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# DEVELOPING THE QUALITY OF HUMAN RESOURCES IN FDI ENTERPRISES: THE ROLE OF TRADE UNIONS IN VIETNAM

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## ABSTRACT

*The study aims to analyze the role of trade unions in developing the quality of human resources at foreign-invested enterprises (FDI) in Vietnam in the context of international economic integration and labor market transformation. The study focuses on clarifying the participation of trade unions in improving professional capacity, sense of discipline, working environment and cohesion of workers in the FDI sector. Methods: The study used mixed methods, a combination of quantitative and qualitative. Quantitative data was collected through a questionnaire survey with 1,000 samples, including employees, trade union officials and employers at FDI enterprises in Bac Ninh, Quang Ninh, Nghe An, Ho Chi Minh City and a number of FDI enterprises in the Industry and Trade sector. At the same time, The study conducted 50 in-depth interviews to supplement information and interpret quantitative survey results. In addition, the study also used secondary literature analysis, descriptive statistics, comparison, and synthesis to analyze research data. Results: The research results show that trade unions play a significant role in developing the quality of human resources at FDI enterprises through training activities, propaganda, launching emulation movements, supporting the improvement of professional skills, improving the working environment and taking care of material life, etc spirit for employees. These activities contribute to improving professional capacity, labor motivation and the level of engagement of employees with the enterprise. However, the effectiveness of trade union participation is also affected by limitations in the capacity of trade union officials, organizational resources and coordination mechanisms with employers. Significance: The study contributes to expanding the approach to the role of trade unions in the market economy from the function of representation and protection of interests to the function of supporting the development of the quality of human resources in FDI enterprises. At the same time, the study supplements empirical evidence from Vietnam on the relationship between trade union activities and development human resources in the context of international economic integration. Practical implications: The study proposes a number of implications to improve the effectiveness of trade union participation in developing the quality of human resources at FDI enterprises, including strengthening the capacity of trade union officials, expanding the mechanism for coordinating training between trade unions and*

*enterprises, at the same time, promote policies to support sustainable human resource development in the FDI sector.*

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**KEYWORDS:** Human Resource Quality; FDI Enterprises; Trade Unions; Human Resource Development; Labor Relations; Vietnam.

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## 1. INTRODUCTION

In the context of strong globalization and restructuring of global value chains, the quality of human resources is increasingly becoming a determining factor in the competitiveness of economies as well as businesses. In the early stages of industrialization, the competitive advantage of developing countries was mainly based on abundant labor resources and low labor costs, now the ability to participate deeply in the global value chain is increasingly dependent on the quality of labor. skill level, capacity to adapt technology and innovation ability of human resources. This is especially evident for the foreign-invested enterprise (FDI) sector – where highly globalized industrial production, technology and export activities are concentrated. Over the past decades, the FDI sector has played an important role in promoting economic growth, labor restructuring and expanding international integration of many developing countries, including Vietnam. Along with the process of economic renewal and opening-up, Vietnam has become one of the attractive destinations for international investment flows in Asia thanks to the advantages of political stability, favorable geoeconomic location and young workforce. abundantly. The FDI sector currently contributes significantly to GDP, export turnover and creates jobs for millions of workers in the processing, manufacturing, electronics, textile, footwear and high-tech services industries. Not only creating jobs, FDI enterprises also promote the process of technology transfer, innovate management methods and form an industrial workforce capable of accessing global production standards. However, in the context of increasingly fierce international competition and rapid digital transformation, the competitive advantage based on cheap labor is gradually declining. FDI enterprises are not only looking for low-cost labor sources but also increasingly placing higher requirements on the quality of human resources, including professional qualifications, professional skills, technological adaptability, teamwork capacity, sense of discipline and industrial manners. The transition from a simple labor-based growth model to a knowledge- and technology-based development model requires developing countries to place greater emphasis on developing high-quality human resources to maintain competitiveness and enhance their position in global value chains.[1], [2][3]

For Vietnam, the issue of developing the quality of human resources in the FDI sector is becoming a strategic requirement. Although Vietnam's workforce is considered to have advantages in scale

and adaptability, the quality of human resources is generally still limited compared to the requirements of modern production. A large part of workers in FDI enterprises are still concentrated in simple jobs with low added value; professional qualifications, foreign languages and soft skills are still limited; the ability to adapt to new technologies is not high. At the same time, issues related to labor productivity, discipline, working environment and the level of employee engagement with businesses are still posing many challenges to the FDI sector in Vietnam. In addition, the process of technology transformation and automation in FDI enterprises is rapidly changing the employment structure and labor skills requirements. The development of artificial intelligence, industrial robots, and smart manufacturing systems not only increases labor competition pressure, but also creates the risk of workforce differentiation between highly skilled and simple labor groups. This makes the requirement for human resource development not only to stop at basic vocational training but also to develop continuous learning capacity, adaptive skills and the ability to participate in the digital production environment.[4], [5]

In studies on human resource development, the role of the State, enterprises and the vocational education system is often considered as central factors. However, in recent years, many international studies have begun to emphasize the role of social intermediary institutions, especially trade unions, in promoting human resource development and improving the quality of labor. According to the traditional approach, trade unions are mainly seen as an organization that represents and protects the rights of workers in industrial relations. However, along with the change in production patterns and the global labor market, the role of trade unions has shifted significantly from a protective function to deeper involvement in activities that develop labor capacity, improve vocational skills and improve the quality of employment. In many developed countries, trade unions not only participate in negotiations on wages or working conditions, but also participate in the development of vocational training strategies, skill development, improvement of the working environment and promotion of innovation of production organizations. Some studies suggest that trade unions are gradually becoming "developmental institutions", contributing to improving human capital and labor productivity in enterprises. This role is especially important in the context of the knowledge economy and digital transformation, when the quality of human resources becomes a core factor of national competitiveness.[6],

[7]

In Vietnam, along with the process of renewing the organization and activities of trade unions, the role of trade unions in enterprises is also undergoing significant changes. In addition to the function of representing and protecting the legitimate rights and interests of employees, trade unions are increasingly participating in activities to improve the quality of human resources through skills training, propagating the law, launching the creative labor emulation movement, etc building corporate culture and taking care of the material and spiritual life of employees. In the FDI enterprise sector, these activities are particularly important because this is an area with a large concentration of young workers, migrant workers and workers working in a high-intensity industrial production environment. In fact, many trade union organizations in FDI enterprises have made positive contributions in raising the sense of discipline, improving the working environment and promoting the cohesion of employees with the enterprise. Cultural and spiritual activities, creative labor emulation movements or support for vocational skills training not only contribute to improving the lives of employees but also create motivation to work and improve the production and business efficiency of enterprises. At the same time, trade unions also play an intermediary role in minimizing labor conflicts, building harmonious labor relations, and supporting enterprises to maintain a stable workforce in the context of increasing labor competition.[8]

However, the role of trade unions in developing the quality of human resources at FDI enterprises in Vietnam is still limited. In many enterprises, trade union activities are still inclined to take care of short-term welfare without effectively participating in long-term human resource development strategies. Some trade unions still lack initiative, rely heavily on employers and have not really become an effective bridge between enterprises and employees in training, skill development and job quality improvement activities. The capacity of trade union officials in many places has not yet met the new requirements in the context of digital transformation, globalization and rapid changes in the labor market. In addition, current studies in Vietnam on trade unions in FDI enterprises still largely focus on issues such as the protection of workers' rights, labor disputes, strikes or collective bargaining. Studies approaching trade unions from the perspective of human resource development, especially the role of trade unions in improving labor quality and competitiveness of FDI enterprises, are still relatively

limited. This shows a significant research gap both theoretically and practically in recognizing trade unions as a subject participating in human resource development in the market economy and international integration. On the other hand, in the context of Vietnam's implementation of international commitments on labor and trade unions under new-generation free trade agreements such as CPTPP and EVFTA, trade unions are also facing strong innovations in terms of organization, content and mode of operation. The emergence of new employee representative organizations along with labor competitive pressure and the requirement to improve the quality of human resources requires trade unions to reposition their role not only as representative organizations but also as institutions to support human resource development and improve labor competitiveness in modern economy.[9]

Stemming from the above issues, the study "Developing the quality of human resources in FDI enterprises: The role of trade unions in Vietnam" was conducted to analyze the role of trade unions in developing the quality of human resources in FDI enterprises in Vietnam today. On the basis of an interdisciplinary approach between labor economics, human resource management and labor relations, the study focuses on clarifying the level of participation, operational efficiency as well as the limitations of trade unions in developing the quality of human resources in the FDI sector. At the same time, the study also contributes to expanding the approach to trade unions in the market economy from the traditional representation function to the function of supporting human resource development and improving labor competitiveness in the context of globalization and digital transformation.

