ISSN 2409-2665
Journal of Logistics, Informatics and Service Science
Vol. 13 (2026) No. 4, pp. 34-50
DOI:10.33168/JLISS.2026.0403

Green HRM and Supply Chain Performance: The Mediating Role of Information Technology Capability in Jordanian Firms

Nabeel Majali, Juraifa Bte Jais, Mohamed Khudari*

College of Graduate Studies, Universiti Tenaga Nasional (UNITEN), Selangor, MALAYSIA
khudari@uniten.edu.my (Corresponding author)

Abstract. This research seeks to investigate the relationship between green human resource management and supply chain performance, and also explain the role that information technology plays in this relationship in the supply chain industry in Jordan. the study was conducted using the quantitative research design, and 350 employees of enterprises operating in the field of supply chains were used as the convenient sample. The proposed relationships were analyzed with the help of Structural Equation Modeling (SEM) based on Smart-PLS. The findings show that hiring and selection procedures have a little impact on the supply chain's performance improvement, Teamwork, training and development of employees and reward systems on the other hand bring significant inputs in the performance enhancement. Most importantly, IT also plays an important role in enhancing the connection between GHRM and performance of the supply chain. The study contributes to the existing literature in this area by explaining how information technology could be used to improve the outcomes of supply chains. In practice, the knowledge obtained in this paper can help managers and decision-makers to coordinate the HR strategies with the digital transformation initiatives.

Keywords: Supply Chain Performance; Information Technology; Green Human Resource Management; panel data; Selection and Hiring

1. Introduction

Rapid technological advancements, the rise of globalization, and corporate outsourcing have transformed the supply chain (SC) industry (Abdul Muhsin et al., 2025). Supply chain systems are a cornerstone of international trade, ensuring the continuous flow of goods and services (Al-Shboul, 2024), Changing customer behavior, have also placed significant strain on these companies (Tao et al., 2022; Al Doghan & Sundram, 2023), According to current estimates, the global supply chain market is expected to grow by 2032 at a compound annual growth rate of 5.6 percent (Al-Balushi et al., 2024), Jordan has taken practical steps to achieve this type of growth by increasing e-commerce activity, and building supply chain infrastructure (Al-Oqaily et al., 2024), Despite this, the costs of Jordan's supply chain systems are high relative to its GDP, limiting its global competitiveness (Albrecht et al., 2024), Therefore, Green Human Resources (GHR) was developed with the aim of producing a strong, skilled, and future-oriented workforce, striving to improve performance and achieve Jordan's long-term economic goals (Al Shura & Awawdeh, 2016), The Green Human Resource Management (GHRM) model has emerged as an integrated strategy that combines economic, environmental and social goals, with a focus on employee well-being and organizational sustainability (Al-Minhas et al., 2020; Al-Oqaily et al., 2024). Supply chain operations have been transformed by the emergence of new technologies, including data analytics, artificial intelligence, intelligent decision support systems, and tools such as real-time monitoring and predictive analytics, leading to reduced costs, increased productivity, and improved decision-making (Al Shura & Awawdeh, 2016), Information technology (IT) has also enhanced human resource management (HRM) through streamlined recruitment, continuous training, and the fostering of a culture of adaptability in the workplace (Al Doghan & Sundram, 2023; Bag et al., 2024).

Despite the fact that earlier studies have recognized the role of GHRM in improving organizational performance (El-Dessouky & Alquaiti, 2020). First, much research views human resource management (HRM) practices in isolation from supply chain performance, limiting the understanding of their interrelationship. Second, studies often overlook the role of information technology (IT) in enhancing green HRM and its impact on supply chain performance (Haq et al., 2023). Third, current research typically focuses on logistics resilience, while the broader concept of supply chain performance, encompassing, responsiveness, service quality, and sustainability, has not been adequately explored empirically efficiency **(**Agyabeng et al., 2020**;** Al-Minhas et al., 2020**)**. These gaps highlight the need for a more comprehensive study that integrates green HRM, IT capabilities, and supply chain performance within the Jordanian context. Against this backdrop.

The current study aims to fill these gaps by answering the following research questions:

RQ1: How does GHRM- Selection and Hiring, Reward Management, training and development and team work - influence SC Performance in the Jordanian SC sector?

RQ2: To what extent does IT support the improvement of SC Performance?

RQ3: How does IT facilitate the link between GHRM and SC Performance?

