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The Impact of Green Logistics on Workforce Transformation and Employment in Vietnamese Logistics Companies

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Abstract : In the context of global sustainable development and increasing pressure to reduce carbon emissions, green logistics has become an important strategic orientation for logistics enterprises. In Vietnam, the logistics sector has experienced rapid growth while also facing increasing pressure to transition toward environmentally friendly operational models. The implementation of green logistics solutions not only affects operational activities but also influences workforce structures and employment characteristics within the industry. This study aims to analyze the impact of green logistics on workforce transformation and employment in Vietnamese logistics enterprises. Based on a review of relevant theories and previous studies, the authors develop a research model to examine how green logistics practices influence skill requirements, job structures, and workforce adaptability. The study employs a survey of logistics enterprises in Vietnam and applies quantitative analysis to test the proposed model and hypotheses. The findings indicate that green logistics adoption significantly promotes workforce transformation, including increasing demand for new skills, changes in job content, and the emergence of employment opportunities related to sustainable development.

Index Terms **- Employment, green logistics, workforce transformation, Vietnamese firms.**

I. INTRODUCTION

Sustainable development has grown in importance for many nations and economic sectors globally considering rising environmental pollution and climate change. Logistics is the main body of international trade and economic development. In addition, the logistics sector is among the economy's highest-emitting industries, and it is also the largest increasing greenhouse gas emissions. The transport sector accounts for 23-25% of the global CO2 emissions and the emissions caused by freight transport and logistics are among the sectors with the fastest growth (IEA, 2022). In addition, in the logistics sector there is an increasing need to achieve a low-carbon economy and high productivity, and to achieve this, it is possible to implement sustainable, that is, green logistics practices, which are aimed at reducing the environmental impact of logistics decisions without compromising business efficiency (Evangelista et al., 2017).

On average, the sector expands by about 10 to 15 percent per year, the logistics industry in Vietnam has grown quickly and is becoming increasingly significant to the country's economy. However, logistics costs remain relatively high, accounting for around 16-20% of GDP, indicating significant room for improving operational efficiency (Ministry of Industry and Trade, 2025). In keeping with the country's commitment to achieve net-zero emissions by 2050, the transition toward greener logistics practices has become increasingly necessary. This shift calls both operational adjustments and technical innovation in addition to substantial adjustments in human resources and workforce skills.

Currently, there is increasing research focusing on green logistics, primarily on environmental impacts or business performance. The effects of green logistics on jobs and labor market dynamics are also a key research focus, particularly for developing economies such as Vietnam. Human resource restructuring's mediating function and labor skills upgrading in this relationship is also a key factor in promoting the transition to green logistics linked to sustainable human resource development.

II. LITERATURE REVIEW

Eltayeb K. T. et al. (2011) highlight that green logistics practices encourage firms to redesign work processes and reallocate human resources to meet both environmental and operational efficiency requirements, thereby improving workforce quality and enhancing long-term competitiveness.

Eric Trist and Ken Bamforth (1951), together with Fred Emery (1959), developed the Socio-Technical Systems theory, which suggests that changes in the technical components of an organization inevitably require corresponding adjustments in the social system, particularly in workforce structure and employee skills.

Surajit Bag and Suresh Gupta (2019) argue that green logistics orientation can drive firms to restructure human resources toward greater flexibility, enhance cross-functional collaboration, and strengthen organizational learning capabilities, ultimately supporting sustainable business prosperity.

Ji et al. (2024) report proof of a favorable correlation between employees' skills and green job adaptability and consequently between employees' skills and green jobs and employment outcomes. They conclude that matching employees' skills with the changing requirements of green jobs leads to employees' desired employment outcomes and thus long-term sustainability of green jobs. Their confirmation of our prediction is encouraging.

Anrafel de Souza Barbosa et al. (2023) affirm in their research that companies with limited emphasis on ESG (Environmental, Social and Corporate Governance) are those where using eco-friendly logistical techniques will remain as a "window dressing" in labor relations, having no real impact on the labor transformation process in the organization.

Armin Alibasic et al. (2022) warn that without appropriate training and development policies, workforce restructuring associated with sustainability transitions may lead to job losses, increased career insecurity, and widening skill gaps among employees.

