, clarify the achieved results, limitations and causes in the context of digital transformation.

- Propose views and systems of solutions for human resource development in the financial sector to 2030, with a vision to 2045.

3. Object and scope of research

3.1. Research objects:

The research object of the thesis is human resources in the financial sector in the context of digital transformation.

3.2. Scope of research:

- *Content: The* thesis topic focuses on the analysis of human resources in state management agencies in the financial sector from the perspective of the Marxist-Leninist Political Economy approach, considering human resources as a constituent element of the productive forces, organically attached to production relations and the organizational and management system of the financial sector in the digital transformation period. The focus of the study includes: i) The current situation of quantity, quality and structure of human resources; ii) Factors affecting the process of human resource development in digitalization conditions such as institutions, technologies, policies, organization and team capacity; iii) A system of solutions to improve human resource capacity in the financial sector to meet the requirements of digital transformation.

- *Spatial matters:* The thesis focuses on research within the scope of state management agencies in charge of finance at the central level, including the Ministry of Finance and five major subordinate general departments: the General Department of Taxation, the General Department of Customs, the State Treasury, the State Securities Commission and the General Department of State Reserves. These are the core units, taking the lead in the application of digital technology, big data and deploying modern governance models such as e-Government and Digital Treasury. The selection of this scope ensures typicality, representing the trend of digital transformation in public financial management in Vietnam today.

- *Regarding time:*

+ The survey and assessment period of the current situation of human resources is determined from 2016 to 2024, reflecting the progress of human resource development in the period when the finance sector promotes the implementation of digital transformation.

+ Stage of orientation and solution proposal: by 2030, with a vision to 2045, in line with the strategies for socio-economic development, reform of the state administration and national digital transformation.

4. Research methods

The thesis applies the methodology of Marxist-Leninist Political Economy,

combined with modern scientific research methods to analyze theory, evaluate reality and propose solutions for human resource development in the financial sector in the context of digital transformation. Specifically, the thesis uses dialectical materialism and historical materialism to clarify the content, characteristics and factors affecting human resources in the financial sector; scientific abstraction, analysis, synthesis and comparison methods to systematize the theory and analyze the movement of human resources in the financial sector through the stages.

In addition, the thesis conducted a sociological survey using questionnaires for 500 cadres, civil servants and public employees working at state management agencies under the Ministry of Finance and key specialized units, ensuring the representativeness of the fields of public finance. The survey data was processed using the descriptive statistical method and discovery factor analysis (EFA) to identify groups of factors affecting the quality and capacity of human resources in the financial sector in the context of digital transformation. On that basis, the thesis compares and contrasts over time and between units in the industry to draw characteristics and trends in human resource development in the financial sector in the period of 2016-2024.

5. New scientific contributions of the thesis

5.1. Theoretical contributions

Firstly, the thesis contributes to the systematization and development of the approach to human resource research in the financial sector in the context of digital transformation on the basis of Marxist-Leninist political economy theory, clarifying the mobilization of human resources in the relationship between production forces and production relations under the impact of digitalization.

Secondly, the thesis supplements the theoretical basis for the research of human resources in public finance through the development of a framework for analyzing factors affecting human resource development in the conditions of digital transformation, as a basis for human resource research and policy making in the financial sector.

5.2. Practical contributions

Firstly, the thesis provides a relatively comprehensive and updated picture of the current situation of human resources in the financial sector in the period 2016-2024, clarifying the achievements, limitations and factors affecting the quality of human resources in the context of digital transformation.

Secondly, on the basis of the results of the current situation study, the thesis proposes a system of solutions to develop human resources in the financial sector in association with the requirements of digital transformation to 2030, with a vision to 2045, which is valuable for reference for the process of perfecting human resource policies in public financial management.

6. Structure of the thesis

In addition to the Introduction, Conclusions, Recommendations, List of References and Appendices, the content of the thesis is divided into 04 chapters:

Chapter 1: Overview of the research situation related to the thesis topic

Chapter 2: Theoretical basis of human resources in the financial sector in the

context of digital transformation

Chapter 3: The current situation of human resources in the financial sector in the context of digital transformation in Vietnam

Chapter 4: Perspectives and solutions for human resource development in the financial sector in the context of digital transformation to 2030, with a vision to 2045.

Chapter 1
OVERVIEW OF RESEARCH RELATED TO
THESIS TOPIC

1.1. RESEARCH WORKS RELATED TO HUMAN RESOURCES AND HUMAN RESOURCE DEVELOPMENT

1.1.1. International research works

1.1.2. Domestic research works

1.2. RESEARCH WORKS ON HUMAN RESOURCES IN AN ECONOMIC SECTOR

1.2.1. International research works

1.2.2. Domestic research works

1.3. RESEARCH ON HUMAN RESOURCES IN THE FINANCIAL INDUSTRY IN THE CONTEXT OF DIGITAL TRANSFORMATION

1.3.1. International research works

1.3.2. Domestic studies

1.4. OVERVIEW OF RESEARCH RESULTS OF WORKS RELATED TO THE THESIS AND RESEARCH GAPS

1.4.1. Overview of research results of related works

Domestic and foreign research works on human resources and human resource development have formed an important theoretical and practical foundation for policy making on human resource development in the economy and the public sector. In general, the studies affirm the central role of human resources in the development of production forces, economic growth and national competitiveness; at the same time, it pointed out the close relationship between the quality of human resources and the efficiency of socio-economic development.

Sectoral approaches show that human resource development is highly specific, depending on the functions, tasks and operating environment of each sector, in which the state management sector emphasizes the role of cadres and civil servants in the effectiveness and efficiency of public governance. In addition, many modern studies focus on technology adaptability, digital capacity and innovation as key factors of human resource development in the context of the digital economy. For the Finance sector, the studies mainly refer to organizational reform, improving the quality of training and public financial management capacity, but there is still a lack of comprehensive research on human resources in the financial sector in the context of digital transformation.

1.4.2. Research space and research tasks of the thesis

From the overview of published research works, it is possible to identify some research gaps directly related to the topic. In theory, research on human resources in the financial sector is mainly approached in the direction of administrative management or

civil service reform, and there is a lack of a political economy approach that considers human resources in the financial sector as part of the productive force in the context of digital transformation. In practice, there have not been many comprehensive and updated studies on the current situation of human resources in the financial sector associated with the requirements of digital transformation, especially for digital capacity, structure according to job positions and adaptability of cadres and civil servants, public employees. In terms of solutions, existing studies have not closely linked human resource development in the financial sector with the goal of digital transformation and modernization of public financial management in the long term.

Stemming from those gaps, the thesis focuses on: (i) systematizing the theoretical basis of human resources in the financial sector in the context of digital transformation from the perspective of political economy; (ii) analyze and evaluate the current situation of human resources in the financial sector in Vietnam in the period 2016-2024 according to appropriate criteria; (iii) clarifying factors affecting human resource development in the financial sector in the context of digital transformation; and (iv) proposing views and solutions for human resource development in the financial sector to 2030, with a vision to 2045.

Chapter 2
THEORETICAL AND PRACTICAL BASIS OF HUMAN RESOURCES IN THE FINANCIAL INDUSTRY IN THE CONTEXT OF DIGITAL TRANSFORMATION

2.1. CONCEPT AND CHARACTERISTICS OF HUMAN RESOURCES IN THE FINANCIAL SECTOR IN THE CONTEXT OF DIGITAL TRANSFORMATION

2.1.1. The concept of human resources in the financial sector in the context of digital transformation

2.1.1.1. Concept of human resources and human resources in the financial sector

According to the approach of the author's thesis, human *resources in the financial sector are understood as the entire contingent of cadres, civil servants, public employees and employees working in agencies in the financial sector.*

2.1.1.2. Digital transformation and digital transformation trends in the financial industry

From the concepts given, it can be understood in a general way that digital transformation is understood as the process of comprehensively restructuring the model of management, operation and service provision on the basis of digital technology, in order to create new added value for the organization, economy and society.