The research contributes to the body of existing literature in many ways. It expands the research about green human resource management by first of all examining how GHRM practices, IT, and organizational dynamics are evaluated in terms of their combined effect on the SCP in the fast-changing market context (Evangelista et al., 2023). This multidimensional point of view fills in the gaps of past research that usually evaluated these components separately. Second, the conceptualization of IT as a facilitating mechanism is presented in the study, which provides new information about how digital capabilities can reinforce the effect of GHRM on organizational outcomes (Chatterjee et al., 2021). Third, it promotes both theoretical and practical knowledge by demonstrating the potential of sustainable workforce practices to enhance long-term competitiveness. Finally, the findings provide the practitioners and policymakers with viable recommendations on how SC can subsequently be better at performing in different operational settings (Dadouchi & Agard, 2021; Flynn et al., 2010).

2. Literature Review

This paper will analyze the connection between SCP and GHRM by focusing on the intermediary role of IT. SCP has four basic pillars, which include efficiency (Negi, 2021), responsiveness (Asamoah et al., 2021), the quality of service and sustainability (Abdirad & Krishnan 2022), all of which are vital in the context of organizations that want to generate value and remain competitive in an ever dynamic business environment (Al-Shammari, 2023). The most important GHRM practices, i.e., selection and hiring, reward management, development and training, and teamwork (Cao & Zhang. 2011), resilience is identified as strategic levers that can empower the productivity of the workforce and organizational; Chatterjee et al., 2021; Al-Balushi et al., 2024).

The adoption of information technology has fundamentally transformed supply chain operations (Attaran, 2020), enabling predictive decision-making, automation, and real-time, data-driven monitoring (Chillakuri & Vanka, 2021), thereby enhancing organizational practices in route optimization and inventory management (Vaka, 2024). Furthermore, information technology supports green human resource management (GHRM) through recruitment practices, tailored training, and flexible workforce strategies, thus linking GHRM to improved supply chain performance (Cheng et al., 2023).

2.1. Selection, Hiring, and Reward Management

Selection and hiring are strategic processes that aim at identifying, acquiring and picking those individuals who fit the requirements of the organization (Rubina, 2024; Abbasi et al., 2022), The supply chain sector relies on selecting and recruiting the right people to handle the dynamic supply chain and fluctuating operational needs (George et al., 2014, Guerci et al., 2016), A systematic recruitment process helps ensure that individuals knowledgeable about the latest technologies and innovative practices are available to help the organization achieve its goals (Gyensare et al., 2024), A survey of 76 supply chain service providers in Jordan revealed that selection and recruitment practices positively impacted supply chain efficiencies (Ali et al., 2021), Most Jordanian supply chain companies still operate under informal recruitment systems that rely on personal contacts or word-of-mouth marketing (Al-Tarawneha et al., 2024).

A rewards management system is a way to reward employees for their contributions and work based on their performance, which is measured against organizational goals (Ngwa et al., 2019; Martono et al., 2018; Hofmann & Rusk, 2017), The system encourages employees to increase their productivity and foster innovation, and it can adapt to dynamic operational challenges (Huang & Rust, 2021), It can also help retain top talent to maintain a competitive advantage (Jahangir et al., 2025), Empirical research has yielded conflicting results, and observed no significant impact of reward management on supply chain efficiency (Gyensare et al., 2024; Jarlstrom et al., 2018; Jaskeviciute et al., 2021), while Menon recognized that reward practices can lead to a substantial increase in supply chain efficiency (Khaliq et al., 2020).

As an extension of these results, the research recommends that the fundamental processes of the GHRM are hiring, selection and reward management. The following hypotheses are therefore proposed:

H_1: Hiring and selection impact supply chain performance.

H_2: Reward management impacts supply chain performance**.**

2.2. Training and Development and Team Work

Since training and development concentrate on improving employees' skills, knowledge, and competencies, they are a crucial component of green human resource management. (Purnama & Purwanto, 2023) to address emerging organizational and business needs (Khan et al., 2022), In the SC sector, sufficient training enables personnel to have the technical, analytical and communication skills (Kourda, 2021), Empirical research shown that the training has positive impacts on SC and organizational performance, upon enhancing operational efficiency, minimization of errors, and stimulation of innovation (Kramar, 2014; Tramarico et al., 2015).

The second crucial aspect of GHRM is teamwork that focuses on the importance of employees working together towards common goals especially in SC operations (Agyabeng et al., 2020) like procurement, transport, warehousing and distribution (Lacerenza et al, 2018), Team-based workflows facilitate successful communications, exchange of knowledge, and participative problem-solving that enhance coordination of operations and improve SC Performance (Ehnert et al., 2016; Le et al., 2025; Loughry et al., 2014; Madero et al., 2023), The empirical studies support the claim that collaborative work in Teams boosts SC Performance (Makhdoom et al., 2025), In summary, development, training, and teamwork contribute to effective supply chain performance. Based on this, the following assumptions are made:

H_3: Training and Development will have a positive effect SC Performance.