## 2. LITERATURE REVIEW

In the context of globalization and international labor competition, the quality of human resources is considered a core factor determining the competitiveness and ability of enterprises to participate in the global value chain. Many international studies believe that the movement of FDI inflows in the current period no longer depends mainly on low labor costs but is increasingly based on the ability to provide a skilled workforce, the ability to adapt to technology and the innovation capacity of the host country. Accordingly, human resource development is not only a condition to attract FDI but also a determining factor in the ability to maintain and upgrade the position of the economy in the global production chain. Studies on FDI

enterprises often highlight that the region tends to require higher labor standards than domestic enterprises, especially in terms of vocational skills, labor discipline, productivity and the ability to work in a modern production environment. Through the process of technology transfer and the application of international governance models, FDI enterprises are expected to contribute to improving the quality of human resources in developing countries. However, many studies also show that this positive impact does not happen automatically and depends on the ability of each country to absorb technology, the quality of the training system and the structure of the labor market.[10]

In Vietnam, research on the quality of human resources in FDI enterprises mainly focuses on contents such as vocational skills, labor productivity, labor training and technological adaptability of workers. Some studies show that although the workforce in FDI enterprises has advantages in scale and access to the modern production environment, there are still many limitations in terms of professional qualifications, foreign languages, soft skills and creative capacity. In addition, the shortage of skilled workers, technical workers and middle-level management personnel is becoming a barrier to the process of technological upgrading and sustainable development of the FDI sector in Vietnam. In addition to the vocational skills factor, many recent studies have begun to expand the approach to human resource quality in a more multi-dimensional direction. Accordingly, the quality of human resources is not only reflected in professional qualifications but also includes physical fitness, occupational health, adaptability, work motivation, level of engagement with the business and capacity to participate in the digital working environment. This approach shows that developing the quality of human resources is not only a matter of skills training but also related to the working environment, labor relations and policies to support employees in enterprises.[11]

In traditional labor relations theory, trade unions are often seen as employee representative organizations to protect the legitimate rights and interests of employees before employers. Early studies on trade unions have mainly focused on functions such as collective bargaining, labor dispute resolution, and improving wages and working conditions. According to this approach, trade unions are seen as actors who contribute to the balance of power in labor relations and reduce inequality between workers and employers in the market economy. However, along with the change in

production patterns and the global labor market, the role of trade unions has undergone significant changes. Many recent international studies suggest that trade unions no longer only perform traditional protective functions but are increasingly involved in human resource development activities, improving labor productivity and supporting the innovation of production organizations. In developed economies, trade unions have become business partners in skills training, building a sustainable work environment, and promoting worker participation in the business innovation process.[12]

Some studies approach trade unions from the perspective of "developmental institutions", suggesting that trade unions can play an active role in improving the quality of human resources through vocational training, skills dissemination, lifelong learning support and the promotion of a modern work culture. According to this approach, trade unions not only protect workers from labor market risks but also contribute to improving the competitiveness of the workforce in the context of technological transformation and globalization. For FDI enterprises, the role of trade unions has become more complicated due to differences in governance models, corporate culture and international competitive pressures. Some studies show that trade unions in FDI enterprises can contribute to building harmonious labor relations, minimizing conflicts and stabilizing the workforce. However, there are also studies showing that trade unions at FDI enterprises in many developing countries still face difficulties due to dependence on employers, limited resources and lack of independence in operations. In Vietnam, studies on trade unions in FDI enterprises have mainly focused on issues such as workers' rights protection, labor disputes, collective bargaining, and strikes. Many studies show that trade unions at FDI enterprises have made a positive contribution to improving working conditions and supporting workers to access social security policies. However, many studies also suggest that the role of trade unions in many FDI enterprises is still quite vague, not really proactive and still inclined to administrative functions or take care of short-term welfare. Notably, studies approaching trade unions from the perspective of developing the quality of human resources in Vietnam are still relatively limited. Most current studies have not fully analyzed the role of trade unions in improving professional skills, promoting labor motivation, improving organizational cohesion and supporting human resource development in FDI enterprises. This shows a significant research gap in both theory and

practice.[12], [13][14], [15][16], [17]

From an overview of domestic and foreign studies, it can be seen that current studies mainly approach trade unions from the perspective of traditional labor relations, focusing on the function of representing and protecting the interests of workers. Meanwhile, the role of trade unions in developing the quality of human resources – especially in FDI enterprises – has not been fully and systematically studied. Firstly, many studies on human resource development in FDI enterprises currently mainly focus on the role of the State, enterprises or vocational training institutions without paying enough attention to the role of social intermediary institutions such as trade unions. Secondly, the majority of research on trade unions in Vietnam is still biased towards issues of labor disputes, collective bargaining and protection of workers' rights, while aspects related to labor capacity development, skills improvement and quality of human resources have been poorly analyzed. Third, empirical studies with large-scale survey data, combining many target groups such as employees, trade union officials and employers at FDI enterprises are still relatively limited. This makes the assessment of the real role of trade unions in developing the quality of human resources not really comprehensive. From the above gaps, this study focuses on analyzing the role of trade unions in developing the quality of human resources at FDI enterprises in Vietnam from an interdisciplinary perspective between labor economics, human resource management and labor relations. The study not only looks at trade unions as an organization that represents workers' rights, but also approaches trade unions as an institution that supports labor capacity development and improving the quality of human resources in the context of globalization and digital transformation.[18], [19][20], [21][24], [25]

### 3. METHOD AND DATABASE

The study uses mixed methods to analyze the role of trade unions in developing the quality of human resources in foreign-invested enterprises (FDI) in Vietnam. The combination of quantitative and qualitative methods allows the study not only to measure the impact of trade union activities on the quality of human resources but also to clarify the impact mechanism, practical context and factors affecting the performance of trade unions in FDI enterprises. The mixed approach was chosen because the research problem is multidimensional, related to the factors of labor economics, human resource management and industrial relations

simultaneously. In particular, quantitative data is used to assess the trend and impact of trade union activities on the quality of human resources; qualitative data is used to supplement in-depth analyses of the experience of employees, trade union officials and employers in the process of human resource development at FDI enterprises. The study is conducted in the direction of explanatory sequential design, in which quantitative survey data serves as a foundation for identifying key trends, and then qualitative data is used to interpret and clarify quantitative results.

#### 3.1. Quantitative data

Quantitative data were collected through questionnaire surveys of employees, trade union officials and employers at FDI enterprises in some localities with a high concentration of FDI enterprises in Vietnam. The survey was conducted in Bac Ninh, Quang Ninh, Nghe An, Ho Chi Minh City and a number of FDI enterprises in the Industry and Trade sector. The total number of survey samples is 1,000 votes, including.

Survey Target Group	Quantity
Workers	700
Union officials	200
Employer/Business Manager	100

The survey samples are selected according to the stratified sample selection method combined with convenient sample selection to ensure the diversity of:

- production lines;
- scale of enterprises;
- job positions;
- gender;
- age;
- working time at the enterprise.

The selection of many different groups of survey subjects allows the research to approach the problem from many perspectives, thereby improving the reliability and comprehensiveness of the research results.

#### 3.2. Qualitative data

In addition to the quantitative survey, the study conducted 50 in-depth interviews for:

- grassroots trade union officials;
- employees;

- managers of FDI enterprises;
- representatives of the trade union directly superior at the grassroots.

The in-depth interview focuses on the following contents: the practical role of trade unions in enterprises; the level of participation of trade unions in human resource development; effectively training, skill support and employee care activities; barriers in trade union activities; the relationship between trade unions and employers in human resource development. Qualitative data is used to supplement and explain quantitative survey results, and at the same time help identify contextual factors affecting the efficiency of trade union activities in FDI enterprises.

### 3.3. Build a research scale

The research variables were measured using a 5-level Likert scale, ranging from: 1 = Strongly disagree to 5 = Strongly agree. The scale system is built on the basis of inheriting previous studies on: quality of human resources; labor relations; the role of trade unions; labor motivation; organizational cohesion. At the same time, the observed variables are adjusted in accordance with the context of FDI enterprises in Vietnam.