2.1.1.3. The concept of human resources in the financial sector in the context of digital transformation

On the basis of inheriting and developing the concepts of human resources, human resources in the financial sector and digital transformation, the author of the thesis determines: *Human resources in the financial sector in the context of digital transformation are cadres, civil servants and public employees working at the Ministry of Finance and affiliated units at the central level. meet the requirements of quantity, quality, structure and factors of physical, intellectual and mental strength; have the ability to access, apply and master digital technology to perform the functions of policy-making, public financial management and provide public*

financial services as required by the digital economy.

2.1.2. Characteristics of human resources in the financial sector in the context of digital transformation

Human resources in the financial sector in the context of digital transformation have the following basic characteristics: (1) high discipline, standards and responsibilities, associated with the requirements of legal compliance, transparency and accountability in the digital environment; (2) It must both ensure financial professional capacity and meet the requirements of digital capacity, technology application and data exploitation; (3) the human resource structure tends to shift according to job positions and digital functions, increasing the demand for data analysis and system administration positions; (4) under high pressure to adapt to changes in organization, processes and management methods in the digital environment; (5) The process of human resource development is strongly influenced by institutions, policies and conditions for implementation in the public sector.

2.2. CONTENTS AND CRITERIA FOR EVALUATING HUMAN RESOURCES IN THE FINANCIAL SECTOR IN THE CONTEXT OF DIGITAL TRANSFORMATION

2.2.1. Content of human resources in the financial sector in the context of digital transformation

2.2.1.1. Number of human resources in the financial sector in the context of digital transformation

It is analyzed in two aspects: *First, the* scale of human resources in the entire financial sector; *Secondly*, the number of human resources according to specialized units.

2.2.1.2. Quality of human resources in the financial sector in the context of digital transformation

It is analyzed on five aspects: *First,* professional qualifications; *Secondly,* information technology capacity; *Thirdly,* Foreign language competence; *Fourth,* moral qualities and political bravery; *Fifth,* training and fostering to improve quality.

2.2.1.3 Human resource structure of the finance sector in the context of digital transformation

It is analyzed on three aspects: *First,* structure by gender; *Secondly,* the structure according to professional qualifications; *Third,* structure according to information technology skills/levels.

2.2.2. Criteria for evaluating human resources in the financial sector in the context of digital transformation

Criteria that help reflect the relevance of human resources to practical requirements and are an important basis for building a recruitment plan, including:

2.2.2.1. Criteria for the number of human resources, including: The conformity between the actual number of human resources and the number of working positions; Total number of available human resources in the finance sector; The proportion of human resources allocated to each unit (Ministry of Finance, General Department of Taxation, Customs, Treasury, State Reserve, Securities Commission, etc.)

2.2.2.2. Quality criteria, including: Percentage of human resources with training qualifications that meet or exceed the standard of working positions; Percentage of human resources with information technology skills; The percentage of

human resources meeting foreign language standards for work; The percentage of human resources rated well in terms of professional ethics and compliance with internal rules; The percentage of human resources participating in training and fostering to update new knowledge every year.

2.2.2.3. Criteria for human resource structure, including: Ratio of distribution by gender; Ratio of allocation according to professional qualifications; Ratio of allocation according to information technology skills/level.

2.2.2.4. Criteria for evaluating human resource results in digital transformation, including: Level of task completion in the digital environment; The ability to apply digital technology to work; Efficiency in handling work; Ability to innovate and be creative at work.

2.3. FACTORS AFFECTING HUMAN RESOURCES IN THE FINANCIAL INDUSTRY IN THE CONTEXT OF DIGITAL TRANSFORMATION

2.3.1. Subjective factors:

(1) Views of the head, human resource strategy and policy; (2) Organizational apparatus, arrangement and use of human resources; (3) Recruitment of human resources; (4) Training and fostering human resources; (5) Human resource assessment; (6) Labor remuneration; (7) Culture of the industry and (8) Technology infrastructure for digital transformation.

2.3.2. Objective factors:

(1) The system of institutions and policies related to human resources in the financial sector; (2) Macro policy factors of the country; (3) Socio-economic development level; (4) Scientific and technological elements; (5) Labor market.

2.4. EXPERIENCES IN HUMAN RESOURCE DEVELOPMENT IN THE FINANCIAL SECTOR IN THE CONTEXT OF DIGITAL TRANSFORMATION OF COUNTRIES AROUND THE WORLD AND LESSONS LEARNED FOR VIETNAM

2.4.1. Experience in human resource development in the financial sector in the context of digital transformation of countries around the world

It is studied in the following aspects: (1) Creating and attracting a variety of digital human resources; (2) Improve the efficiency of human resource recruitment in the financial sector; (3) Improving the quality of training and fostering human resources; (4) Completing the evaluation of civil servants in the Ministry of Finance; (5) Regarding salary policies, remuneration, and attraction of high-quality human resources.

2.4.2. Some lessons learned for Vietnam on human resource development in the financial sector in the context of digital transformation

Firstly, improve the quality of human resources in line with the requirements of digital transformation and the fluctuations of the operating environment of the financial sector; *Secondly,* modernizing processes, raising standards and strengthening international linkages; *Thirdly*, modernize the content and methods of training and fostering human resources in the financial sector; *Fourth,* complete the personnel assessment; *Fifth*, reform policies on salaries, remuneration and attraction of high-quality talents; *Sixth*, strengthen cooperation among stakeholders in education and training; *Seventh*, promote the application of digital technology in human resource management and development.

Chapter 3
THE CURRENT SITUATION OF HUMAN RESOURCES IN THE FINANCIAL SECTOR THE CONTEXT OF DIGITAL TRANSFORMATION IN VIETNAM

3.1. OVERVIEW OF THE FINANCE INDUSTRY AND DIGITAL TRANSFORMATION IN THE FINANCIAL INDUSTRY IN VIETNAM

3.1.1. Position and role of the financial sector in Vietnam's economy

The finance sector holds a particularly important position in the national economic management system, being the main tool for the State to carry out macro regulation, allocation and use of financial resources for socio-economic development.

3.1.2. Organizational structure, functions and tasks of specialized financial systems under the Ministry of Finance

To organize the apparatus of specialized financial systems under the Ministry of Finance, such as the General Department of Taxation, the State Treasury, the General Department of Customs, the General Department of State Reserves and the State Securities Commission, which are built on the functions, tasks and powers prescribed by law.

3.1.3. Digital transformation in the financial sector in Vietnam in the period of 2016 - 2024

3.1.3.1. Guidelines and policies on digital transformation of the financial sector

In the period of 2016 - 2024, Vietnam's finance sector has developed and implemented a strategic, comprehensive and pioneering system of digital transformation guidelines and policies in the block of state management agencies.

3.1.3.2. Some outstanding results in the digital transformation of the finance sector in the period of 2016 – 2024

(1) Building and completing the National Database on Finance with 13 specialized databases (tax, customs, treasury, public debt, securities, insurance, prices, public assets, etc.); (2) The Finance sector has always led in many national indicators such as leading the Digital Transformation Index (DTI) in 2020 in the block of ministries and sectors providing online public services; continuously ranked in the top group in the Administrative Reform Index (PAR Index) with 9 consecutive years (2014–2022) in the top 3; and held the No. 1 position in the IT Application Readiness Index (Vietnam ICT Index) for 8 consecutive years; (3) The results of digital transformation in the period of 2016 - 2024 have had a direct impact on human resources in the financial sector such as changing the labor structure, opening up new demands for data human resources, digital system management, digital financial analysis and cybersecurity.