H_4: Team works positively impacts SC Performance.

2.3. Green Human Resource Management

A contemporary business strategy called "green human resource management" (GHRM) incorporates sustainability into HR procedures. (Ullah, 2017). Its focus is on attracting, recruiting, training, and retaining employees who are committed to sustainable organizational activities (Magbool et al., 2016). Organizations strive to enhance their social responsibility (Malik et al., 2021), strengthen their brand, and reduce operating costs to ultimately gain a competitive edge in the market (Bataineh et al., 2024). As companies increasingly recognize the importance of sustainability, GHRM offers a strategic approach to developing a workforce that supports and motivates environmental initiatives (Ojokuku et al., 2024).

On the basis of this, the following hypotheses are presented:

H_5: GHRM has a positive impact on SC Performance.

H_6: GHRM has a positive impact on IT.

2.4. Information Technology and Supply Chain Performance

Artificial intelligence, data analytics, and sophisticated decision support systems are examples of information technologies that are becoming more and more crucial for increasing productivity and lowering operational, Information technology makes it possible to carry out tasks that were previously completed by humans (Qahtani & Alsmairat, 2023; Al-Qasimi et al., 2024a), Despite the vast amounts of information generated by supply chain operations, much of it is not utilized due to limited access or a lack of analytical capabilities (Yildirim & Arun, 2025). Analytical tools, including those based on artificial intelligence, play a vital role in transforming data into actionable insights, improving purchasing decisions (Zhang, 2023), enhancing transparency, and increasing the accuracy of forecasts (Ma & Chang, 2025; Al-Qasimi et al., 2024b).

H_7: IT has a positive effect on supply chain Performance.

2.5. Mediating Role of IT in GHRM and Supply Chain Performance

A green human resource management (GHRM) system must incorporate information technology to achieve better organizational performance, efficiency, and competitiveness (Shayegan et al., 2023; Meng et al, 2025). This helps accelerate recruitment, training, and monitoring processes to enhance employee engagement, productivity, and flexibility (Setyadi et al., 2023). Furthermore, with the help of information technology, predictive analytics, real-time monitoring, and process automation can improve performance in SC operations (Setyaningrum, & Muafi, 2023). Therefore, the following hypothesis is proposed:

H_8: The relationship between SC Performance and GHRM will be mediated by IT.

3. Research Methodology

3.1. Population and Sample

Participants in the study were taken at different levels of management; operational, mid-level and top

management, and in supply chain organizations in Jordan. The convenience sampling method was used. This kind of sampling was the most feasible, despite the fact that it minimizes the generalization aspect of the findings obtained, because of the scarcity of time and resources at the disposal of the involved organizations (Stone, 1974), the research was originally geared towards gathering information of 400 people to satisfy methodological assumption of (PLS-SEM) (Kock, 2015) . This was facilitated by power analysis that was performed using G star power and showed that a sample of this size would be sufficient with an assumed effect size of f2 = 0.15, a significant level of 0.05, three predictor variables and a desired statistical power of 0.80. In the end, 350 useful questionnaires were received. This data was adequate to investigate the effects of the (GHRM) in relation to the supply chain.

3.2. Variable Items

A structured questionnaire was used to measure all the variables based on a five-point Likert scale (strongly disagree to strongly agree) (Sekaran, 2019). The questionnaire had been divided into two major parts. The initial section was a simple demographic data of the participants. The second part contained closed-ended questions to elicit the opinion and experience of the respondents on green HRM, information technology and supply chain performance.

Table 1. Measurement items.

Construct	Item	Statement	Code
Selection and hiring	1	In our organization, interview panels are usually the primary method of selection.	SHR1
	2	Our open positions are filled through word-of-mouth.	SHR2
	3	We give our employees flexible work schedules.	SHR3
	4	Because SC depends on its employees to perform, hiring and selection are crucial to enhancing SCP.	SHR4
Reward Management	1	We provide our employees with competitive pay.	RM1
	2	We provide our workers with enticing welfare benefits packages. .	RM2
	3	People are fairly rewarded by the incentive scheme.	RM3
	4	Individuals (and/or groups) who succeed in reaching the objectives receive the same rewards as those who fail.	RM4
Development and Training	1	We give workers training relevant to their jobs. .	DT1
	2	We give our employees opportunities for professional growth. .	DT2
	3	To keep talented workers, we have policies in place for employee retention. .	DT3
Team work	1	Our organization creates teams to address issues.	TWC1
	2	Participation in teams is encouraged among employees. .	TWC2
	3	Our organization solicits the thoughts and opinions of every team member prior to making a decision. .	TWC3
IT	1	This SC company tracks products using artificial intelligence. .	IT1
	2	Artificial intelligence is used by this SC company to quantify uncertainty.	IT2
	3	Artificial intelligence allows employees to make fast decisions.	IT3
SC Performance	1	During interruptions, this company can deliver goods fast. .	SCP1
	2	This company adapts swiftly to changes and meets changing client needs. .	SCP2
	3	Customers' needs can be met by this company without any disruptions.	SCP3