SCALE	ITEM NO.	MEASUREMENT CONTENT
1. SCALE WORK UNION	CD1	Trade unions support the enhancement of professional skills.
	CD2	The trade union effectively organizes activities to disseminate legal information.
	CD3	Trade unions contribute to improving the working environment.
	CD4	Trade unions support and care for the lives of workers.
	CD5	Trade unions promote harmonious labor relations.
	CD6	Trade unions motivate workers.
2. SCALE QUALITY OF HUMAN RESOURCES	NL1	Workers possess the professional skills required for the job.
	NL2	Workers are capable of adapting to new technologies.
	NL3	Workers with good industrial work habits.
	NL4	The workers have a high sense of organization and discipline.
	NL5	Employees are highly motivated to work.
	NL6	Workers are capable of sustainable employment.
3. FACTOR SCALE	TG1	Employees feel connected to the company.
	TG2	Employees are motivated to improve their work performance.
MIDDLE	TG3	Workers proactively learn new skills.
	TG4	The workers are cooperative in their work.

The study used Cronbach's Alpha coefficient to test the reliability of groups of observed variables.

Variables with a total variable correlation coefficient of less than 0.3 will be excluded from the study model. EFA analysis is used to test the convergence and differential values of research scales, and to determine the structure of factors affecting the quality of human resources. The study uses a linear regression model to assess the impact of trade union activities on the quality of human resources in FDI enterprises. The proposed general study model is as follows:

In which:

- HRQ: Human Resource Quality
- TU: Trade union activities
- MOT: Labor motivation
- ENG: Organizational Cohesion Level
- ADA: Career Adaptability
- ε: Random error

## 4. RESULTS AND FINDINGS

### 4.1. Demographics of the survey sample

The characteristics of the survey sample are important in reflecting the human resource structure of FDI enterprises in Vietnam today. The survey results show that the workforce in FDI enterprises has many characteristics of the industrial labor model in transition economies, including a high proportion of young workers, a high level of labor migration, and a focus on labor-intensive industries such as electronics, electronics, and electronics. textiles and manufacturing processing.

Table 1. Demographics of the survey sample.

Criteria	Frequency (n)	Rate (%)
<b>Sex</b>		
Male	412	41.2
Female	588	58.8
<b>Age</b>		
Under 25 years old	276	27.6
25-35 years old	514	51.4
36-45 years old	168	16.8
Over 45 years old	42	4.2
<b>Education level</b>		
High school and below	546	54.8
Intermediate/College level	421	42.1
University or higher	233	23.1
<b>Labor migration situation</b>		
Local labor	392	39.2
Migrant workers	608	60.8
<b>Working hours at the company</b>		
Under 1 year	185	18.5
1-3 years	437	43.7
3-5 years	241	24.1
Over 5 years	139	13.9
<b>Total</b>	<b>1,000</b>	<b>100.0</b>

The survey results show that female employees account for a significantly higher proportion in FDI enterprises (58.8%). This reflects the common characteristics of export industries in Vietnam such as electronics, textiles and footwear - sectors that tend to employ a lot of female workers due to their requirements for meticulousness, adaptability to line

labor and relatively low labor costs. This gender structure shows that the development of the quality of human resources in FDI enterprises is not only a matter of vocational skills but also related to welfare policies, occupational health and support for work-family life balance for female workers. Another outstanding feature is that the workforce in FDI enterprises tends to rejuvenate strongly. Workers aged 25-35 accounted for more than half of the survey sample (51.4%), while workers over 45 years old accounted for only 4.2%. This reflects the trend of FDI enterprises prioritizing the recruitment of young workers to meet the requirements of productivity, technological adaptability and high labor intensity. However, the young labor structure also means greater risk of labor volatility, lower levels of organizational engagement and higher pressure on activities to maintain human resource stability. Notably, the proportion of migrant workers accounted for 60.8% of the total survey sample. This is a structural feature of the FDI sector in Vietnam, as large industrial centers attract a large number of workers from rural and provincial areas. Migrant workers help businesses maintain an abundant supply of labor but at the same time create many challenges related to job stability, access to social security, living conditions and the level of engagement of workers with the business.

From the perspective of human resource development, this characteristic shows that the role of trade unions cannot be limited to protecting labor rights but also needs to be expanded to support social adaptation, stabilize labor psychology and improve organizational cohesion for migrant workers – a group with a high level of vulnerability in the labor market industry. The survey results also show that the majority of employees have worked at the enterprise for less than 3 years (62.0%). This reflects the relatively high labor turnover in the FDI sector in Vietnam. The large rate of labor fluctuation not only affects the production efficiency of enterprises but also increases training costs, reduces the ability to accumulate professional skills and affects the sustainable development of human resources. From the perspective of labor economics, the above human resource structure shows that FDI enterprises in Vietnam still have the characteristics of the "labor-intensive industrialization" model, in which competitive advantages are still relatively dependent on a young, cheap and flexible workforce. However, in the context of digital transformation and increasing global competition, this model is facing many challenges as businesses increasingly require higher-skilled workers, better technological

adaptability, and a more stable level of organizational cohesion. This requires restructuring the human resource development strategy in the FDI sector in the direction of not only focusing on labor supply but also improving labor quality, adaptability and long-term career development of workers. In this process, trade unions can act as an intermediary institution that contributes to supporting workers to adapt to the modern industrial environment and promote sustainable human resource development.

#### 4.2. Characteristics of employment and participation in trade unions of employees

Table 2. Job characteristics and level of trade union participation.

Criteria	Frequency (n)	Rate (%)
<b>1. WORKING PROFESSION</b>		
Electronics	312	31.2
Textiles/Footwear	284	28.4
Technology Services	163	16.3
<b>2. TYPE OF LABOR CONTRACT</b>		
Contract less than 1 year	226	22.6
Contracts range from 1 to 3 years	391	39.1
Indefinite term contract	383	38.3
<b>3. JOIN A UNION</b>		
Be a trade union member	792	79.2
Do not join a union	208	20.8
<b>4. LEVEL OF TRADE UNION PARTICIPATION</b>		
Frequent	316	31.6
Sometimes	367	36.7
Little participation	317	31.7

The survey results show that workers in FDI enterprises are mainly concentrated in the electronics, textile and manufacturing industries – fields with a high level of global integration but at the same time under great pressure on productivity, production progress and labor costs. The characteristics of this industry directly affect the requirements for developing the quality of human resources as well as the role of trade unions in enterprises. Notably, the percentage of workers working under short- and medium-term contracts is still quite high. About 61.7% of employees work under contracts for less than 3 years. This reflects the relatively large flexibility of the FDI labor market but at the same time shows that the occupational stability of workers is not high. In this context, the ability to maintain organizational cohesion and long-term human resource development has become a major challenge for both businesses and trade union

organizations. Although the trade union participation rate reached 79.2%, the level of regular participation in trade union activities only accounted for 31.6%. This reflects a relatively large gap between "formal participation" and "substantive participation" in trade union activities at FDI enterprises. Many employees have become trade union members but have not really participated in the activities of the trade union organization. The results of in-depth interviews show that the cause of this situation comes from many factors such as: high labor intensity; prolonged working time; trade union activities are not really attractive; and employees' awareness of the role of trade unions is still limited. This shows that if the trade union wants to promote its role in human resource development, the trade union needs to shift from an administrative operation model to a model of supporting career development and improving labor capacity more substantively for employees in FDI enterprises.

### 4.3. Reliability and Scale Value Verification

Scale reliability testing with Cronbach's Alpha

Before conducting the analysis of the research model, the research conducted a test of the reliability of the scales to assess the intrinsic consistency of the observed variables. Cronbach's Alpha coefficient is used because it is a common method in social science studies to evaluate the stability of scales before performing factor analysis and linear structure models. The results showed that the scales in the study were highly reliable, with Cronbach's Alpha coefficient ranging from 0.811 to 0.903. At the same time, the Corrected Item (Total Correlation) of the observed variables were greater than 0.3, indicating that the measured variables had an appropriate level of correlation and were retained in the study model.

*Table 3. Cronbach's Alpha test results of scales.*

Measuring Scale	Symbol	Number of Cronbach's Observed Variables	Cronbach's Alpha	Min CTC
Trade union activities	TU	6	0.887	0.621
Labor motivation	MOT	4	0.842	0.603
Organizational engagement	ENG	4	0.826	0.587
Career adaptability	ADA	4	0.811	0.571
Quality of human resources	HRQ	6	0.903	0.648

$$\alpha = \frac{k}{k-1} \left( 1 - \frac{\sum S_i^2}{S_T^2} \right)$$

The results showed that the "Human Resource Quality" scale had the highest Cronbach's Alpha coefficient (0.903), reflecting a very high level of stability and consistency of the observed variables in this group of factors. This shows that aspects such as vocational skills, labor productivity, technological adaptability and industrial style are closely related to each other in the perception of employees and trade union officials at FDI enterprises. Meanwhile, the "Trade Union Activity" scale also achieved a relatively high Alpha coefficient (0.887), reflecting the unity between variables related to skills training, welfare support, improving the working environment, and promoting harmonious labor relations. This shows that employees do not see trade union activities as individual activities but as an overall support system that affects their lives and work processes in the enterprise. This result has important theoretical implications. In many previous studies, trade unions have often been approached primarily from the perspective of representing labor rights or collective bargaining. However, the results of the scale in this study show that workers tend to evaluate the role of trade unions in a more multi-dimensional way, including activities that support labor capacity development, improve the working environment and improve the quality of employment.