3.2. CURRENT SITUATION OF HUMAN RESOURCES IN THE FINANCIAL SECTOR IN VIETNAM IN THE PERIOD 2016-2024

3.2.1. Number of human resources in the financial sector in the period of 2016 – 2024

Regarding the scale of human resources in the whole finance industry

In the period of 2016 - 2024, the scale of human resources in the financial sector in all fields such as taxation, customs, treasury, securities and national reserves is always a matter of focus to ensure the effective implementation of public financial management functions in the context of digital transformation. The chart below specifically shows the size of human resources in the financial sector in the period of 2016 - 2024.
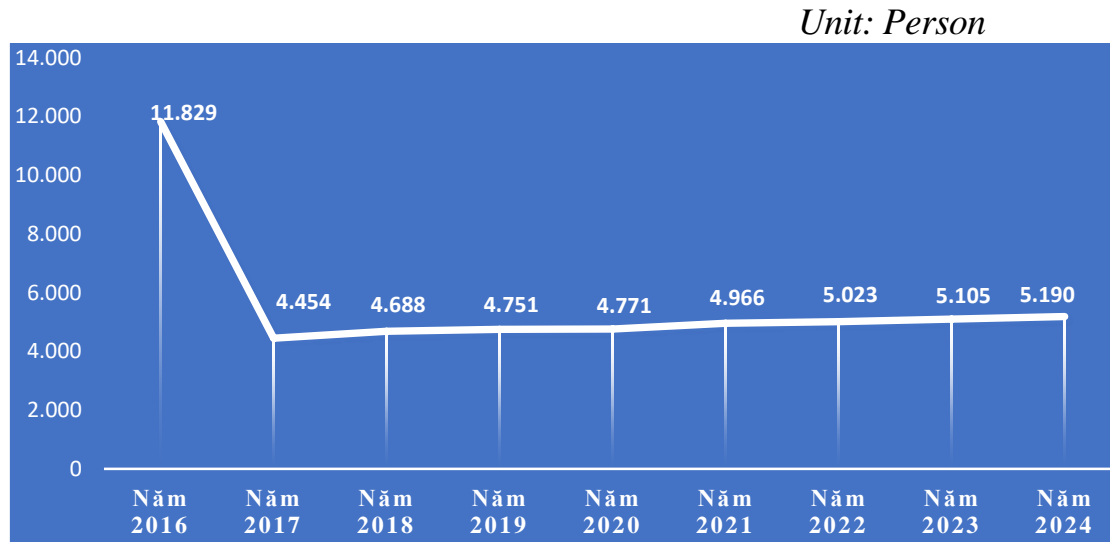
Unit: Person

Figure 3.1: The size of human resources in the financial sector in the period of 2016-2024

Source: General of the Ministry of Finance

The change in the size of human resources in the period of 2016 - 2024 clearly reflects the transformation of the management model in the direction of decreasing the amount of qualitative increase, from 11829 people to 5190 in 2024. In the context of digital transformation, human resources in the financial sector not only need the right number but also meet new standards in terms of technology level, digital thinking, the ability to work on an integrated platform, and adapt to the digitalization operation process. Therefore, the trend of slightly increasing the number of human resources in recent years is not only an increase in scale, but also the result of a selective recruitment strategy, aiming to build a team of "digital" cadres – capable of operating a modern public financial system, more transparent and efficient.

Regarding the scale of human resources in each unit of the finance sector

The period of 2016 - 2024 shows a strong restructuring of the scale of human resources: From being "bulky" before 2016, the finance sector has shifted to a "lean but intensive" model with a sharp initial decline, then gradually stabilized and increased again in a selective direction. This reflects the industry's adaptation process to the requirements of administrative reform and digital transformation, when the human resource apparatus is not only streamlined in terms of quantity but also reshaped in the direction of focusing on quality, technological capacity and the ability to work in a digital environment.

Regarding the scale of skilled human resources and information technology qualifications in the whole industry

In the period of 2016 – 2024, the finance sector has made a strong shift from expanding the number to improving the quality of human resources, especially the team with information technology (IT) skills and qualifications. The total number of employees in the industry decreased from 11,829 in 2016 to 5,190 in 2024 due to streamlining and organizational restructuring, but the number of IT workers increased from 3,376 to 3,871 people, raising the rate from 28.5% to 74.6%. This increase took place synchronously in the following units: The General Department of Customs took the lead, increasing from 1,264 to 1,922 people to meet the requirements of e-customs

and ASEAN one-stop-shop; The Ministry of Finance's agency increased from 784 to 897 people, playing the role of technology coordinator; The General Department of Taxation increased from 635 to 907 people to modernize tax management and exploit big data; The State Treasury increased from 291 to 356 people serving electronic payments and treasury management; The State Securities Commission increased from 305 to 350 people to supervise online transactions; The General Department of State Reserves increased sharply from 97 to 439 people in order to modernize the management of the reserve warehouse. This trend shows that the finance sector is focusing on building high-quality digital human resources, meeting the requirements of digital transformation, modernizing public financial management and building a transparent and effective administration.

3.2.2. Quality of human resources in the financial sector in the period of 2016 - 2024

Professional qualifications

The professional qualifications of human resources in the financial sector in the period of 2016 - 2024 are an important indicator reflecting the level of meeting the requirements of development and innovation of the industry in the context of digital transformation. Below is the actual data on professional training levels including: Doctorate, Master, Undergraduate and Undergraduate in the whole industry over the years.
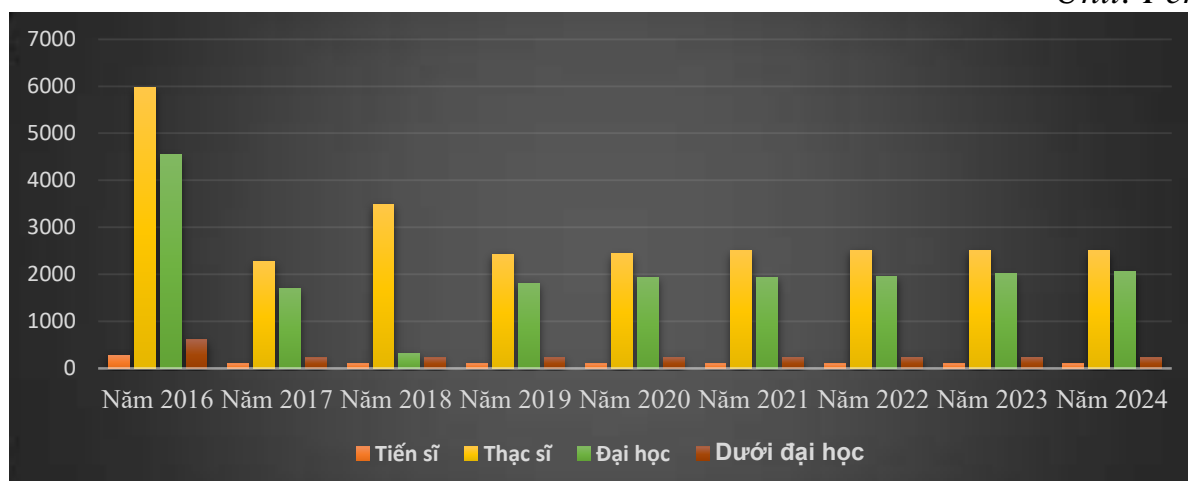
Unit: Person

Figure 3.2. Professional qualifications of human resources in the financial sector in the period of 2016 - 2024

Source: Compiled from the report of the Ministry of Finance

In the period of 2016 - 2024, the professional qualifications of human resources in the finance sector have changed significantly, clearly reflecting the industry's adaptation process to the requirements of digital transformation and modernization of public financial management. The trend of increasing the number of masters and maintaining a stable doctoral workforce is a testament to the strategy to improve the quality of human resources, in order to ensure that the finance sector can meet the requirements of management innovation, enhance transparency, efficiency and international integration in the digital era.