3.3. Data Collection

With IT serving as a mediator, this study examines how GHRM affects SC Performance (as illustrated in Figure 1). Leading SC companies in Jordan used self-administered structured questionnaires to gather the data. After removing businesses with inaccurate or missing contact information, 50 SC companies were included in the final survey. Respondents were chosen from each company's three hierarchical levels (lower, middle, and upper management) in order to collect a range of organizational perspectives. Convenience sampling was used, in line with previous research methodologies (Tortia et al., 2022; Wamba & Akter, 2019).

3.4. Demographics

Table 2 displays the respondents' demographic data and gives a general picture of the workforce in the Jordanian SC companies that were polled. The data shows that men predominate in the workforce, with 63.34 percent of respondents being men and 36.66 percent being women. The largest proportion of the workforce is made up of people between the ages of 31 and 40 (48.68%), followed by people between the ages of 21 and 30 (29.03%) and people 41 and older (22.28%). These responders have a lot of energy, flexibility, and productivity potential. Their ages range from young to middle-aged. The respondents' educational background included BA/BS (43.4%), master's degree (26.97%), MS/MPhil degree (20.52%5), and intermediate level (9.09%). The relatively high percentage of respondents with advanced degrees emphasizes how crucial higher education is in the SC sector, especially for jobs requiring problem-solving, technical expertise, and strategic thinking. Overall, the demographic profile reveals a highly educated, mostly male, mid-career workforce that could support the adoption of IT, Green Human Resource Management, and SC Performance In addition to demographic characteristics such as age, gender and educational level, the study also captures the distribution of respondents by level of management (lowest management: 45.46%, middle management: 39.4%, upper management: 15.24%), and by length of service (1-5 years: 40.76%, 6-9 year: 33.72%, and more than 9 years: 25.51%) in order to show the extent to which GHRM and IT can be seen and applied across the organization.

Table 2. Demographic analysis

Demographics	Classifications	Sample Size	Proportion (%)
Gender	Male	220	63.34%
	Female	130	36.66%
Age	21–30	101	29.03%
	31–40	169	48.68%
	41 and above	79	22.28%
Education	Intermediate	33	9.09%
	BS	150	43.40%
	Masters	94	26.97%
	PHD	73	20.52%
Management Level	Low Management	160	45.46
	Mid Management	138	39.40
	Upper Management.	53	15.24%
Experience	1–5 Years	144	40.76%
	6–9 Years	117	33.72%
	More than 9 Years	89	25.51%
Total		350	100%

4. Results and Discussion

The study used Smart-PLS 4, which enables researchers to estimate structural equation models (SEM), evaluate the models' fit indices, test for validity and reliability, evaluate full collinearity, and perform bootstrapping, to test the suggested relationships (Cohen, 1988; Hair, 2014).

4.1. Measurement Model Evaluation

Four main measures of reliability and validity, which were variance inflation factor (VIF), average variance extracted (AVE), composite reliability (CR), and Cronbach alpha, were used to provide an evaluation of the measurement model. It is generally agreed that the minimum acceptable values of these are 0.70 of Cronbach alpha, 0.70 of CR, 0.50 of AVE and 5 as the maximum of VIF. The factor loadings showed to be larger than 0.70, which means that the indicators were well correlated with their constructs see (Table 3). The values of VIF that were between 1.358 and 2.923 ensured that there was no multicollinearity. Cronbach alpha was more than 0.70 in all the constructs indicating a high internal consistency. The values of composite reliability were more than 0.80 which is a good indication of the stability and reliability of the measures. Similarly, both constructs registered AVE greater than 0.50 and that indicated that items explained over a half of the variance within their underlying construct, and hence convergent validity. On the whole, these findings confirm the validity of the measurement model, which is a strong potential when analyzing the structural relationships between Green HRM, information technology, and supply chain performance.