It is worth noting that variables related to welfare support and work environment improvement have higher aggregate variable correlation coefficients than those related to vocational skills training. This reflects a fairly common feature of trade unions in FDI enterprises in Vietnam today: the role of trade unions is more clearly identified through activities that directly care for people's lives and support workers instead of long-term skill development activities. These results also reflect the characteristics of the industrial relations model in transition economies, where workers often evaluate the effectiveness of trade union activities based on their ability to address practical needs such as income and welfare, working conditions, supporting spiritual life rather than institutional representative functions. From the perspective of human resource development, this shows that trade unions in FDI enterprises in Vietnam are still operating mainly under the model of "supportive unionism" rather than "developmental unionism". In other words, trade unions are now mainly focused on supporting the stability of life and labor relations instead of deeply participating in the strategy of developing human capital and improving labor competitiveness in enterprises. However, in the

context of digital transformation and restructuring of the global production chain, this operating model is facing many challenges. As FDI enterprises increasingly require highly skilled workers, good technological adaptability and continuous learning capacity, the role of trade unions cannot only stop at taking care of welfare but needs to expand to support skill development, improve career adaptability and promote lifelong learning for workers.

Another notable point is that the Alpha coefficient of the "Occupational Adaptability" variable group is lower than that of other variable groups (0.811). Although it still reaches a good acceptance threshold, this result reflects that the occupational adaptability of workers in FDI enterprises is still not really uniform. This can stem from differences in skill levels, access to technology, and training opportunities between labor groups. The results of in-depth interviews show that young workers in the electronics and technology industries tend to adapt more quickly to technological changes, while workers in labor-intensive industries such as textiles and footwear often have more difficulty accessing new technologies and improving vocational skills. In addition, the results of the reliability test also show that factors related to labor motivation and organizational cohesion have a relatively high level of consistency. This reflects the close relationship between the working environment, trade union activities and the working psychology of employees in FDI enterprises. In the context of increasing labor volatility and labor competition in Vietnam, this result shows that labor motivation and organizational cohesion are becoming important components of human resource quality. Employees are not only interested in salaries or material conditions but also pay more attention to: working environment; feeling supported; career development opportunities; and the ability to stick with the business for a long time. Thus, the results of Cronbach's Alpha inspection not only confirm the reliability of the research scales but also reflect some important characteristics of labor relations and human resource development in FDI enterprises in Vietnam today. This is an important basis for continuing to carry out the discovery factor analysis (EFA) and model the impact of trade unions on the quality of human resources in the subsequent parts of the study.

#### 4.4. Exploratory Factor Analysis (EFA)

After testing the reliability of the scales using Cronbach's Alpha, the study continued to perform an Exploratory Factor Analysis (EFA) to evaluate the

convergence and differential values of the research variables. The EFA analysis was used to determine the structure of potential factors and examine the relevance of the theoretical model with the survey data in the context of FDI enterprises in Vietnam. In this study, the Principal Component Analysis method incorporating Varimax rotation was used to maximize the interpretation of the factors and clarify the factor load structure of the observed variables.

**Table 4. KMO and Bartlett Inspection Results.**

Target	Value
KMO (Kaiser-Meyer-Olkin)	0.914
Bartlett's Test Approx. Chi-Square	5,231.487
df	231
Sig.	0.000

KMO = 0.914

The results showed that the KMO coefficient reached 0.914, which is much larger than the minimum threshold of 0.5 recommended by Kaiser. This proves that the survey data has a strong enough correlation to perform a factor analysis. At the same time, the Bartlett test has a Sig. value = 0.000 (<0.05), indicating that the observed variables are linearly correlated with each other and are suitable for inclusion in the EFA model. A high KMO coefficient reflects a relatively strong degree of association between the variables observed in the study. This shows that concepts such as trade union activities, labor motivation, organizational cohesion and human resource quality do not exist independently but have a significant connection in the practice of FDI enterprises in Vietnam. From a theoretical perspective, these results reinforce the research hypothesis that the role of trade unions in FDI enterprises not only directly impacts workers but also influences through intermediate factors related to labor psychology, work motivation, and organizational cohesion.

**Table 5. Total extraction variance of the study model.**

Factor	Eigenvalue	Variance extract (%)	Cumulative Variance (%)
Factor 1	16,214	28.6	28.6
Factor 2	23,107	14.8	43.4
Factor 3	2,241	10.9	54.3
Factor 4	1,832	8.2	62.5
Factor 5	1,416	6.7	69.2

The EFA results showed that five factors were extracted with a cumulative total variance of 69.2%. This is a relatively high level of explanation for social science studies, suggesting that the research model is capable of explaining the variability of survey data well. The first factor had the largest Eigenvalue (6,214) and explained 28.6% of the variance of the data. This suggests that variables related to trade union activity and the working environment play a prominent role in the structure of the research model. A notable point is that the total variance of deduction is nearly 70%, reflecting that the quality of human resources in FDI enterprises is affected by a relatively clear and highly interconnected system of factors. This also shows that the research concepts developed are relatively well suited to labor practices in FDI enterprises in Vietnam. This result also reflects the characteristics of the industrial labor model in the transition economy, where factors are related to: working environment; labor motivation; organizational support; Labor relations have a significant impact on the quality of human resources in addition to traditional vocational skills factors.

**Table 6. Rotated Component Matrix.**

Observation variable	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
TU1	0.821				
TU2	0.847				
TU3	0.804				
TU4	0.781				
MOT1		0.814			
MOT2		0.836			
MOT3		0.791			
ENG1			0.802		
ENG2			0.844		
ENG3			0.817		
ADA1				0.781	
ADA2				0.806	
ADA3				0.772	
HRQ1					0.851
HRQ2					0.884
HRQ3					0.825

The results of the factor rotation matrix show that the observed variables all have a factor loading factor greater than 0.7 and there is no large cross-loading between the factors. This reflects the relatively good level of convergence and differentiation of the research scales. In particular, the variables in the "Trade union activity" group have a fairly high factor load coefficient, ranging from 0.781 to 0.847. This shows that employees tend to have a relatively clear and consistent perception of trade union activities in FDI enterprises. One notable finding was that the variable associated with welfare support and work

environment improvement had a higher factor load factor than the variable associated with vocational skills training. This reflects the fact that workers in FDI enterprises in Vietnam often feel the role of trade unions more clearly through direct support related to life and working conditions. These results are relatively consistent with the characteristics of industrial relations in developing economies, where trade unions often play a more pronounced role as "social support institutions" than in the role of labor skills development under the trade union model in developed countries. However, this also reflects a notable gap in trade union activities in FDI enterprises today. In the context of digital transformation and global labor competition, the requirement for the development of vocational skills and technological adaptability of workers is becoming increasingly important. If trade unions continue to focus primarily on short-term welfare without being deeply involved in long-term human resource development strategies, the role of trade unions in the digital economy may be significantly reduced.

The EFA results also show that the "Labor Motivation" and "Organizational Engagement" variables have a relatively high level of convergence. This reflects that work motivation and the level of engagement with businesses are becoming important components of the quality of human resources in FDI enterprises. In the context of increasingly fierce labor competition, FDI enterprises not only need a skilled workforce but also employees with stable work motivation, career adaptability and long-term commitment to the business. This shows that the quality of human resources needs to be approached in a multi-dimensional way, including psycho-social factors and the working environment in addition to traditional professional skills. Another notable point is that the group of "Occupational Adaptability" variables has a relatively lower factor load factor than other groups. This reflects that the ability of workers to adapt to technology and learn new skills in FDI enterprises is still uneven. The results of in-depth interviews show that young workers and workers in the electronics industry tend to adapt faster to new technologies, while workers in labor-intensive industries such as textiles and footwear often face more difficulties in upgrading their vocational skills. This reflects the increasingly obvious risk of labor differentiation in the current digital transformation context. Overall, the EFA results show that the research model is relatively well matched with the survey data and reflects the structure of factors affecting the quality of human resources in FDI

enterprises in Vietnam. This is an important basis for continuing to carry out regression analyses and structural modeling to assess the impact of trade union activities on the development of human resource quality in the subsequent parts of the study.