Information Technology Competencies

Practice in recent years shows that the requirement for information technology skills for cadres, civil servants and public employees in the financial sector has become

increasingly essential in all fields of work, from processing electronic records, using specialized management software to participating in the operation of the Ministry's digitized systems. The application of information technology has become an indispensable part of the work process, especially when online public services and financial and budget management are promoted digital transformation on a large scale.
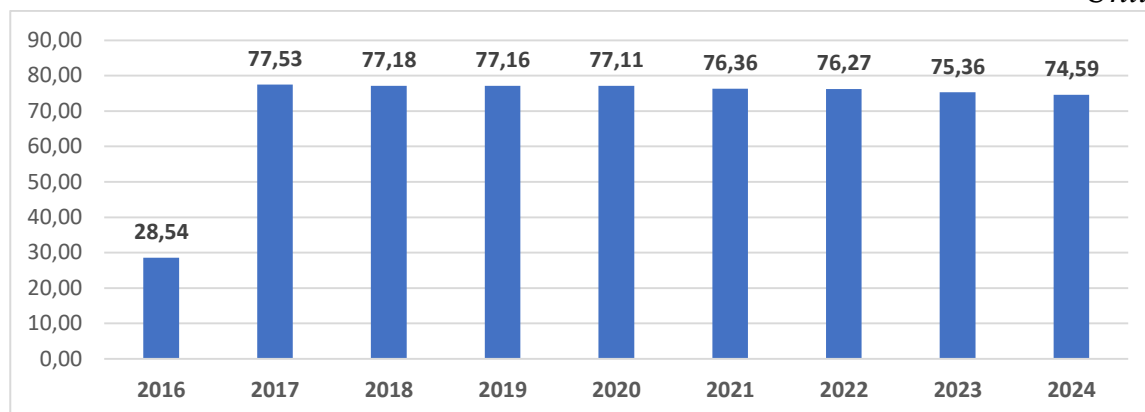
Unit: %

Figure 3.3. Percentage of human resources with information technology skills in the financial sector in the period of 2016 - 2024

Source: NCS compiled and calculated from the Reports of the Ministry of Finance
Figure 3.3 shows a clear picture of this landmark change. In 2016, only 28.54% of the sector's workforce met the IT skills requirement, a modest number that reflects the initial challenges in the transition. However, just a year later, in 2017, this rate skyrocketed to 77.53% and remained stable at 75-77% throughout the period 2017 - 2024.

Overall, the contingent of cadres, civil servants and public employees working in this field currently has a relatively high level of qualifications, reflected in the large proportion of cadres with university and master's degrees, along with the presence of a number of cadres with doctoral degrees.

Table 3.1: The current status of cadres, civil servants and public employees working on digital transformation

TT	Agencies, organizations, Unit		Assigned payroll targets in 2025	Actual use	IT Qualifications		
					Undergraduate	Master's	Ph.D. or higher
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*
1	Specialized unit in charge of digital transformation	Full-time staff	1.936	1.773	1.153	618	2
2		Part-time staff	1.063	1.051	760	291	0
3	Part-time unit in charge of digital transformation	Full-time staff	193	194	128	66	0
4		Part-time staff	624	633	400	228	5

(Report of the Ministry of Finance in 2025)
Table 3.4 clearly reflects the quality of human resources in the financial sector in digital transformation through indicators of information technology level. The

quality of human resources in the finance sector in digital transformation is reflected in the fact that the majority of officials have attained a university degree or higher, in which the proportion of master's degrees is increasing and there have been cadres with doctoral degrees. This is an important proof that the finance industry is gradually improving the professional capacity and technological skills of its human resources, creating a basis to meet the complex requirements of the digital transformation process in public financial management.

Foreign language proficiency

In the period of 2016-2024, the foreign language ability of human resources in the finance sector has gradually improved over time, most evident in the English level. If in 2016 it only reached 3,317 points, by 2024 this number will increase to 3,774 points, showing the increasing trend of improving the ability to use English - a language considered an essential tool in international economic integration and in multilateral financial cooperation activities. Besides English, other foreign languages such as Russian, French and Chinese also maintained a stable level, although the pace of improvement was slower. Russian fluctuated around 32–39 points throughout the period, with little volatility. French and Chinese showed more pronounced improvements, from 68–75 points for French and 61–76 points for Chinese, indicating the need to use these two languages in financial and trade cooperation with traditional partners and regional economies.

Moral qualities and political bravery

The moral quality and political bravery of the cadres are well ensured. In 2023 alone, 805 cadres will be trained in political theory, of which 636 will reach advanced levels. This shows the Ministry of Finance's emphasis on training political awareness and a sense of responsibility of personnel. As a result, the cadres not only work effectively but also comply with the law and have a sense of serving the people. This result is achieved thanks to methodical political theory training programs, along with the specific requirements of state management.

Training and retraining to improve the quality of human resources

The Ministry of Finance has developed and effectively implemented a synchronous system of regulations and mechanisms and policies, creating a favorable legal corridor to organize the training and retraining of civil servants and public employees in the financial sector. The content and programs of training and retraining are constantly innovated, delving into professional skills, strengthening political skills and qualities. The Ministry's training also flexibly combines face-to-face and online training forms, meeting training needs in fields such as leadership title standards, civil servant rank standards, and job position requirements. Regarding digital transformation, the Ministry of Finance has organized many classes to foster knowledge and skills about digital technology, including in-depth contents such as BigData, AI, IoT, and Blockchain. The training programs also integrate the content of big data output standards at training institutions under the Ministry. By the end of 2023, the Ministry has completed 100% of the plan to foster digital skills and organized more training classes beyond the plan, with a total of more than 1,175 trainees.

3.2.3. Human resource structure of the finance sector in the period of 2016 - 2024

Gender structure by gender: In the period of 2016 - 2024, the human resource structure of the finance sector in terms of gender is relatively balanced between men and

women. Maintaining a reasonable gender structure is an important foundation to help the Finance sector effectively take advantage of diverse resources, promote innovation and ensure sustainable development in the digital transformation era.

Structure according to the professional process: In the period of 2016 – 2024, the professional qualification structure of the financial sector human resources tends to focus on groups of university or higher qualifications. In particular, the structure of human resources in the finance sector according to information technology skills and levels shows a clear shift in all three groups: basic information technology skills, advanced information technology skills and information technology professional qualifications.

Human resource structure by information technology level/skill group: In the period 2016-2024, the human resource structure of the finance sector in terms of information technology capacity shows notable fluctuations, reflecting both positive trends and new challenges in the context of digital transformation.