Table 3. Reliability and validity

Constructs	Items	Loadings	VIF	Alpha	Rhoa	CR	AVE
SC Performance	SCP1	0.832	1.550	0.82	0.82	0.889	0.727
	SCP2	0.856	1.991				
	SCP3	0.876	1.998				
IT	IT1	0.841	1.548	0.798	0.804	0.882	0.712
	IT2	0.854	1.842				
	IT3	0.872	1.794				
Reward Management	RM1	0.853	1.832	0.77	0.803	0.859	0.604
	RM2	0.834	1.753				
	RM3	0.754	1.457				
	RM4	0.674	1.358				
Selection and hiring	SH1	0.715	1.777	0.848	0.86	0.885	0.566
	SH2	0.797	2.311				
	SH3	0.784	2.262				
	SH4	0.763	1.943				
Training and Development	DT1	0.890	2.275	0.828	0.828	0.899	0.746
	DT2	0.832	1.633				
	DT3	0.868	2.108				
team work	TC1	0.923	2.923	0.89	0.883	0.927	0.807
	TC2	0.894	2.421				
	TC3	0.878	2.234				
GHRM	GHRM			0.934	0.941	0.943	0.566

Table 4 shows the quantitative analyses included in the study of the relationship between different variables. The values of indicate good explanatory power of the models, demonstrating a good fit between the data and the model.

Table 4. R2, Q2, F2, and SRMR

Construct	R-Square (R^2)	Q-Square predict (Q^2)	F-Square (F^2)	
			Relationships	
SCP	0.582	0.553	IT $\Rightarrow$ SCP	0.062
AI	0.611	0.607	GHRM$\Rightarrow$ SCP	0.278
			GHRM$\Rightarrow$ IT	1.564
SRMR	0.08	≤0.09		

4.2. Discriminant Validity

Table 5 shows the square root of values of AVE, as well as correlation matrix of latent variables. The findings, all the constructs are distinct to each other, which proves that measurement framework is helpful to differentiate between Green HRM, IT, reward management, training and development, teamwork and supply chain performance. This differentiation will make sure that the structural model is valid and will offer a solid basis through which the hypotheses of the study can be tested.

Table 5. Heterotrait–monotrait (HTMT) and Fornell–Larcker criteria

Factor	SCP	IT	RM	SR	DT	TW	
SCP							
IT	0.838						
RM	0.791	0.788					
SR	0.711	0.678	0.907				
DT	0.779	0.722	0.698	0.676			
TW	0.758	0.899	0.658	0.635	0.607		
Fornell–Larcker criteria							
SCP	0.854						
IT	0.683	0.844					
RM	0.639	0.638	0.603	0.778			
SR	0.598	0.58	0.573	0.793	0.753		
DT	0.638	0.588	0.798	0.562	0.572	0.864	
TW	0.66	0.758	0.644	0.562	0.57	0.518	0.899

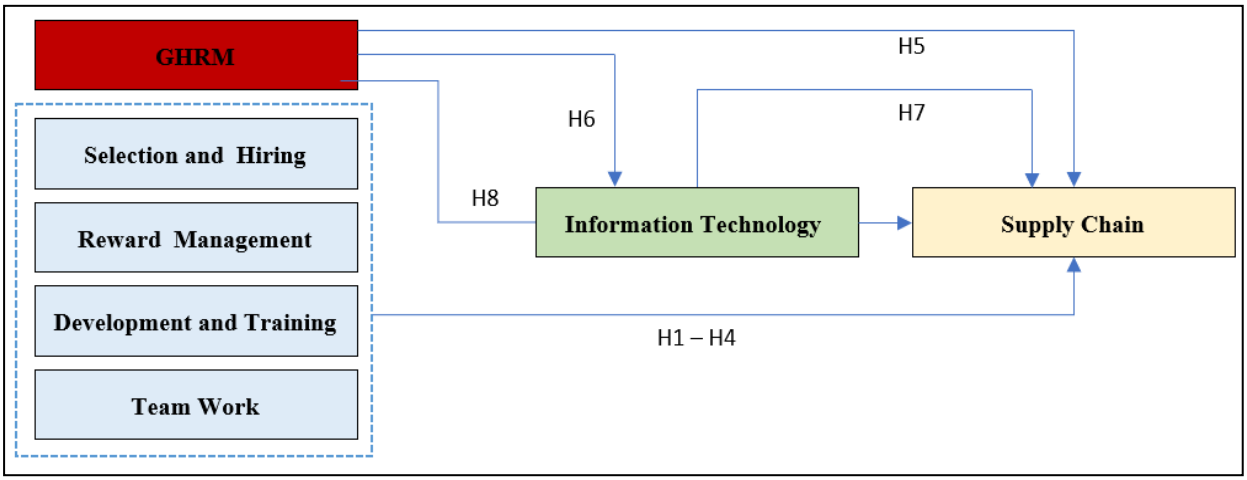


Fig.1: The conceptual framework of this study (The author developed and proposed the conceptual framework).