#### 4.5. Confirmatory Factor Analysis (CFA)

After performing the Discovery Factor Analysis (EFA), the study continued to conduct a Confirmatory Factor Analysis (CFA) to verify the suitability of the measurement model with the survey data. CFA is used to evaluate:

- Composite Reliability (CR);
- Average Variance Extracted – AVE
- and the value of distinguishing between factors in the research model.

The CFA analysis was carried out to confirm that the observed variables indeed correctly reflect underlying conceptual structures such as: trade union activity; labor motivation; organizational cohesion; occupational adaptability; and the quality of human resources. In today's social science studies, CFA is seen as an important step to improve the academics and reliability of the research model before performing linear structural analyses or SEMs.

*Table 7. CFA results and aggregate reliability of the study model.*

Factor	Outer loading	Composite Reliability (CR)	AVE
Trade Union Activities (TU)	0.742 – 0.881	0.914	0.641
Motivation for Work (MOT)	0.711 – 0.864	0.887	0.612
Organizational Engagement (ENG)	0.736 – 0.852	0.874	0.598
Occupational Adaptability (ADA)	0.702 – 0.831	0.861	0.584
Human Resource Quality (HRQ)	0.768 – 0.903	0.931	0.693

$$CR = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum Var(\epsilon_i)}$$

$$AVE = \frac{\sum \lambda_i^2}{n}$$

The CFA results showed that all factors in the study model achieved good convergence values when:

- the standardized load coefficient (outer loading) is greater than 0.7;
- the CR coefficient is greater than 0.8;

- and AVE both exceeded the minimum threshold of 0.5 as recommended by Hair et al.

In particular, the factor "Human Resource Quality" had the highest AVE value (0.693), reflecting a very good degree of convergence of observed variables related to occupational skills, labor productivity, industrial behavior and technological adaptability. This shows that the components of human resource quality in FDI enterprises have a relatively close internal connection and are relatively uniformly perceived by employees. At the same time, the factor "Trade union activity" also achieved a high level of aggregate confidence (CR = 0.914). This result reflects that workers and trade union officials tend to view activities: skills training; welfare support; improve the working environment; and building labor relations as cohesive elements in the same labor support system of trade unions. This has remarkable academic implications. In many traditional studies of industrial relations, trade unions are often approached as an institution representing interests or as a collective bargaining entity. However, the CFA results in this study show that trade union activities at FDI enterprises in Vietnam are being viewed by workers in a broader way, including the function of supporting human resource development and improving labor quality. One notable finding was that the variables were related to: improving the work environment; life support; and promote labor motivation with a higher standardized load factor than the variables associated with vocational skills training. This reflects the fact that the role of trade unions in FDI enterprises is still felt more strongly through activities that directly support the lives of employees. From the perspective of labor sociology, these results reflect the characteristics of industrial labor models in transition economies, where workers often face: employment pressures; high labor intensity; occupational instability; and limited access to social welfare. In this context, the material and moral support activities of trade unions have a more direct impact on employees' perceptions of the quality of employment and the working environment. However, this also shows a noticeable limitation in the current role of trade unions. In the digital economy and the globalized production environment, the quality of human resources increasingly depends on: the ability to learn continuously; technology adaptation; digital skills; and innovation capacity.

If trade unions are still mainly focused on the welfare function but have not been strongly involved in the strategy of skill development and human capital improvement, the role of trade unions in FDI

enterprises may be narrowed in the future. Another notable point is that the "Occupational Adaptability" factor had the lowest AVE value (0.584), although it still reached the acceptance threshold. This reflects the ability of workers to adapt to the occupation of FDI enterprises in Vietnam, there is also a significant differentiation between labor groups. The results of the in-depth interview showed that: the group of young workers; technically qualified laborers; and workers in the electronics industry tend to adapt faster to technological changes and new production processes. Meanwhile, the labor group: the elderly; simple labor; Workers in labor-intensive industries such as textiles and garments often face more difficulties in accessing new skills and adapting to digital production requirements. This reflects the increasingly obvious risk of labor differentiation in the current FDI sector. The process of digital transformation and automation not only creates a requirement to improve the quality of human resources but also increases the gap between different groups of workers who are able to adapt to different technologies. In this context, the role of trade unions cannot be limited to protecting traditional jobs but needs to be expanded to support: lifelong learning; skills retraining; career counseling; and career adaptation for workers. Another important finding of the CFA is the following factors: labor motivation; organizational cohesion; the quality of human resources has a relatively high level of linkage. This shows that the quality of human resources in FDI enterprises is not only a matter of professional skills but also strongly influenced by: working environment; work psychology; and the level of engagement of employees with the enterprise. This result is relatively consistent with Social Exchange Theory, according to which workers tend to increase their level of commitment and motivation to work when they feel supported and cared for by the organization. In FDI enterprises, trade unions can act as an intermediary institution that reinforces a sense of support and minimizes workers' instability in a highly competitive labor environment. Overall, the CFA results show that the study's measurement model achieves relatively good reliability and conceptual value. This creates a solid basis for continuing to carry out linear structure model analysis and test research hypotheses on the impact of trade unions on the development of human resource quality in FDI enterprises in Vietnam.

#### 4.6. Linear Structure Model (SEM) Analysis

After verifying the reliability and value of the scales through Cronbach's Alpha, EFA and CFA, the

study continued to perform a Structural Equation Modeling (SEM) analysis to test research hypotheses and evaluate the impact of trade union activities on the quality of human resources in FDI enterprises. SEM was chosen because this method allows for the simultaneous evaluation of: the direct relationship between variables; indirect impact through intermediate variables; and the overall relevance of the research model. In this study, the SEM model was used to test the role of: trade union activities; labor motivation; organizational cohesion; and the ability to adapt professionally to the quality of human resources in FDI enterprises in Vietnam.

#### 4.7. Verification of the suitability of the research model

Before analyzing the structural relationships, the study conducts an assessment of the suitability of the SEM model to the survey data through goodness-of-fit indicators.

*Table 8. Indicators to evaluate the suitability of the SEM model.*

Index	Value achieved	Acceptance threshold
Chi-square/df	2,184	<3
GFI	0.927	>0.90
TLI	0.941	>0.90
CFI	0.953	>0.90
RMSEA	0.047	<0.08

RMSEA = 0.047. The results showed that all indicators of the model's suitability met the acceptance threshold recommended by Hair et al. The Chi-square/df value reached 2,184 (<3), reflecting a relatively good fit for the survey data. At the same time, the indicators: GFI = 0.927; TLI = 0.941; CFI = 0.953 are both greater than 0.9, indicating that the study model has a good explanation for the empirical data structure. In particular, the RMSEA index reached 0.047 – significantly lower than the threshold of 0.08 – reflecting the approximate error of the model at a low level. This shows that the research model has relatively high stability and is suitable for further testing of research hypotheses. From a methodological perspective, this result shows that the research model is built on the basis of a combination of: Human Capital Theory; Social Exchange Theory; and Developmental Unionism are relatively well able to explain the role of trade unions

in developing the quality of human resources in FDI enterprises in Vietnam. It is worth noting that the model not only reflects the direct impact of trade unions on the quality of human resources but also shows the role of intermediary factors such as: labor motivation; organizational cohesion; and career adaptability. This reflects that the impact of trade unions on the quality of human resources does not take place according to a simple linear mechanism but through psycho-social processes and the working environment in enterprises.

#### 4.8. Results of testing of research hypotheses

After confirming the suitability of the model, the study conducted a test of the research hypotheses through Standardized Path Coefficients.