III. THEORETICAL FRAMEWORK AND RESEARCH MODEL

3.1 Theoretical foundation

Socio - Technical System (STS)

The approach is based on the theory of Socio - Technical System (STS) that asserts that the performance of an organization depends on a close interrelationship between the technical system and the social system. The adoption of green technologies in logistics company such as digital platform, emission detection system and the alternative energy or efficient modes of transportation is an element of technological change in the technical subsystem of STS. This change must be accompanied by corresponding adjustments in the social subsystem such as job re-design and changes in skills of employees. The technology does not replace people but re-shapes their work. Therefore, STS provides a useful framework for explaining how green logistics adoption can reshape workforce structures within logistics organizations.

Technology - Organization - Environment (TOE)

The Technology-Organization-Environment (TOE) framework describes how organizational, environmental, and technological aspects affect the adoption of technological innovations. This paper discusses three contextual components that are highly relevant for the employment context of logistics companies, and as such, highly relevant for the competence development of the workforce in this sector. The technological context refers to the availability of the right technology such as digital systems and green logistics infrastructure. The organizational context refers to the internal conditions such as management support, human and financial resources and the company's overarching plan. The environmental context consists of the external pressures exerted by different stakeholders such as laws and regulations, competitive pressure and market pressure to adopt sustainable practices. As logistics is a carbon-intensive industry, companies in this sector are confronted with increasing number of environmental regulations and ESG (Environmental, Social and Governance) requirements, which highly induce them to put green logistical techniques into effect. These practices often require the workforce to develop specific skills.

Job Demands - Resources (JD-R)

The work explains how organizational resources and work demands impact employee outcomes. The Demands-Resources (JD-R) paradigm. Job demands are work requests, such as working long hours, learning to operate new technology or acquiring new skills. Job resources include worksite organizational and supervisory support, as well as opportunities for skill development, career advancement, and learning. For example, employees in the logistics sector may experience higher technological and environmental job demands when undergoing the green logistics transformation. However, if the employer provides adequate resources including training to the employees, then these employees can successfully cope with their work demands and achieve better work-related outcomes.

3.2 Hypothesis development

Green logistics practices and workforce transformation

Green logistics practices include operational improvements, monitoring systems, and strategic sustainability initiatives designed to reduce environmental impacts. These practices often require new technological competencies, data analysis capabilities, and cross - departmental coordination. As a result, organizations need to restructure job roles and upgrade employee skills. Based on socio - transformation, green logistics practices are expected to stimulate workforce restructuring and skill upgrading.

Hypothesis 1 (H1): *Green logistics operational processes positively influence workforce restructuring and skill upgrading.*

Hypothesis 2 (H2): *Green logistics monitoring and improvement systems positively influence workforce restructuring and skill upgrading.*

Hypothesis 3 (H3): *Green logistics strategic orientation positively influence workforce restructuring and skill upgrading.*

Workforce transformation and employment outcomes

Workforce restructuring and skill upgrading help organizations align human resources with new operational requirements. The JD-R model states that when workers have sufficient abilities and organizational support to meet new job demands, positive employment outcomes like job satisfaction, career advancement, and work engagement are more likely to occur for them. Therefore, workforce transformation can convert technological change into improved employment outcomes.

Hypothesis 4 (H4): *Workforce restructuring and skill upgrading significantly influence employment outcomes.*

Moderating roles of ESG and training policies

The impact of relationship strength may differ under various organizational and institutional contexts. In particular, ESG (Environment, Social and Governance) practices, which mandate companies to make environment and social responsibility a key element of their business strategies, can promote the relationship strength between green logistics orientation and workforce transformation. Training and development practices can therefore be seen as important job resources that help workers adapt to possible restructuring and automation associated with workplace transformation

Hypothesis 5 (H5): *ESG practices moderate the relationship between green logistics strategic orientation and workforce restructuring.*

Hypothesis 6 (H6): *Training and development policies moderate the relationship between workforce restructuring and employment outcomes.*

3.3 Proposed research model

According to the theoretical framework and research hypotheses proposed in the preceding sections, a conceptual research paradigm is presented in this study to empirically analyze the relationships among green logistics practices, workforce transformation, and employment outcomes in logistics enterprises, based on the moderate effect of ESG practices and training policies.