5. Hypotheses Testing

5.1. Individual Impact

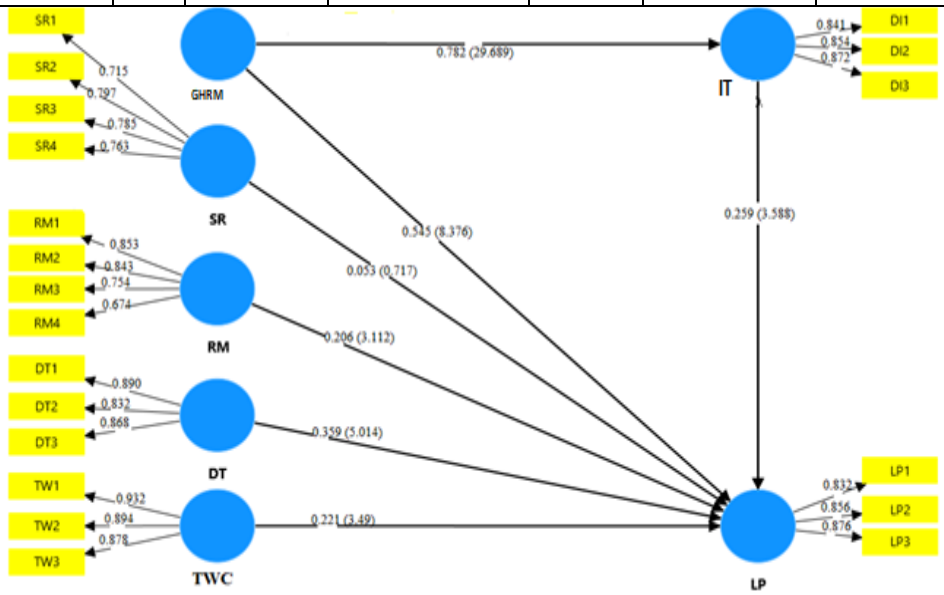
The structural model analysis summarized in Table 6 supports hypotheses H1 ($\beta = 0.053$, $t = 0.717$, $p < 0.01$, H2 ($\beta = 0.204$, $t = 3.112$, $p < 0.01$), H3 ($\beta = 0.359$, $t = 5.014$, $p < 0.05$), and H4 ($\beta = 0.221$, $t = 3.921$, $p < 0.01$). Taken together, these results indicate that these aspects contribute significantly to improved supply chain performance and are consistent with the theoretical expectations of the research. In contrast, the relationship between recruitment and selection practices and supply chain performance was not statistically significant, as the evidence did not support hypothesis H1 ($p > 0.05$). This suggests that recruitment processes may not be as fundamental in determining supply chain outcomes as the other human resource dimensions studied in the research. This led to the rejection of the first hypothesis.

Additionally, as demonstrated in Table 6 and Figure 2, the results confirm that IT has a significant positive impact on SC Performance, supporting H5 (β = 0.259, t = 3.588, p < 0.01). This further validates the significance of IT as a technological capability that can improve SC.

H6 (β = 0.545, t = 8.376, p < 0.01) and H7 (β = 0.782, t = 29.689, p < 0.01) show that GHRM practices like hiring and selection, development and training, reward management, and teamwork have a significant impact on SC Performance and encourage the use of (IT) in SC operations. this compelling statistical evidence supports the interaction between GHRM and IT to improve SC Performance.

Table 6. Direct relation

R	H	Beta	Sample Mean	STDEV	t-Stat	p-Values	Remarks
Individual							
SR⇒SCP	H_1	0.053	0.055	0.073	0.717	0.475	Rejected
RM⇒SCP	H_2	0.206	0.204	0.067	3.112	0.003	Accepted
TD⇒SCP	H_3	0.359	0.359	0.072	5.014	0.000	Accepted
TWC⇒SCP	H_4	0.221	0.217	0.057	3.921	0.000	Accepted
IT⇒SCP	H_5	0.259	0.256	0.073	3.588	0.000	Accepted
Collective							
GHRM⇒SCP	H_6	0.545	0.547	0.066	8.376	0.000	Accepted
GHRM⇒IT	H_7	0.782	0.782	0.027	29.689	0.000	Accepted



5.2. Mediation Analysis

The indirect unknown effect of green HRM on the supply chain performance via information technology was positive and significant (β = 0.203, t = 3.466, p = 0.001), which is reported in Table 7 and shown in Figure 2. The results of the confidence interval also supported the mediation effect, as it demonstrated that IT does have a significant impact on strengthening the relationship between GHRM and performance outcomes in the context of the supply chain industry. These findings imply that IT application in GHRM practices can assist in making organizations more responsive to the environment and contribute to the supply chain effectiveness through making operations more efficient and integrated. The results will also be useful in informing decision-makers and policymakers on the need to embrace technology-assisted HR strategies to improve performance.