3.3. RESULTS OF QUANTITATIVE RESEARCH ON FACTORS AFFECTING HUMAN RESOURCES IN THE FINANCIAL SECTOR IN THE CONTEXT OF DIGITAL TRANSFORMATION

3.3.1. Testing the reliability of the scale

Prior to conducting EFA, the study tested the reliability of the scale using Cronbach's Alpha and the variable-sum correlation coefficient. The results showed that all scales were satisfactory, with Cronbach's Alpha > 0.7 and variable correlation coefficients – a total > 0.3. The dependent variable scale has Cronbach's Alpha above 0.8, reflecting high stability; The independent variable scales also achieved a good level of reliability, and no observed variables were disqualified. Thus, the entire scale is eligible to be used for the next steps of factor analysis.

3.3.2. Results of EFA discovery factor analysis

In the thesis, after testing the reliability of the scale using Cronbach's Alpha, an exploratory factor analysis (EFA) was performed to identify the underlying structure and group the observed variables into representative factors. The results showed that the data sample was satisfactory (KMO > 0.7; Bartlett is significant at 1%), the variables are grouped into four groups of factors: (i) Institutions and policies; (ii) Training and professional development; (iii) Working environment and conditions; (iv) Personal qualities and motivation. All observed variables have a factor load coefficient of > 0.5, the total variance extracted is over 60%, confirming that the scale has good convergence and an appropriate research model, accurately reflecting the factors affecting human resources in the financial sector in the context of digital transformation.

3.3.3. Impact of factors on the suitability of human resources in the financial sector in the context of digital transformation through regression analysis

The data collected is processed using quantitative methods, including Cronbach's Alpha reliability testing, discovery factor analysis (EFA), and multivariate linear regression. The regression results indicate seven factors that have different levels of influence on the quality and structure of human resources in the financial sector in digital transformation. Specifically:

Firstly, human resource training and fostering ($\beta = 0.565$) has the strongest impact, but it is still spread and not closely associated with digitalization requirements, leading to a gap in digital skills between units.

Secondly, the attention of the head ($\beta = 0.433$) plays a decisive role in strategic

orientation, motivation and promotion of digital adaptation.

Thirdly, the organizational culture (β = 0.379) has a significant impact, but many places still maintain administrative culture and are slow to innovate.

Fourth, human resource recruitment (β = 0.220) is still more about seniority and qualifications, not focusing on digital skills and innovative thinking.

Fifth, human resource assessment (β = 0.168) is formal, not encouraging creativity and technology application.

Sixth, the organizational structure (β = 0.154) is still traditionally decentralized, inflexible, and limits coordination and data sharing.

Seventh, labor remuneration (β = 0.055) has the lowest impact, not creating a motivation for digital skills development and innovation. This result points out the "institutional bottlenecks" that need to be reformed to improve the quality of digital human resources in the finance industry.

3.4. ASSESSMENT OF HUMAN RESOURCES IN THE FINANCIAL INDUSTRY IN THE CONTEXT OF DIGITAL TRANSFORMATION

3.4.1. Results achieved

3.4.1.1. Regarding the number and organization of personnel apparatus

First, the Finance sector has actively streamlined the payroll, adjusted the number of human resources, contributing to building a lean and effective apparatus

The process of streamlining the payroll and restructuring the financial sector apparatus has been consistently implemented according to the guidelines of the Party, the State and the Government, with key policies such as Resolution No. 39-NQ/TW of the Politburo, Resolution No. 18-NQ/TW, 19-NQ/TW of the 6th Central Committee of the XII Term on innovation, arranging the organization of the political system apparatus, as well as directions related to streamlining at least 10% of the payroll by 2021. Specifically, the period 2016-2017 witnessed a very strong reduction in payroll: from 11,829 people to only 4,454 people - a decrease of over 62%, reflecting the political determination and initiative of the Ministry of Finance in restructuring the organization. However, instead of cutting en masse, after this period, the finance sector has gradually adjusted in the direction of stability, keeping the size of human resources at a reasonable level, and actively adding personnel with professional and technological capabilities to meet the requirements of digital transformation and expand the scope of management.

In addition, the Ministry of Finance has implemented the digitization of 100% of personnel records with nearly 70,000 officials, the application of an advanced personnel management system according to Decision No. 1770/QD-BTC promulgating the Regulation on Management, Operation and Exploitation of the Personnel Management Information System of the Ministry of Finance, applied from September 15, 2021, it has helped to transform the management method from traditional to digital, synchronous and transparent management.

Second, the scale of human resources with information technology skills/qualifications in the finance industry is growing continuously, creating a solid foundation for digital transformation and modernization of public financial management.

In the period 2016-2024, the number of human resources with information technology skills/qualifications in the entire financial sector has continuously increased year by year, despite a sharp decline in the total number of employees due to payroll streamlining. From 3,376 people in 2016, by 2023, the number of human resources with

information technology skills/qualifications has reached 3,847 people. In all subordinate units such as the General Department of Customs, the Ministry of Finance, the General Department of Taxation, the State Treasury, the State Securities Commission and the General Department of State Reserves, this force has increased in number and proportion of the total number of employees. This continuous increase is an important condition for the finance sector to implement digital transformation tasks, apply new technologies to the management, operation and development of modern public financial services, meeting the increasing requirements of the digital economy context.

3.4.1.2. Personnel quality

The quality of cadres, civil servants and public employees in the finance sector continues to improve markedly, which is reflected in many important indicators and associated with the development and integration orientation of the industry in the context of digital transformation:

First, the professional level of the human resource and the standardization of the team are improved.

In the period of 2016-2024, the Finance sector will persistently implement policies on training, recruitment and development of high-quality human resources. As a result, the percentage of cadres with university degrees is maintained at a high level, reaching 50.87% in 2023 and continuing to be stable in 2024. The contingent of cadres with master's and doctoral degrees is increasing, playing a key role in research, policy making and public financial management. This is a platform that helps human resources in the finance industry not only master financial and budget operations but also have the ability to quickly access new professional requirements in the digital environment.

Second, the human resources in the finance sector have significantly improved their skills and information technology level

The contingent of cadres, civil servants and public employees in the financial sector has made outstanding progress in information technology skills and qualifications. The percentage of officials with information technology skills increased sharply from 28.5% to more than 75% within seven years; the force possessing advanced and in-depth information technology skills has been increasingly strengthened. This result affirms the pioneering role of the finance sector in implementing the National Digital Transformation Program according to the Prime Minister's Decision No. 749/QD-TTg. The staff with increasingly outstanding information technology skills and qualifications have contributed to the effective operation of electronic financial management systems, the development of online public services, digital payments and centralized data management - the key pillars of national financial digital transformation.

Third, foreign language ability is focused on fostering.

In the context of deepening international integration, foreign language proficiency, especially English, has become one of the important requirements for human resources in the finance industry. By 2024, many units have implemented specialized foreign language courses, helping officials access international documents, timely grasp financial technology (fintech) trends and exchange cooperation with international organizations.

Fourth, the human resources in the financial sector are strengthened with moral qualities and political bravery

The contingent of cadres, civil servants and public employees in the finance sector, in parallel with improving their professional qualifications and information

technology skills, is also focused on fostering moral qualities and political bravery through in-depth and regular political theory training programs. As a result, the staff not only meets professional requirements but also maintains their courage, sense of responsibility and sense of serving the people in all working situations.

Fifth, training and fostering to improve the quality of human resources are promoted

The training and fostering of human resources in the financial sector has been continuously strongly renewed in terms of scale, content, and organizational methods. The industry has focused on implementing programs to improve digital transformation skills and modern management skills, in order to promptly and flexibly meet new requirements in development strategies. As a result, the quality of human resources is constantly improved, ensuring that it effectively meets the goals of sustainable development, modernization of public financial management and international integration.

3.4.1.3. Regarding the structure of human resources

First, the gender structure of human resources in the financial sector is built in a balanced and progressive manner to meet development requirements in the digital transformation period.