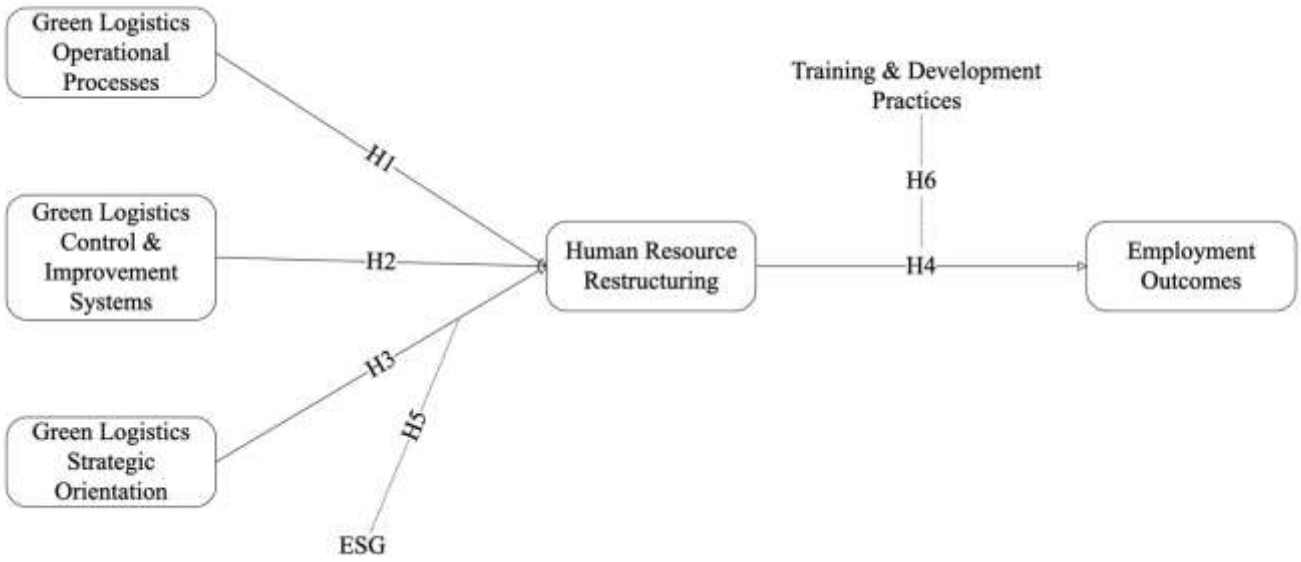

Figure 1: the suggested research model

IV. RESEARCH METHODOLOGY

4.1 Research design

This paper aims to examine the impact of green logistics on workforce transformation and employment by exploring the dynamics in logistics enterprises in Vietnam. To accomplish its goals, the study employs a mixed-method research strategy that combines quantitative and qualitative methods.

4.2 Data collection & Sample

The research data were collected using both qualitative and quantitative methods.

The qualitative research carried out interviews with logistics experts and Human Resource (HR) managers to verify the research hypotheses, and to verify and modify the research constructs and measurement scales in the proposed model. Secondary data was also collected from published academic studies and reports from Government agencies like the General Statistics Office (GSO), Ministry of Industry and Trade (MOIT), The Institute of Labour Science and Social Affairs (ILSSA) and associations like Vietnam Logistics Business Association (VLA).

A survey questionnaire was distributed to logistics managers and employees in Vietnamese logistics companies to gather the core data for the quantitative study. The basis of the questionnaire was measurement scales applied by the authors from the literature. They were introduced, supplemented and perfected by means of qualitative research stage. The survey was carried out online via Google Forms as well as directly sent to the respondents by the researchers to ensure enough reliable data for further statistical analysis.

4.3 Measurement scale

By referring to the literature and earlier studies about the study, the research team established a comprehensive research model, as shown in Figure 1 and the six corresponding research hypotheses.

A total of 38 measurement items were proposed to examine the relationships between variables in the model. They were assessed using a 5-point Likert scale, where 1 represented "strongly disagree" and 5 represented "strongly agree,"

4.4 Data analysis method (PLS-SEM)

The total number of data collected was 257 valid and reliable responses. After scrutinizing every response to check for invalidity, 29 responses were considered invalid and were therefore removed from the data set leaving the total number of valid responses as 228. All the data was analyzed with the aid of SmartPLS software by making use of the PLS-SEM approach.

The analysis procedure consisted of two main stages.

First, to assess the reliability and convergent validity of the measurement scales, the measurement model was investigated utilizing Outer Loadings, Cronbach's Alpha, Composite Reliability (CR) and Average Variance Extracted (AVE). The measurement scales were acceptable if the outer loadings were above 0.7, AVE was greater than 0.5, and Cronbach's Alpha and CR were greater than 0.7.