Table 7. Mediation effect

H	β	STDEV	T-Stat	2.50%	97.50%	p-Value	Remark
H8	0.203	0.058	3.466	0.098	0.329	0.001	Accepted

6. Findings

Hiring and Selection (**H1 - Not Supported**): The findings indicate that there is no direct influence of hiring and selection on SC performance. (Qamar et al., 2023; Ali et al, 2021). Reward Management (**H2 - Supported**): there is a positive and significant association between Reward management and SC performance. Proper reward schemes are those ones that match employees incentives with the strategic plans of the organization, (Setyadi et al., 2023). This finding is consistent with the prior studies that have identified reward systems to be relevant sources of organizational agility and performance (Macey & Saks, 2015; Omolabi et al., 2024). Training and Development (**H3 -Supported**): There is a huge positive influence of training and development on SC Performance. Through training programs, employees are at par with technological advancements, market and customer needs (Wang et al., 2025; Yamin et al., 2024; Setyadi et al., 2023). The research results obtained in such studies follow the earlier research that has shown that effective training are necessary to enhance efficiency, innovation, and responsiveness (Henseler et al., 2015; Lacerenza et al., 2018). Teamwork (**H4 - Supported**): Teamwork will positively affect SC Performance since SC processes are collaborative, decisions and sharing of knowledge between functions is vital (Al-Balushi et al., 2024; Barney et al., 1991; Scholten & Schilder, 2015).

Combined GHRM Effects (**H5 - Supported**): GHRM practices play a very crucial role in enhancing SC Performance. The companies concentrating on GHRM can recruit and retain talented workers with less difficulty and bring into harmony human resources and strategic orientation and make a difference on the efficiency (Huang & Rust, 2021). IT and GHRM (**H6 - Supported**): IT is significant towards enhancing the efficacy of the GHRM. The HR departments are finding themselves in a superior position to absorb IT tools in ethical and strategic ways to boost performance of employees, functionality and decision making of organizations (Alqudah et al., 2021; Le et al., 2021; Preacher & Hayes, 2008). IT and SC Performance (**H7 Supported**): IT has a significant positive impact on SC Performance through predictive analytics, online monitoring and optimization of decisions. They assist in facilitating the effective operations, reducing the cost and enhancing the quality of services (Ye et al., 2025; Yahaya, 2019). IT as a Mediator between GHRM and SC Performance (**H8 - Supported**): The findings confirm that IT is a mediator of the relationship between the GHRM and SC Performance. It agrees with the past researches that indicated that IT supplements the effects of HR practices on organizational performance (Dogara et al., 2020; Guerci et al., 2016; Jahangir et al, 2025). Overall, these results reveal that SC firms can enhance the degree of operational performance by relying on the use of reward systems, training, teamwork, and IT capabilities in the HR and operational systems.

7. Conclusions

The study was confined to SC industry in Jordan which could limit the application of the research to the other sectors like manufacturing, services, or construction. Research of the future can be carried out to include analysis of other industries to understand whether the relationships found in this study are applicable in other working environments. Second, the research was carried out in the context of particular industrial and cultural background in Jordan. The replication of the research in developed and developing nations would help gain a better understanding of the cross-cultural relevance of the research and help identify the effect of diverse socio-economic and regulatory contexts on GHRM, IT (IT) and SC Performance. Third, the research only looked at five dimensions of GHRM (teamwork, training and development, reward management, hiring, and selection). Other HRM components that include employee empowerment, social support, performance management, and employee relations might be included to provide a better picture of the processes in which HRM can influence organizational performance and agility. Lastly, because the study is cross-sectional, the causal relationships could not be deduced. The next research with longitudinal or mixed-methodology studies would be useful in capturing time dynamics, as well as to present better evidence on the relationships between SC Performance, IT integration and GHRM.