The proportion of women tends to increase continuously in the period 2016-2024, reaching 51.26% by 2023 and continuing to maintain a level of over 51% in 2024, higher than men (about 49%). This is the result of the gender equality policy implemented synchronously in recruitment, training and personnel arrangement. The increase in female workers also shows that the finance industry has made good use of diverse human resources to promote innovation, while meeting the increasing requirements for flexibility in the digital work environment.

Second, the structure of professional qualifications is standardized in the direction of improvement, meeting the requirements of modern development.

By 2024, the percentage of officials with master's degrees will remain above 51%, playing a key role in the management and operation of public finance reform and modernization programs. The number of cadres with university degrees accounts for more than 41%, undertaking the workload mainly at professional units. Human resources with doctoral degrees continue to play an important role in research and policy making. Meanwhile, the proportion of human resources with a university degree will decrease to less than 5% by 2024, showing a trend of raising entry standards and meeting the requirements of human resource quality in the context of digital transformation.

Third, the skill structure and information technology level have been improved, forming a digital human resource platform in the Finance industry.

In the period of 2016 - 2024, the proportion of cadres with basic information technology skills increased sharply, from 23.62% in 2016 to 36.70% in 2017 and maintained a positive trend in the following years. By 2024, the number of human resources with advanced information technology skills will reach nearly 8%, playing a nuclear role in digitalization projects, implementing data management systems and electronic finance. In particular, the human resources with in-depth information technology expertise will always be stable at over 55% from 2017 to 2024, making an important contribution to the operation and development of digital financial platforms, online public services and centralized databases.

3.4.1.4. Regarding the level of meeting the requirements of digital transformation of human resources in the financial sector

Human resources in the financial sector have initially responded to the requirements of digital transformation through the use of information technology systems, professional software and online public services in performing tasks. The survey results show that the majority of cadres, civil servants and public employees self-assess the level of meeting the requirements of digital transformation at a good and good level, reflecting a positive change in awareness and skills, creating a foundation for continuing to improve digital capacity and modernize public financial management in the coming time.

3.4.2. Limitations and inadequacies

3.4.2.1. Regarding the number of human resources

First, the streamlining of payrolls in the period 2016-2017 is basically in line with the requirements of restructuring associated with digital transformation, but the adjustment and allocation of human resources according to digital job positions in some units is still not synchronized, leading to local shortages and increasing work pressure in the short term.

After 2016, the number of human resources in the finance sector decreased sharply (from 11,829 people to 4,454 people in 2017), leading to a local shortage at many units such as the General Department of Customs, the State Treasury, and the State Securities Commission. Meanwhile, the demand for human resources for information technology application and digital transformation activities is increasing rapidly, putting great pressure on the rest of the team and affecting the progress of implementing the tasks of digitization and modernization of public financial management.

Secondly, the distribution of the number of human resources is uneven, not in time to supplement enough resources for specialized positions in information technology in units with high digitalization needs.

The allocation of information technology human resources in the financial sector in the period of 2016 – 2024 is still uneven, many key units such as the State Treasury and the General Department of State Reserves have not been supplemented with enough in-depth professional resources despite the increasing pressure on digitalization. This disparity makes the implementation of technology application inconsistent, slow to adapt to modern management requirements, and at the same time poses a potential risk of shortage of high-quality information technology human resources in key positions.

Third, the speed of human resource addition has not caught up with the new requirements for big data management and system security.

The demand for human resources with in-depth skills in operating electronic payment systems, forecasting and analyzing financial data is increasing, but the recruitment and allocation of human resources have not been met in time. This poses risks in technology risk management and information security, which are the foundation for sustainable digital transformation.

3.4.2.2. Regarding the quality of human resources

First, the quality of expertise is still uneven between units and fields

In the period of 2016 – 2024, the Finance sector has improved the level of human resources with an increasing proportion of cadres with undergraduate and postgraduate degrees, especially in key units maintaining over 51% of cadres with

master's degrees. This is an important foundation for digital reform and transformation. However, the distribution of high-quality human resources is uneven, some small units still have about 4.91% of undergraduates. In addition, there are still civil servants and public employees who do not meet the title standards, lack practical skills, limiting the effectiveness of task implementation in the whole sector.

Second, information technology capacity has been improved, but there is still a gap between departments.

In the period of 2016 – 2024, the information technology capacity of human resources in the financial sector has made significant progress, the proportion of staff with digital skills has increased rapidly compared to before. However, the distribution is uneven, mainly concentrated in key units, while many small units or support departments are lower than the common ground. In particular, advanced information technology skills are still limited, not meeting the requirements for the application of modern technologies such as Big Data, AI or Blockchain. In addition, it is difficult for a part of older staff to adapt to the digital environment, making digital transformation in some units unsynchronous and potentially risky to data security. This is a challenge that needs to be overcome for the finance sector to improve management efficiency, meet the requirements of innovation and integration in the context of digitalization.

Third, foreign language skills and international integration capacity have improved but have not kept up with practical requirements.

The ratio of the number of staff who know English to not be proficient is still not high, and is mainly concentrated in positions that require external communication or working with international organizations.

Foreign language skills other than English (Russian, French, Chinese, Japanese) are still low, accounting for only a small percentage, leading to limitations in accessing international information and documents, or performing bilateral and multilateral cooperation tasks. The capacity to integrate, update international financial practices and techniques is still weak, making it difficult for a part of officials to adapt to the requirements of digital transformation and modern management standards.

Many officials are still afraid to communicate and work directly with foreign experts or participate in international cooperation forums and projects. This not only reduces the ability to receive new knowledge, but also makes it difficult for the financial sector to actively cooperate, attract international investment and quickly update advanced governance models.

3.4.2.3. Regarding the human resource structure

First, the structure of human resources according to professional qualifications is still different, the proportion of cadres with lower university qualifications has not been completely eliminated

In the period of 2016-2024, the human resource structure of the finance sector has made progress in improving professional qualifications, with the proportion of cadres with university degrees reaching 41.49% and master's degrees of 51.61% by 2023. However, there are still about 4.91% of undergraduates, mainly in support departments, causing limitations in technology absorption and innovation adaptation. Notably, the doctoral team accounts for only about 2%, indicating a shortage of senior experts. This situation reflects the non-standardized human resource structure, becoming a barrier in the process of modernization and digital transformation of the industry.

Second, the differentiation in information technology skills and levels between human resource groups is still quite clear.

In the period of 2016-2024, human resources in the financial sector have a clear differentiation in information technology skills. In 2023, the percentage of staff with basic skills will reach 34.94%, advanced only 7.81%, while with IT professional qualifications will be 57.25%. The development of digital skills is mainly concentrated in key units, while localities and small departments are still limited, making it difficult to synchronize technology, coordinate data and implement interdisciplinary projects. This situation requires the finance sector to standardize digital skills, strengthen stratified training and build a digital competency framework to improve the efficiency of comprehensive digital transformation.

3.4.3. Causes of limitations and inadequacies

3.4.3.1. Groups of subjective causes

First, the role of the leader has not been effectively promoted: (1) Lack of innovative thinking and technology management skills to make decisions in accordance with the context of digital transformation, leading to inefficient implementation of digitalization projects and not making the most of the invested technology systems; (2) Limitations in building a digital culture; (3) Not drastic in direction and supervision.