Second, to assess the success of the research hypotheses, the structural model was validated. Coefficient of determination (R^2), which evaluates the model's adjustment, was one of the metrics employed the path coefficients with the respective bootstrapping to analyze the statistically significant of the relationships proposed (p-value ≤ 0.05) and the Variance Inflation Factor (VIF) to verify the absence of multicollinearity among the exogenous variables.

V. RESULTS AND DISCUSSION

5.1 Findings

Table 1: characteristics of the survey sample using descriptive statistics

No.	Criteria	Category	Frequency	Percentage (%)
1	Gender	Male	104	45.4
		Female	122	53.6
		Other	2	1
2	Age	Under 25 years old	98	43
		25 - 34 years old	44	19.3
		35 - 44 years old	44	19.3
		45 - 54 years old	26	11.4
		55 years old and above	16	7
3	Education	College / Vocational diploma	9	4
		Bachelor's degree	136	59.6
		Postgraduate degree	83	36.4
4	Current field of work	Logistics enterprises	87	38.1
		Fields directly related to logistics	141	61.9
5	Working experience in the current field	Less than 6 months	89	39.1
		6 months - less than 1 year	14	6.2
		1 - less than 3 years	31	13.4
		3 - less than 5 years	21	9.3
		5 years and above	73	32
6	Current job position	Staff / Specialist	113	49.5
		Team leader / Manager	47	20.6
		Executive board / Director / Chairman	21	9.3
		Others	47	20.6
7	Type of enterprise	Small and medium-sized enterprises (SMEs)	148	64.9
		Large enterprises / Corporations	80	35.1
8	Years of enterprise operation	Less than 5 years	73	32
		5 - 10 years	56	24.6
		10 - 15 years	28	12.3
		More than 15 years	71	31.1
9	Main operating region	Northern Vietnam	146	64
		Central Vietnam	31	13.6
		Southern Vietnam	51	22.4

Descriptive statistics concerning the characteristics of the sample derived from our survey are presented in the following tables. The gender distribution in the sample is close to balanced: 53.6% of the sample are females and 45.4% are males. As can be deduced from the table, most of the sample are young people under 25. The sample are also largely composed of university graduates. Most survey participants are currently working as employees or specialists in some capacity. Most survey participants presently work for small and medium-sized businesses (SMEs) in one capacity or another. In terms of geographical distribution, most respondents are in Northern Vietnam, which reflects the concentration of logistics activities and enterprises in this region.

Table 2: outer loadings of measurement items

	EMP	ESG	GLCI	GLOP	GLSO	HRR	TDP
EMP1	0.831						
EMP2	0.803						
EMP3	0.834						
EMP4	0.761						
EMP5	0.742						
EMP6	0.782						
ESG1		0.888					
ESG2		0.778					
ESG3		0.872					
ESG4		0.739					
ESG5		0.950					
GLCI1			0.741				
GLCI2			0.789				
GLCI3			0.773				
GLCI4			0.814				
GLCI5			0.765				
GLOP1				0.780			
GLOP2				0.801			
GLOP3				0.778			
GLOP4				0.784			
GLOP5				0.805			
GLOP6				0.742			
GLSO1					0.714		
GLSO3					0.890		
GLSO5					0.767		
GLSO6					0.839		
HRR1						0.817	
HRR2						0.763	
HRR3						0.792	
HRR4						0.733	
HRR5						0.778	
HRR6						0.825	
HRR7						0.780	
TDP1							0.975
TDP2							0.836
TDP3							0.853

The results indicate that after removing items that did not meet the required threshold (GLSO2 and GLSO4), all remaining measurement items have outer loadings greater than 0.7, ranging from 0.714 to 0.975. According to Hair et al. (2022), when the outside loading value is 0.7 or greater, it means that the observed variable adequately explains the corresponding latent construct. Therefore, the measurement scales in the model achieve convergent validity and are considered appropriate for additional examination during the PLS-SEM process.