**Table 9. Results of SEM Structure Model Inspection.**

Relationship	Coefficient ( $\beta$ )	S.E.	C.R.	P-value	Conclude
TU → HRQ	0.486	0.041	11.842	0.000	Accept
TU → MOT	0.531	0.038	13.127	0.000	Accept
TU → ENG	0.447	0.044	10.215	0.000	Accept
TU → ADA	0.318	0.049	7.442	0.000	Accept
MOT → HRQ	0.314	0.037	8.106	0.001	Accept
ENG → HRQ	0.279	0.041	6.873	0.003	Accept
ADA → HRQ	0.251	0.046	5.914	0.005	Accept

$$HRQ = 0.486TU + 0.314MOT + 0.279ENG + 0.251ADA + \varepsilon$$

SEM results show that trade union activities have the strongest direct impact on the quality of human resources with a coefficient of  $\beta = 0.486$  and a statistical significance of 1%. This reflects that when the efficiency of trade union activities increases, the quality of human resources in FDI enterprises also tends to improve significantly. This result reinforces the hypothesis that trade unions not only play the role of representatives of labor rights but also an institution that supports the development of human capital in enterprises. A notable finding is that trade union activity has a very strong impact on labor motivation ( $\beta = 0.531$ ). This is the largest impact coefficient in the research model. This shows that the impact of trade unions on the quality of human resources takes place largely through improving labor psychology, creating a sense of support and improving the work motivation of employees. This result is relatively consistent with Social Exchange Theory, according to which workers tend to increase their level of commitment and productivity when they feel care and support from the organization. In

FDI enterprises – where labor pressure and competitiveness are relatively high – the role of trade unions in psychological support and labor stability becomes particularly important. In addition, trade union activity also has a significant impact on organizational cohesion ( $\beta = 0.447$ ) and occupational adaptability ( $\beta = 0.318$ ). This shows that trade unions not only contribute to improving working conditions but also affect the adaptability and long-term engagement of employees with the enterprise. However, the impact coefficient of trade unions on occupational adaptability is significantly lower than the impact on labor motivation and organizational cohesion. This reflects the fact that trade unions in FDI enterprises in Vietnam are still stronger in the following activities: life support; building a working environment; and maintaining stable labor relations compared to the following activities: skills training; vocational retraining; and support technology adaptation. This result reflects a notable gap in trade union activity today. In the context of increasingly strong digital transformation and automation, the quality of human resources increasingly depends on the ability to: continuous learning; upgrade skills; and adapt to new technology. If trade unions are not deeply involved in the process of skill development and technological capacity building for workers, the role of trade unions in human resource development may be limited to the scope of traditional social support.

Another notable point is that labor motivation has a stronger impact on organizational cohesion and occupational adaptability on the quality of human resources. This reflects the characteristics of labor in FDI enterprises in Vietnam today, when labor efficiency not only depends on skills but is also strongly influenced by: work pressure; labor psychology; and job satisfaction. In a highly competitive working environment, factors related to motivation and working environment can directly affect labor productivity; the ability to maintain employment; and sustainable human resource quality. The SEM results generally show that the research model is able to explain relatively well the role of trade unions in developing the quality of human resources at FDI enterprises in Vietnam. At the same time, the results also reflect that the impact of trade unions is not only direct but also takes place through intermediary mechanisms related to: labor psychology; working environment; and organizational cohesion. This contributes to reinforcing the approach of trade unions as a "development institution" in today's transition and international integration economy.

Analysis of the indirect impact and mediating role of labor motivation, organizational cohesion and occupational adaptability

In addition to examining the direct impact of trade union activities on the quality of human resources, the study continues to carry out an indirect impact analysis to assess the intermediary role of: labor motivation; organizational cohesion; and career adaptability. This analysis is important because in the practice of FDI enterprises, the impact of trade unions on the quality of human resources does not take place directly and linearly but often through psycho-social mechanisms and the working environment. The study used the Bootstrapping method with 5,000 replicates to test the statistical significance of the indirect effects in the SEM model.

**Table 10. Bootstrap Results for Indirect Effects in the Structural Model.**

Indirect Relationship	Indirect Effect	Boot SE	T-value	P-value	Conclusion
YOU → WORD → HRQ	0.167	0.028	5.964	0.000	Supported
TU → ENG → HRQ	0.125	0.031	4.032	0.001	Supported
YOU → ADA → HRQ	0.079	0.025	3.160	0.004	Supported

Note: TU = Trade Union Activities; MOT = Motivation for Work; ENG = Organizational Engagement; ADA = Occupational Adaptability; HRQ = Human Resource Quality. Bootstrap analysis was conducted with 5,000 resamples. All indirect effects are statistically significant at  $p < 0.01$ .

The results showed that all indirect impacts were statistically significant at 1%, demonstrating: labor motivation; Organizational cohesion and professional adaptability both play an intermediate role in the relationship between trade union activities and the quality of human resources. In which, the indirect impact through labor motivation has the greatest value (0.167). This reflects that the influence of trade unions on the quality of human resources mainly takes place through improving the motivation and attitude of workers. This result is particularly important in the context of FDI enterprises in Vietnam today. In a production environment with high labor intensity, high productivity pressure and strong competitiveness, labor motivation becomes a factor that directly affects work efficiency; the ability to maintain productivity and sustainable labor quality. This shows that trade unions not only have a role in protecting material rights but also have a significant impact on labor psychology and employees' feelings about the working environment. The results of in-depth interviews show that many employees evaluate that:

the support of the trade union; Life-care activities and labor dialogue mechanisms help them feel "less abandoned" in a highly competitive industrial production environment. A female employee at an electronics business in Bac Ninh shared: "Working in the factory is very stressful, especially the long overtime time. When the union supports or organizes activities for workers, it feels less stressful and more motivated to work." This result reflects the role of trade unions in "stabilizing labor society" in FDI enterprises. In many cases, trade unions not only impact the quality of human resources through skills training, but also through reducing psychological pressure and enhancing workers' sense of support.

Another notable finding was that organizational cohesion also played a relatively strong mediating role in the study model (0.125). This shows that trade union activities have the ability to affect the quality of human resources by strengthening the attachment of employees to the enterprise. In the context that the labor volatility rate at FDI enterprises in Vietnam is still relatively high, this role has significant significance for sustainable human resource development. When employees have a higher level of organizational cohesion, businesses are able to: reduce recruitment costs; reduce the cost of retraining and maintain long-term labor skill accumulation. From the perspective of Human Capital Theory, this shows that trade union activities can contribute to maintaining and preserving human capital in enterprises through workforce stabilization. One notable point is that occupational adaptability has a lower indirect impact than labor motivation and organizational cohesion. This reflects the fact that trade unions in FDI enterprises in Vietnam are not really strong in activities: vocational retraining; digital skills support; and improve the ability to adapt to technology. This result reflects the relatively clear limitations of the current trade union model in the context of digital transformation. While FDI enterprises are increasingly requiring: digital skills; the ability to learn continuously and adapt to technology quickly, trade union activities still mainly focus on: Welfare support; improve working conditions and stabilize labor relations. This shows that if it wants to maintain its role in the digital economy, trade unions need to reposition in the direction of: supporting skill development; promote lifelong learning; career change counseling; and accompany employees in the process of adapting technology. Another important finding of the SEM model is that the combined impact of trade unions on the quality of human resources is relatively large when including: direct

impacts; and indirect impacts.

**Table 11. Direct, Indirect, and Total Effects of Trade Union Activities on Human Resource Quality.**

Variable Impact	Direct Effect	Indirect Effect	Total Effect
Trade Union Activities → Human Resource Quality (HRQ)	0.486	0.371	0.857

The results showed that the total impact of trade union activities on the quality of human resources reached 0.857 – a relatively high level in social science studies. This reflects that the role of trade unions in FDI enterprises is not limited to a single support function but has a systemic influence on: the working environment; motivation to work; organizational cohesion; and the ability to develop human resources. From a theoretical perspective, this result contributes to reinforcing the "developmental unionism" approach – seeing trade unions as a development institution capable of supporting the improvement of human capital and labor competitiveness in enterprises. At the same time, the research results also show that the quality of human resources in FDI enterprises needs to be approached in a more multi-dimensional way, not only limited to professional qualifications and skills but also including labor motivation, work psychology, organizational cohesion and the ability to adapt to technological changes. In the context of global labor competition and increasingly strong digital transformation, these factors are becoming the core factors determining the quality of human resources and the competitiveness of FDI enterprises in Vietnam.

#### 4.8. Multi-group Analysis

In addition to assessing the overall impact of trade union activities on the quality of human resources, the study continues to analyze the differences between labor groups to clarify the heterogeneity of impact models in FDI enterprises. This analysis is significant because the workforce in FDI enterprises in Vietnam is significantly differentiated by gender, migration status, manufacturing industries and trade union participation. The study uses Independent Sample T-test and One-way ANOVA to examine differences in labor motivation, organizational cohesion, occupational adaptability and quality of human resources between different groups of workers.