Second, the organizational apparatus is not suitable for the context of digital transformation: (1) One of the major limitations is the lack of clarity in the delineation of functions and organizational models between agencies, especially between ministries and agencies attached to the Government, leading to overlaps in management; (2) The current determination of tasks, powers and management responsibilities is not reasonable and duplicate, causing some jobs at the central level to be excessively crowded, lacking strong decentralization for subordinates; (3) The organizational structure still remains cumbersome with many inefficient leads and hierarchies, increasing the complexity of coordination and reducing the ability to operate flexibly.

Third, personnel recruitment activities are not effective in attracting human resources to meet the requirements: (1) Some processes are dominated by subjective factors that impair the efficiency and objectivity of candidate selection; (2) the inclusion of criteria related to the qualifications and ability to apply information technology to activities has not been updated in a timely manner; (3) In many units in the industry, recruitment standards have not been developed in a specific and clear way, the recruitment process is sometimes still formal, lacking practical knowledge and skills tests; (4) Recruitment is not really flexible, especially in attracting personnel from sources outside the state system or other professions.

Fourth, the training and fostering of personnel has not been effective: (1) Currently, there is still a gap between training level and practical capacity, many training contents are still theoretical, lack of application, making it difficult for cadres to apply knowledge to practical work, especially content related to digital transformation. application of information technology; (2) Some training programs also do not clearly define the specific needs of learners and organizations, often only based on the type of training available but do not reflect the overall orientation of the finance industry; (3) Due to the decentralization of management and different funding sources, the training planning between units is not uniform, making it difficult to achieve the common goals of the sector; (4) Although the training content and materials have been focused on development, there are still many inadequacies; Some programs are still duplicated, lack of inheritance and connection, and the training

time is long, causing waste of resources; (5) The current teaching staff is also not sufficient in terms of quantity and quality. The lack of highly qualified lecturers and modern teaching methods has affected the effectiveness of training programs; (6) The remuneration mechanism for lecturers is not attractive enough to attract high-quality talents to participate in teaching; (7) The autonomous financial mechanism at training institutions is still inadequate, not creating a motivation to encourage units to improve operational efficiency, promote civil servants and public employees to improve their qualifications and skills in digital transformation.

Fifth, personnel inspection and evaluation activities are still limited: (1) Not really motivating officials to promote their full potential, not close to the requirements of digital transformation; (2) In some units, the evaluation method is still scratchy, unfair and objective, causing good performers to not be properly recognized, reducing the enthusiasm and enthusiasm of cadres, civil servants and public employees; (3) The inspection and evaluation system also does not ensure synchronization and transparency. Each unit under the Ministry, such as the General Department of Taxation or the General Department of Customs, applies separate processes and standards, leading to inconsistencies in assessments between units; (4) In some units, the evaluation and classification of cadres is still sketchy, formal, and does not really ensure quality.

Sixth, human remuneration policies have not created a driving force for the digital transformation process: (1) The salary and allowance policy is currently at a low level, depending on the regulations of the Central Government, while the remuneration policy is limited in both the level of support and the scope of beneficiaries; (2) The income of civil servants and public employees does not properly reflect the value of labor power, which is a job that requires high qualifications, great responsibilities and is closely related to the formulation and implementation of national legal policies; (3) Positivity at work is still limited in some cadres, because there are no specific regulations on personal responsibility in assigned tasks, especially collective work.

Seventh, the culture of digital transformation has not yet penetrated into the majority of the industry's human resources: (1) Office culture is also not fully focused, affecting the working environment, not only affecting the positivity of civil servants and public employees but also reducing the overall operational efficiency of the finance sector; (2) The clear shaping of the digital transformation culture, the mechanism to encourage cadres to voluntarily participate and the widespread implementation in the unit is not high.

Eighth, the technological infrastructure for digital transformation has not yet met the requirements: (1) Some of the Ministry's systems are still based on old infrastructure, which has not been fully optimized for the cloud computing environment or integrated with big data analysis technology, leading to overload, slowing down information processing and decision-making; (2) The connectivity and interconnection between the systems are not really synchronized. (3) Ensuring information security and data security has not kept up with the development of digital transformation; (4) Investment resources for technology infrastructure are still limited, both in terms of finance and operating personnel; (5) At the same time, the team of highly qualified technology experts in the field of public finance is still not enough to meet the increasingly complex requirements of digital transformation.

3.4.3.2. Group of objective causes

First, the central government's human resource policy framework has not created a driving force for digital transformation: (1) Lack of a long-term strategy for digital human resource development; (2) Limitations in the mechanism of incentives and remuneration; (3) The wage and welfare mechanism is not competitive enough with the private sector; (4) Training decentralization has not been focused.

Second, national digital transformation activities are not strong: (1) Digital infrastructure and shared platforms nationwide have not been implemented synchronously, especially electronic identification systems, integrated data sharing platforms (LGSP), and national digital payment systems; (2) The legal institutional framework for national digital transformation is still incomplete, with many important contents related to open data, information security, digital technology service hiring, etc. not yet issued or overlapping; (3) The digital capacity of cadres and civil servants in many localities and grassroots levels is still limited, both in terms of professional knowledge and technology use skills; (4) the financial mechanism for national digital transformation is not really stable and sustainable.

Third, strong competition from the private sector and foreign investment: (1) The rapid expansion of the private financial sector, international financial institutions and foreign-invested enterprises (FDI); (2) Private financial institutions, foreign banks, securities companies, fintechs and FDI enterprises often have great advantages in terms of remuneration, flexible working environment, international training opportunities, as well as modern governance models; (3) Meanwhile, the public sector is facing many barriers in human resource competition, including: the salary system is slow to reform, the mechanism for appointing and using personnel is still rigid, the working environment is less flexible and there are few opportunities for learning and career development according to international standards.

Chapter 4
PERSPECTIVES AND SOLUTIONS TO DEVELOP HUMAN RESOURCES IN THE FINANCIAL SECTOR TO MEET THE REQUIREMENTS OF DIGITAL TRANSFORMATION TO 2030, WITH A VISION TO 2045

4.1. DOMESTIC AND INTERNATIONAL CONTEXTS AFFECTING HUMAN RESOURCES IN THE FINANCIAL INDUSTRY IN DIGITAL TRANSFORMATION

4.1.1. International context

Firstly, the fourth industrial revolution and the trend of digital transformation in global public finance; *Second,* cross-border norms in public finance and institutional competition in the digital economy order; *Third,* competition and economic integration in the region and the world.

4.1.2. Domestic context

Firstly, administrative reform and modernization are required; *Secondly,* challenges from the practice of digital transformation; *Third,* requirements from businesses and people*; Fourth, the* requirement to comply with international economic integration commitments; *Fifth, the pressure to modernize from the expectations of investors and international organizations; Sixth,* the requirement of improving labor productivity and management efficiency.

4.1.3. Opportunities and challenges of digital transformation for human resources in the financial sector

The process of modernizing national governance and digital transformation is

not only a technological trend, but a comprehensive reform towards a transparent, efficient and constructive state apparatus. For the Finance sector – the pillar of national resource management and distribution – digital transformation is changing the management mindset, operation mode and manpower requirements. *First*, digitalization expands the creative space, improves transparency and efficiency of public financial management; *Second,* modern technology helps officials access data and knowledge quickly, increase their analytical and policy-making capacity; *Third*, digital transformation creates conditions for flexible training, personalization of career development and the application of modern management; *Fourth*, human resources are repositioned from "executive" to a constructive role in public financial management innovation; However, the finance sector faces many challenges: (1), the requirement to improve digital capacity while many officials still have limited skills in technology, data analysis, and cybersecurity; (2) differentiation of qualifications between central and local levels and between professional units; (3) barriers to organizational culture and traditional administrative thinking; (4) difficulties in attracting and retaining digital talents due to competition with the private sector; (5) the training and retraining system is still heavy on theory, slow to update digital transformation requirements.