Table 3: findings from using the Cronbach's Alpha coefficient to evaluate scale reliability

Construct	Measurement item	Outer loading		Number of items		Cronbach's Alpha	Note
		Initial	After item removal	Initial	After item removal		
GLOP	**GLOP1**	0.780	0.780	6	6	0.873	No item removed
	GLOP2	0.801	0.801				
	GLOP3	0.778	0.778				

	GLOP4	0.784	0.784				
	GLOP5	0.805	0.805				
	GLOP6	0.742	0.742				
GLCI	**GLCI1**	0.741	0.741	5	5	0.836	No item removed
	GLCI2	0.789	0.789				
	GLCI3	0.773	0.773				
	GLCI4	0.814	0.814				
	GLCI5	0.765	0.765				
GLSO	**GLSO1**	0.709	0.709	6	4	0.832	Items GLSO2 & GLSO4 removed
	GLSO2	0.605					
	GLSO3	0.891	0.891				
	GLSO4	0.646					
	GLSO5	0.765	0.765				
	GLSO6	0.839	0.839				
HRR	**HRR1**	0.817	0.817	7	7	0.896	No item removed
	HRR2	0.763	0.763				
	HRR3	0.792	0.792				
	HRR4	0.733	0.733				
	HRR5	0.778	0.778				
	HRR6	0.825	0.825				
	HRR7	0.780	0.780				
EMP	**EMP1**	0.831	0.831	6	6	0.881	No item removed
	EMP2	0.803	0.803				
	EMP3	0.834	0.834				
	EMP4	0.761	0.761				
	EMP5	0.742	0.742				
	EMP6	0.782	0.782				
ESG	**ESG1**	0.888	0.888	5	5	0.931	No item removed
	ESG2	0.778	0.778				
	ESG3	0.872	0.872				
	ESG4	0.739	0.739				
	ESG5	0.950	0.950				
TDP	**TDP1**	0.975	0.975	3	3	0.892	No item removed
	TDP2	0.836	0.836				
	TDP3	0.853	0.853				

Every measurement scale used in the model's variables' reliability tests were above the threshold, and Cronbach's Alpha coefficients ranged from 0.832 to 0.931. All but one of the observed variables had outer loading values above 0.7, and therefore sufficiently measure the latent variables.

The following items were removed for the current round: GLSO2 GLSO4 Their outer loadings were less than the threshold of reliability on the measurement scales. All measurement scales now appear reliable enough for further modeling.

Table 4: reliability and convergent validity measurements

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
EMP	0.881	0.884	0.910	0.628
ESG	0.931	0.918	0.927	0.720
GLCI	0.836	0.840	0.884	0.603
GLOP	0.873	0.877	0.904	0.611
GLSO	0.832	0.967	0.880	0.649
HRR	0.896	0.896	0.918	0.615
TDP	0.892	1.784	0.919	0.792

Table 4's findings show that every measurement scale satisfies the criteria for convergent validity and reliability. Specifically, Cronbach's Alpha coefficients range from 0.832 to 0.931 (>0.7), indicating good internal consistency. Composite reliability values are all greater than 0.88, exceeding the recommended threshold of 0.7. The Average Variance Extracted (AVE) values range from 0.603 to 0.792 (>0.5), demonstrating that the constructs achieve convergent validity according to the criteria suggested by Hair et al. (2022). Therefore, the measurement model ensures the required reliability and validity.

Table 5: findings from the Fornell-Larcker criterion discriminant validity evaluation

	EMP	ESG	GLCI	GLOP	GLSO	HRR	TDP
EMP	0.793						
ESG	-0.055	0.849					
GLCI	0.456	-0.042	0.777				
GLOP	0.430	-0.074	0.020	0.782			
GLSO	0.020	0.039	0.052	0.042	0.806		
HRR	0.733	-0.095	0.499	0.560	0.096	0.785	
TDP	-0.046	0.031	0.095	-0.056	-0.145	-0.058	0.890

The AVE square root of each concept is higher than its correlations with other constructs, according the Fornell-Larcker criterion shown in Table 5. Specifically, EMP (0.793), ESG (0.849), GLCI (0.777), GLOP (0.782), GLSO (0.806), HRR (0.785), and TDP (0.890) are all greater than the equivalent correlations between the constructs. Fornell and Larcker (1981) state that the model achieves discriminant validity, meaning that the conceptual meanings of the research constructs are separate and do not overlap.

Table 6: heterotrait-monotrait ratio (HTMT) discriminant validity

	EMP	ESG	GLCI	GLOP	GLSO	HRR	TDP
EMP							
ESG	0.064						
GLCI	0.526	0.042					
GLOP	0.484	0.071	0.088				
GLSO	0.059	0.061	0.090	0.087			
HRR	0.823	0.083	0.573	0.627	0.098		
TDP	0.064	0.078	0.118	0.075	0.189	0.070	

Table 6's findings demonstrate that every HTMT value between constructs are below 0.85 and do not exceed the threshold of 0.90. The highest value is 0.823 (between EMP and HRR), which is still within the acceptable range. Henseler et al. (2015) state that an HTMT score less than 0.85 signifies that the model achieves discriminant validity. Therefore, the constructs in the model are clearly distinct, and no conceptual overlap occurs.