#### 4.9. Comparison between male and female employees

**Table 12. Independent Sample T-test results by gender.**

Research Variables	Male (Mean)	Female (Mean)	T-value	Sig.
Labor Motivation	3.71	3.94	-3.842	0.000
Organizational Engagement	3.56	3.79	-3.117	0.002
Career Adaptability	3.84	3.68	2.904	0.004
Human Resource Quality	3.73	3.88	-2.781	0.005

The results of the audit showed that there were statistically significant differences between male and female workers in a number of important variables. Notably, female employees have a higher level of labor motivation, organizational cohesion and evaluation of the quality of human resources than male employees. Meanwhile, male workers have a higher average score on the "Occupational adaptability" variable. This result reflects the fairly common characteristics of the workforce in FDI enterprises in Vietnam today. Female workers tend to be more stable, adhere to labor discipline better, and stick to higher jobs in line manufacturing industries such as electronics and textiles. This helps businesses maintain the productivity and stability of the production process. However, female workers are also often under greater pressure related to labor intensity, family responsibilities, and occupational health. Therefore, the role of trade unions for female employees is not only limited to career support but also strongly related to welfare care, psychological support and work-life balance. The results of in-depth interviews show that many female employees highly appreciate the role of trade unions in supporting maternity, organizing spiritual activities, supporting difficult circumstances and improving working conditions. A female worker at a textile and garment enterprise in Nghe An said: "The work is quite stressful and there is a lot of overtime. Without the support of the trade union, it is very difficult for many women to balance their lives." Meanwhile, male workers are more likely to adapt to their occupations, especially in the electronics and technology industries. This may involve opportunities for access to new techniques and technologies among labor groups. This result shows that the development of the quality of human resources in FDI enterprises needs to be approached in a gender-sensitive way, in which the role of trade unions needs to adapt to the different needs of each group of workers.

#### 4.10. Comparison between migrant workers and local workers

**Table 13. T-test results according to labor migration status.**

Research Variables	Local Labor (Mean)	Migrant Labor (Mean)	T-value	Say.
Labor Motivation	3.89	3.74	2.662	0.008
Organizational Engagement	3.81	3.49	4.021	0.000
Career Adaptability	3.63	3.79	2.918	0.004
Human Resource Quality	3.86	3.71	2.487	0.011

The results show that local workers have a significantly higher level of organizational cohesion and evaluation of the quality of human resources than migrant workers. Meanwhile, migrant workers have a higher ability to adapt to their occupations. This result reflects the dual characteristics of migrant workers in FDI enterprises in Vietnam. On the one hand, migrant workers are often more adaptable because they have to constantly adjust to a new living and working environment. On the other hand, this group of workers has a lower level of organizational cohesion due to housing instability, limited access to social security, and a mentality that sees work as temporary. This shows that trade unions have a particularly important role for migrant workers. In many cases, trade unions are not only representative labor organizations, but also play a role in supporting social integration, reducing feelings of isolation and strengthening organizational cohesion for migrant workers. The results of in-depth interviews showed that the migrant worker group highly appreciated the activities of housing support, legal advice, community activities and support for the spiritual life of the trade union.

#### 4.11. Comparison between manufacturing industries

The study continues to carry out ANOVA inspection to assess the differences between industry groups in FDI enterprises.

**Table 14. One-way ANOVA results by industry.**

Research Variables	F-value	Say.
Labor Motivation	4.218	0.006
Organizational Engagement	5.041	0.002
Career Adaptability	8.372	0.000
Human Resource Quality	6.284	0.001

Note: One-way ANOVA analysis was conducted to examine differences among respondent groups across the principal research variables. The findings indicate statistically significant differences in all variables at the 0.01 significance level. Among the examined constructs, Career Adaptability exhibited

the highest level of variance across groups ( $F = 8.372$ ,  $p < 0.001$ ), suggesting substantial differences in occupational flexibility and adaptation capacity among employees in FDI enterprises.

**Table 15. Mean score by industry.**

Industry	Labor Motivation	Organizational Engagement	Career Adaptation	Quality of Human Resources
Electronics	3.94	3.88	4.02	3.97
Textiles/Footwear	3.62	3.51	3.44	3.58
Processing-Manufacturing	3.71	3.66	3.59	3.69
Technology Services	4.01	3.93	4.11	4.08

The results show that the workforce in the service/technology and electronics sectors has a significantly higher level of occupational adaptation, labor motivation and quality of human resources than the workforce in the textile and footwear industries. This reflects the increasingly clear differentiation in the FDI sector under the impact of technological transformation and global value chain restructuring. In the electronics, technology and technical services industries, businesses tend to invest more heavily in skills training, working environment and labor capacity building. In contrast, labor-intensive industries such as textiles and footwear still rely heavily on simple labor, low labor costs, and high labor intensity. This leads to significant differences in career development, organizational cohesion and quality of human resources. This result shows that the role of trade unions needs to be adjusted according to the characteristics of the production industry. In labor-intensive industries, trade unions need to focus more on improving working conditions, protecting occupational health, and improving skills training opportunities for workers. Meanwhile, in high-tech industries, trade unions need to strongly shift to supporting lifelong learning, improving digital skills and promoting career adaptation in the context of digital transformation.

Overall, the research results show that trade union activities have a positive and statistically significant impact on the development of human resource quality in FDI enterprises in Vietnam. However, this impact does not take place mainly through mechanisms to improve technical skills or

adapt technology, but largely through improving labor motivation, strengthening organizational cohesion and stabilizing the working environment in enterprises. The results of SEM, Bootstrap and multi-group analysis simultaneously show that trade union impact patterns differ significantly between labor groups and manufacturing occupations. While the technology and electronics industries show a stronger shift to a skills-based human resource development model and technological adaptation, labor-intensive industries such as textiles and footwear remain significantly dependent on labor dynamics, organizational stability and labor relations environment. Notably, variables related to labor motivation, organizational cohesion, and support of the work environment had a significantly stronger impact than those related to career adaptation and digital upskilling. This reflects that the role of trade unions in FDI enterprises in Vietnam is still more inclined towards the model of social support and maintaining labor stability than the model of trade unions developing human resources in the full sense. These results show that the quality of human resources in FDI enterprises needs to be approached in a more multi-dimensional way, in which psycho-social factors, working environment and organizational relations play an equally important role as technical factors or professional qualifications. This is also an important basis for continuing discussions on the role of trade unions in human resource development and restructuring of labor relations in the context of digital transformation and global labor competition.

#### **4.12. Discussion**

The results of the study show that trade union activities have a positive and statistically significant impact on the development of the quality of human resources in FDI enterprises in Vietnam. However, this impact does not take place in a simple direct mechanism but mainly through intermediary factors related to labor motivation, organizational cohesion and the working environment. This reflects that in the context of modern industrial production, the quality of human resources is not only determined by professional qualifications or professional skills but also strongly influenced by psycho-social factors and the structure of labor relations in enterprises. The SEM results show that trade union activities have a relatively strong direct impact on the quality of human resources ( $\beta = 0.486$ ), and have a significant impact on labor motivation ( $\beta = 0.531$ ) and organizational cohesion ( $\beta = 0.447$ ). At the same time, indirect impact analysis shows that the influence of

trade unions through labor motivation is significantly greater than the influence through occupational adaptability. These results show that the role of trade unions in FDI enterprises is not only limited to the function of representing labor rights but has expanded to the function of stabilizing labor society and supporting the effective maintenance of human resources in a highly competitive production environment. This finding is notable for its academic significance because most previous studies of trade unions in the FDI sector have focused on issues such as collective bargaining, labor disputes or strikes, while paying little attention to the role of trade unions in the development of human resource quality. The results of the current study show that the impact of trade unions on human resources mainly takes place through mechanisms to support labor psychology and strengthen the organizational environment rather than directly intervening in the process of improving professional skills. This is relatively consistent with Social Exchange Theory, whereby workers tend to increase their level of commitment and productivity when they feel support, fairness, and care from the organization. In FDI enterprises in Vietnam – where the working environment is often associated with high labor intensity, high productivity pressures and strict industrial discipline – trade union activities related to welfare support, improved working conditions and support for spiritual life have a significant impact on the psychological state and motivation of workers employees. This explains why variables related to labor motivation and work environment have a significantly stronger impact than variables related to occupational adaptation or digital upskilling. The research results also reflect a remarkable paradox of the current FDI development model in Vietnam. While FDI enterprises increasingly require a workforce with the ability to adapt to technology, digital skills, and continuous learning to meet the automation and restructuring of global value chains, employment patterns in many manufacturing industries still rely significantly on cheap labor. high labor intensity and workforce stability rather than high-level technological innovation. In this context, trade unions are forced to prioritize activities related to maintaining labor stability, reducing psychological pressure and supporting the working environment to limit labor fluctuations and maintain production productivity. This explains why activities that take care of welfare, life support and stabilize labor relations have a significantly stronger impact on the quality of human resources than activities related to vocational retraining or technological

capacity building.[26], [27][28], [29]

The results of the multi-group analysis also show that the FDI sector in Vietnam is appearing increasingly clear stratification of labor under the impact of technology and global production restructuring. Workers in the electronics and technology industries have significantly higher levels of occupational adaptation and quality of human resources than workers in labor-intensive industries such as textiles and footwear. At the same time, female workers have higher levels of organizational engagement while migrant workers have better occupational adaptability but lower levels of organizational engagement. These differences reflect that the labor market in FDI enterprises is no longer a homogeneous structure but is strongly differentiated according to the manufacturing industry, the level of technological transformation and the social characteristics of the workforce. In high-tech industries, businesses increasingly rely on the digital skills, innovation capacity, and technological adaptability of workers, while labor-intensive industries still rely heavily on industrial discipline, the ability to maintain high labor intensity, and workforce stability. This leads to significant differences in labor motivation, organizational cohesion and quality of human resources between groups of manufacturing industries.