4.2. VIEWS ON BUILDING DIGITAL HUMAN RESOURCES OF THE PARTY, GOVERNMENT AND MINISTRY OF FINANCE

Firstly, developing human resources in the financial sector in the context of digital transformation is both an urgent and long-term strategic task*;Secondly*, the development of human resources in the financial sector must be closely linked between professional qualifications and ethics of public duties; *Thirdly*, human resource development in the finance sector must consider work efficiency as an important measure; *Fourth*, human resource development in the financial sector is the responsibility of both the system and each individual in the industry.

4.3. SOLUTIONS TO DEVELOP HUMAN RESOURCES IN THE FINANCIAL INDUSTRY IN THE CONTEXT OF DIGITAL TRANSFORMATION

4.3.1. Building and perfecting institutions for human resource development in the financial sector to adapt to innovation and digital transformation

(1) Continue to improve the system of legal documents and mechanisms and policies on human resource management and development in the financial sector in the context of digital transformation; (2) Develop a mechanism to encourage, remunerate and employ talents in the financial sector associated with digital transformation; (3) Improve the mechanism of inter-sectoral coordination and public-private partnerships in human resource development in the financial sector; (4) Renovate the mechanism for supervision, examination and evaluation of human resources in the financial sector in the direction of modernity, transparency and associated with work efficiency; (5) Focus on institutionalizing international integration requirements in human resource development in the financial sector.

4.3.2. Promoting the role of the head in human resource development in the financial sector in association with digital transformation

(1) The head must clearly demonstrate political responsibility in thoroughly grasping, concretizing and implementing the guidelines and resolutions of the Party and State on innovation and digital transformation; (2) The head needs to directly participate in planning the digital human resource development strategy for the industry; (3) The head must be exemplary and pioneer in learning and applying digital technology; (4) The head is responsible for building a working environment

that encourages innovation and is open to digital transformation; (5) The head must play the role of supervising, inspecting and evaluating the process of human resource development associated with digital transformation; (6) The head needs to actively mobilize and connect resources from outside to serve the development of digital human resources for the financial sector; (7) The head must orient and lead the communication on digital transformation, both internally and with society; (8) The head must adhere to the principle of "people are the center, the subject of digital transformation".

4.3.3. Renovating the organization of personnel and streamlining the apparatus of the finance sector towards effective operation on the digital platform of the finance sector

(1) It is necessary to review and clearly delineate functions and tasks among agencies in the financial sector to overcome overlapping and duplication; (2) Renovate human resource recruitment in the direction of digitalization and transparency; (3) Improving the planning, utilization and attraction of talents; (4) Streamlining and restructuring the apparatus in the direction of a modern "digital apparatus"; (5) Promote the inspection and evaluation of personnel according to digital standards; (6) Improve the mechanism of emulation, commendation and discipline in a transparent and fair manner; (7) Strengthen decentralization and decentralization associated with accountability in the digital environment; (8) Strengthen monitoring and improve organizational data based on data.

4.3.4. Improve the quality of training and fostering cadres in accordance with the requirements of digital transformation

(1) Improve training and retraining policies and regulations in accordance with digital transformation; (2) Renovate the mechanism of decentralization and coordination in training to ensure consistency and efficiency; (3) Renovate training contents and methods in the direction of modernity and close to reality; (4) Develop a contingent of lecturers and training managers with digital capabilities; (5) Strengthen international cooperation to improve the quality of training; (6) Improve the efficiency of financial management for training; (7) Build a system of evaluation and continuous improvement in training.

4.3.5. Increase investment and renewal of technological infrastructure for digital transformation activities

(1) Invest in synchronously upgrading existing technological infrastructure and develop data centers up to international standards; (2) Completing the platform for integration, data sharing and strengthening interconnection throughout the financial industry; (3) Improving the capacity of security, information security and cyber security supervision; (4) Ensuring high-quality financial resources and human resources for technological infrastructure; (5) Promoting the application of new technologies in management and operation; (6) establishing public-private cooperation mechanisms and expanding international cooperation on technology investment; (7) Establish a mechanism for monitoring and evaluating the effectiveness of investment in technological infrastructure.

4.4. RECOMMENDATIONS
4.4.1. Recommendations to the Party Central Committee
4.4.2. Recommendations to the National Assembly
4.4.3. Recommendations to the Government

CONCLUSION

In the context that digital transformation is reshaping the structure and mode of operation of the national economy, the finance sector, as a pillar in the management, distribution and use of public resources, faces the urgent need to restructure human resources to meet new standards of skills, adaptive thinking and capacity. The thesis "Human resources in the financial sector in the context of digital transformation in Vietnam" is implemented on the basis of Marxist-Leninist political economy theory, combined with modern management practice, has clarified the following core aspects:

Firstly, human resources are the central factor in the digital transformation of the finance industry. There is no effective digital transformation if there is a lack of cadres, civil servants, public employees and employees who are able to access, apply and master digital technology to organize the implementation of public financial policies in a transparent, flexible and effective manner.

Monday, the thesis has contributed to perfecting the theoretical basis of human resources in the financial sector in the context of digital transformation, by clearly defining the concept, content, evaluation criteria and influencing factors, placed in the dialectical relationship between production forces and production relations according to the political economy approach.

Thirdly, through practical surveys at state management agencies in the financial sector in the period 2016-2024, the thesis clearly points out the gap between the current state of human resources and the requirements of the digitalization era: shortage of technology personnel, inadequacies in training, qualification differences between units and limitations in the mechanism of attracting and retaining talents.

Fourth, digital transformation is both a strategic opportunity to improve the quality of financial human resources and pose great challenges in terms of leadership thinking, organizational model, public service culture and human resource management policies. The current urgent requirement is to comprehensively innovate from institutions and management tools to the working environment, on the basis of integrating digital technology and international standards.

Fifth, the thesis has proposed a system of synchronous and feasible solutions, including: improving the institution of digital human resources; building a digital capacity framework in the Finance sector; innovating training models associated with digital transformation practices; developing a digital leadership team and a flexible remuneration mechanism according to the efficiency of public duties and job positions.

In conclusion, human resource development in the financial sector in the context of digital transformation is not only an inevitable requirement from practice, but also an endogenous driving force that determines the quality of public finance reform, the effectiveness of state governance and national competitiveness in the digital era. The success of this process requires a fundamental innovation in policy thinking, inter-sectoral coordination, and especially the strong participation of finance officials who not only "execute" but also need to be "created" to become the center of innovation and development.

LIST OF AUTHOR'S WORKS RELATED TO THE THESIS TOPIC

1. Nguyen Hong Sam (2025), "Human resource development in the financial sector in the context of digital transformation: International experiences and some recommendations for Vietnam", Finance Magazine Issue 01 – 05/2025

2. Nguyen Hong Sam (2025), "Training human resources in the financial sector to meet the requirements of digital transformation", Journal of Economics and Forecasting, 26/05/2025. Access link: https://kinhtevadubao.vn/dao-tao-nhan-luc-nganh-tai-chinh-dap-ung-yeu-cau-chuyen-doi-so-31378.html

3. Nguyen Hong Sam (2025), "Factors affecting the relevance of human resources in the financial sector in the context of digital transformation", Journal of Economics and Forecasting, 27/05/2025. Access link: https://kinhtevadubao.vn/cac-nhan-to-anh-huong-den-muc-do-phu-hop-cua-nhan-luc-nganh-tai-chinh-trong-boi-canh-chuyen-doi-so-31390.html