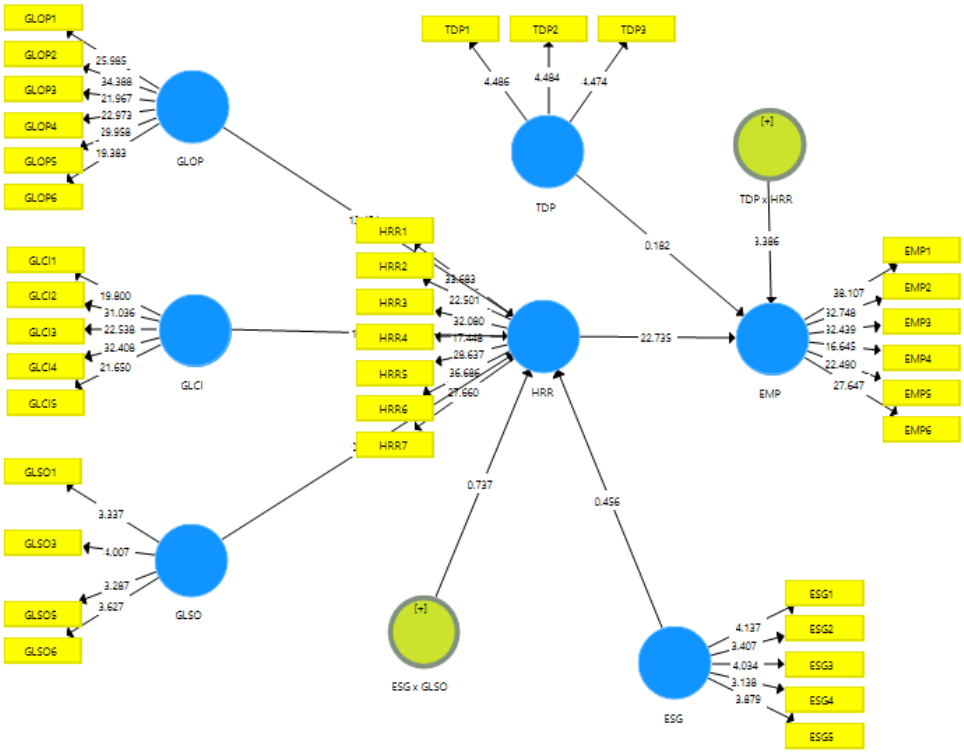

Figure 2: PLS-SEM path analysis result

Table 7: results of structural model assessment using Bootstrapping

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
ESG x GLSO -> HRR	0.044	0.037	0.054	0.816	0.415
GLCI -> HRR	0.487	0.488	0.049	9.955	0.000
GLOP -> HRR	0.547	0.542	0.047	11.688	0.000
GLSO -> HRR	0.045	0.056	0.062	0.720	0.472
HRR -> EMP	0.749	0.748	0.036	20.640	0.000
TDP x HRR -> EMP	0.174	0.152	0.057	3.057	0.002

Based on the path coefficients presented in Table 4, the results show that green logistics operational practices have a positive and statistically significant impact on human resource restructuring and skill upgrading (H1: $\beta = 0.547$; $p < 0.001$).

Similarly, the monitoring and improvement system for green logistics operations has a favorable and substantial impact on human resources as well restructuring and skill upgrading (H2: $\beta = 0.487$; $p < 0.001$).

Furthermore, human resource restructuring and skill upgrading positively influence employment outcomes (H4: $\beta = 0.749$; $p < 0.001$). In addition, training and development policies play a positive moderating role in this relationship (H6: $\beta = 0.174$; $p = 0.002$).

However, there is no statistically significant effect of green logistics strategy approach on human resource restructuring and skill upgrading (H3: $\beta = 0.045$; $p = 0.472$). Similarly, There is no evidence to support ESG practices' moderating role in the relationship between green logistics strategic orientation and human resource restructuring (H5: $\beta = 0.044$; $p = 0.415$).