Another notable finding of the study is that the role of trade unions in developing occupational adaptability remains relatively limited. Although the "occupational adaptability" variable was statistically significant in the study model, the impact was significantly lower than that of labor motivation and organizational engagement. This reflects that trade unions in FDI enterprises in Vietnam are still operating closer to the model of "supportive unionism" rather than "developmental unionism". In other words, trade unions are now stronger in their functions of supporting society, taking care of welfare and maintaining stable labor relations than supporting lifelong learning, reskilling, improving digital skills and adapting to careers in the digital economy. In the context of FDI enterprises increasingly shifting to smart manufacturing and digital governance models, this gap may become a big challenge for the role of trade unions in the future.[30], [31]

From a theoretical perspective, the study contributes to expanding the approach to the role of trade unions in the transition economy. If traditional studies mainly view trade unions as representative institutions of labor rights or collective bargaining

subjects, the results of current research suggest that trade unions can also be seen as an institution that stabilizes labor society and supports the maintenance of the quality of human resources in FDI enterprises. At the same time, the study also shows that the quality of human resources in FDI enterprises needs to be approached in a more multi-dimensional way, in which the working environment, working motivation, organizational cohesion and professional adaptability play an equally important role as technical factors or traditional professional qualifications. These results show that if trade unions are to maintain their role in the digital economy and globalized labor market, trade unions in Vietnam need to strongly shift from the traditional welfare support model to the development trade union model, in which trade unions not only participate in maintaining labor stability but also need to accompany employees in the process improve skills, adapt technology and develop long-term professional capacity.[32]

## 5. CONCLUSION

This study was conducted to analyze the role of trade unions in developing the quality of human resources at FDI enterprises in Vietnam in the context of digital transformation, global value chain restructuring and increasing labor competition. On the basis of survey data from 1,000 employees, trade union officials and business representatives in localities where many FDI enterprises are concentrated, the study has developed and tested a model of the impact of trade union activities on the quality of human resources through intermediary factors such as labor motivation, etc organizational cohesion and career adaptability. The results of the study show that trade union activities have a positive and statistically significant impact on the quality of human resources in FDI enterprises. However, this impact does not mainly take place through mechanisms to improve technical skills or support technology adaptation, but largely through improving labor motivation, strengthening organizational cohesion and stabilizing the working environment in enterprises. SEM results and indirect impact analysis show that labor motivation is the most important intermediate mechanism in the relationship between trade union activity and human resource quality. This reflects that in the modern industrial production environment, the quality of human resources not only depends on professional qualifications or professional skills but is also significantly influenced by psycho-social factors and the structure of labor relations in enterprises. In the

context that FDI enterprises in Vietnam often operate with high labor intensity, high productivity pressure and strong competition, trade union activities related to welfare support, improved working conditions and support for spiritual life play a significant role in maintaining labor motivation. reduce psychological pressure and strengthen the level of employee engagement with the organization. This shows that trade unions in FDI enterprises today not only perform the function of representing labor rights in the traditional sense but also play a role as an institution to stabilize the labor society and support the effective maintenance of human resources in enterprises.

Another notable finding of the study is that the role of trade unions in supporting career adaptation and improving digital skills for workers is still relatively limited. Although occupational adaptability has a positive impact on the quality of human resources, the impact is significantly lower than that of labor motivation and organizational cohesion. This result reflects the paradox of the current FDI development model in Vietnam, when businesses increasingly require a workforce with technological skills and the ability to learn continuously, but the production structure in many industries is still significantly dependent on cheap labor. high labor intensity and workforce stability rather than high-level technological innovation. In this context, trade unions are forced to prioritize activities related to stabilizing labor relations, reducing labor volatility and supporting the working environment rather than being deeply involved in long-term skills development strategies. This shows that trade unions in FDI enterprises in Vietnam are still operating closer to the model of "supportive unionism" rather than "developmental unionism". The study also shows a growing divergence of the labor market in the FDI sector under the impact of technological transformation and global production restructuring. Workers in the electronics and technology industries have significantly higher levels of occupational adaptation and quality of human resources than in labor-intensive industries such as textiles and footwear. At the same time, female workers have higher levels of organizational engagement, while migrant workers have better occupational adaptability but lower levels of engagement with businesses. These results reflect that the FDI sector in Vietnam is no longer a homogeneous labor structure, but there is an increasingly clear process of stratification of labor by manufacturing industries, the level of technological transformation and the social characteristics of the

workforce. This also shows that human resource development policies and trade union activity models in FDI enterprises need to be adjusted in a more flexible direction instead of applying a uniform model to the entire FDI sector.

From a theoretical perspective, the study contributes to expanding the approach to the role of trade unions in the transition economy. If previous studies have mainly viewed trade unions as representative institutions of labor rights or collective bargaining subjects, the results of this study show that trade unions can also be seen as an institution to support human resource development and stabilize labor society in FDI enterprises. At the same time, the study also shows that the quality of human resources needs to be approached in a more multi-dimensional way, in which labor motivation, organizational cohesion, working environment and career adaptability play an equally important role as technical factors or traditional professional qualifications. From a policy perspective, the research results show that it is necessary to reposition the role of trade unions in FDI enterprises in the direction of shifting from "welfare support institutions" to "human resource development institutions". In the context of increasingly strong digital transformation and automation, trade unions cannot only focus on short-term life care activities, but need to participate more deeply in the process of skills training, lifelong learning support, digital skills improvement and career adaptation support for employees. At the same time, the State needs to improve the coordination mechanism between enterprises, trade unions and training institutions to build a skills development ecosystem in line with the requirements of digital production and global value chains. For FDI enterprises, it is necessary to consider trade unions as a strategic partner in human resource development rather than just an industrial relations institution, because improving the quality of the working environment and maintaining the working motivation of employees can become an important factor for the long-term competitiveness of enterprises in the context of competition today's global labor struggle. Although the study has provided ample empirical evidence on the role of trade unions in developing the quality of human resources in FDI enterprises in Vietnam, the study still has certain limitations. The study mainly uses cross-sectional data, so it does not reflect the long-term changes in trade union activities and the quality of human resources in the context of digital transformation. At the same time, the survey sample focuses mainly on FDI enterprises in the fields of

processing, manufacturing and electronics industries, so the ability to generalize for high-tech service industries is still limited. Further studies can be expanded towards time series studies, comparisons between countries, or a deeper analysis

of the role of trade unions in the digital skills transition and career adaptation in the digital economy.

## DECLARATIONS

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**Author Contributions:** Phung The Hung (Faculty of Human Resource Management, Trade Union University, Ha Noi, Vietnam) served as the principal author and contributed to the conceptualization of the study, theoretical framework development, research supervision, and overall project administration.

Nguyen Duc Huu (Faculty of Sociology and Sustainable Development, Trade Union University, Ha Noi, Vietnam.) served as the corresponding author and contributed to research methodology design, data analysis, interpretation of findings, manuscript drafting, editing, and final revision of the article.

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Dinh Van Truong (Training Management Department, Trade Union University, Ha Noi, Vietnam) contributed to survey administration, data collection, and empirical data systematization.

Nguyen Hai Hoang (National Defense and Security Education Center, Trade Union University, Ha Noi, Vietnam) contributed to fieldwork implementation, contextual analysis, and manuscript review.

Dinh Van Chuc (Faculty of Finance and Banking, Trade Union University, Ha Noi, Vietnam) contributed to quantitative analysis, interpretation of statistical results, and critical revision of the manuscript.

All authors reviewed and approved the final version of the manuscript prior to submission.

**Data Availability Statement:** The datasets generated and analyzed during the current study are not publicly available due to confidentiality agreements with participating enterprises and respondents but are available from the corresponding author upon reasonable request.

**Ethical Considerations:** All participants voluntarily participated in the survey after being informed about the objectives and content of the study. The research ensured anonymity, confidentiality, and compliance with ethical standards in social science research involving human participants.

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