Table 8: Variance Inflation Factor (VIF) results for multicollinearity assessment

	EMP
ESG	1.013
GLCI	1.008
GLOP	1.008
GLSO	1.017
HRR	1.012
TDP	1.010

The findings show that the independent variables linked to job outcomes have VIF values between 1.008 and 1.017. Hair et al. (2022) state that VIF values less than 5 signify that no serious multicollinearity problem exists in the model.

Since all VIF values are close to 1, the regression estimates in the structural model are regarded as trustworthy, and It may be said that this model does not suffer from multicollinearity.

Table 9: findings of hypothesis testing

Hypothesis	Description	Result
H1	Green logistics operational practices have a positive impact on human resource restructuring and skill upgrading.	Accepted
H2	The monitoring and improvement system of green logistics operations has a positive effect on human resource restructuring and skill upgrading.	Accepted
H3	The green logistics strategic orientation of enterprises has a positive effect on human resource restructuring and skill upgrading.	Not accepted
H4	Human resource restructuring and skill upgrading have a significant impact on employees' employment outcomes.	Accepted
H5	ESG moderates the impact of green logistics strategic orientation on human resource restructuring.	Not accepted
H6	Human resource training and development policies moderate the impact of human resource restructuring on employment outcomes in the context of green logistics.	Accepted

The research findings show that hypotheses H1, H2, H4, and H6 are supported at the 5% significance level, while H3 and H5 are not supported.

For H1, results show that the practice of green logistics activities have had a significantly positive effect on the process of restructure and training human resource for Vietnam logistics enterprises. In which, the findings are consistent with the viewpoints of the previous research pointing out that environment friendly activities in logistics business require a more dynamic and creative workforce structure and thus calling for retraining the existing workforce.

Regarding H2, monitoring and improving activities of green logistics are intimately associated with the restructuring of the work and skills development. Monitoring, evaluation and improvement activities carried out during the Green Logistics implementation process have a direct impact on organization learning and skills development.

However, H3 is not supported, indicating that green logistics strategic orientation does not significantly affect workforce restructuring and skill upgrading in this study. In Vietnamese logistics enterprises, green logistics is not fully applied. It may be that, in Vietnamese logistics enterprises, green logistics activities are still in the stage of planning and orientation, so it has not yet been reflected into human resource management activities, or even to become a content for adjusting organizational structure and behaviors.

For H4, the results demonstrate that workforce restructuring and skill upgrading have a positive and significant impact on employment outcomes. The results indicate that labor restructuring and skill development have a positive effect on employment performance in logistics industry. Therefore, increasing employee skills and labor restructuring in logistics companies is likely to enhance the employment performance in terms of employment stability, labor productivity and career development.

Regarding H5, The ESG factors do not moderate the relationship between green logistics strategic orientation and workforce restructuring. It means that ESG practices in Vietnamese logistics firms do not really affect the way of human resource management in these firms.

Finally, H6 is supported, showing that training and development policies favorably moderate the connection between workforce restructuring and employment outcomes. Therefore, the effective implementation of training and skill development measures for workers is essential to fully realize the potential of the workforce transformation process in relation to the green logistics sector activities.

VI. CONCLUSION

Firstly, the purpose of this study was to empirically examine how workforce restructuring in Vietnamese logistics companies is impacted by green logistics. The empirical results demonstrate that green logistics activities have a positive and significant effect on labor restructuring in Vietnamese logistics firms. In general, the study suggests that companies implementing green logistics practices are required to restructure labor, enhance the qualification criteria for employees, and require new skills from them such as digital skills and environmental skills. Hence, companies implementing green logistics practices must carry out a technological change, an organizational change, and a labor change.

Secondly, improvements in monitoring systems and working processes are important for the adjustment of staff to the human resource restructuring processes in logistics companies. As logistics activities are becoming more based on the use of information technologies and as companies are striving to achieve more sustainable practices, workers are required to undertake complementary training and to readjust their working conditions. In this context, training and human resource development policies of the companies have an amplifying effect on the relationship between the restructuring of the workforce and the creation of employment.

However, the research team also recognizes several limitations. The first limitation relates to the availability of data, as the level of green logistics implementation in Vietnam is still relatively limited. In addition, due to time and resource constraints, the sample size of the study remains modest. Furthermore, the data collection process faced certain difficulties because some enterprises were reluctant to share internal information related to their operations and workforce. Future studies should therefore broaden the dataset and investigate other variables that can affect the connection between labor restructuring and the development of green logistics.

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