8. Limitations and Future Research Directions

The study was confined to SC industry in Jordan which could limit the application of the research to the other sectors like manufacturing, services, or construction. Research of the future can be carried out to include analysis of other industries to understand whether the relationships found in this study are applicable in other working environments. Second, the research was carried out in the context of particular industrial and cultural background in Jordan. The replication of the research in developed and developing nations would help gain a better understanding of the cross-cultural relevance of the research and help identify the effect of diverse socio-economic and regulatory contexts on GHRM, IT (IT) and SC Performance. Third, the research only looked at five dimensions of GHRM (teamwork, training and development, reward management, hiring, and selection). Other HRM components that include employee empowerment, social support, performance management, and employee relations might be included to provide a better picture of the processes in which HRM can influence organizational performance and agility. Lastly, because the study is cross-sectional, the causal relationships could not be deduced. The next research using longitudinal or mixed-methods studies would be useful for capturing temporal dynamics and providing stronger evidence on the relationships among SC Performance, IT integration, and GHRM.

References

Abbasi, S. G., Tahir, M. S., Abbas, M., & Shabbir, M. S. (2022). Examining the relationship between recruitment & selection practices and business growth: An exploratory study. Journal of Public Affairs, 22(2), e2438.

Abdirad, M., & Krishnan, K. (2022). Examining the impact of E-supply chain on service quality and customer satisfaction: a case study. International journal of quality and service sciences, 14(2), 274-290.

Abdul Muhsin, A. A., Hussein, H. D., AL-Abrrow, H., Masa'deh, R. E., & Alkhwaldi, A. F. (2025). Impact of artificial intelligence and knowledge management on proactive green innovation: The moderating role of trust and sustainability. Asia-Pacific Journal of Business Administration, 17(3), 765–795.

Agyabeng-Mensah, Y., Ahenkorah, E., Afum, E., Agyemang, A., Agnikpe, C., & Rogers, F. (2020). Examining the influence of internal green supply chain practices, green human resource management and supply chain environmental cooperation on firm performance. Supply Chain Management, 25, 585-599. https://doi.org/10.1108/scm-11-2019-0405.

Agyabeng-Mensah, Y., Ahenkorah, E., Afum, E., Nana Agyemang, A., Agnikpe, C., & Rogers, F. (2020). Examining the influence of internal green supply chain practices, green human resource management and supply chain environmental cooperation on firm performance. Supply Chain Management: An International Journal, 25(5), 585-599.

Ahmad, F., Hossain, M. B., Mustafa, K., Ejaz, F., Khawaja, K. F., & Dunay, A. (2023). Green HRM practices and knowledge sharing improve environmental performance by raising employee commitment to the environment. Sustainability, 15(6), 5040.

Al Doghan, M. A., & Sundram, V. P. K. (2023). AI-enabled reverse logistics and big data for enhanced waste and resource management. Operational Research in Engineering Sciences: Theory and Applications, 6(2).

Al-Balushi, H. A. A., Singh, A. D. H., & Al Shibli, F. S. R. (2024). The impact of artificial intelligence, human capital on sustainable performance of manufacturing companies in Malaysia.

Albrecht, S. L., Bakker, A. B., Gruman, J., Macey, W., & Saks, A. (2015). Employee engagement, human resource management practices and competitive advantage. Journal of Organizational Effectiveness: People and Performance, 2(1), 7–35.

Ali, A. A. A., Abualrejal, H. M. E., Udin, Z. B. M., Shatawi, H. O., & Alqudah, A. Z. (2021). The role of supply chain integration on project management success in Jordanian engineering companies. In Proceedings of the International Conference on Emerging Technologies and Intelligent Systems.

Al-Minhas, U., Ndubisi, N. O., & Barrane, F. Z. (2020). Corporate environmental management: A review and integration of green human resource management and green logistics. Management of Environmental Quality: An International Journal, 31(2), 431–450.

Aloqaily, A., Qawasmeh, F., Masa'd, F., Alrousan, A., & Al-Zaqeba, M. (2024). The mediating effect of green culture on the relationship between GHRM and green sustainable performance in Jordanian SME logistics companies. International Journal of Advanced and Applied Sciences, 11(10), 232–240.

Al-Qasimi, M., Khudari, M., & Al Balushi, Z. (2024a). A review on mitigating disruptions and improving resilience in supply chain logistics. *WSEAS Transactions on Business and Economics, 21*, 2551–2577. https://doi.org/10.37394/23207.2024.21.210

Al-Qasimi, M., Khudari, M., Al Balushi, Z., & Abdullah, A. Z. L. I. N. A. B. T. E. (2024b). The Logistics Performance Index in Oman: A comprehensive review through multi-criteria decision-making. *Journal of Ecohumanism, 3*(8), 630–658. https://doi.org/10.62754/joe.v3i8.4757

Alqudah, A. Z., Abualrejal, H. M. E., & Elias, E. M. (2021). Supply chain and quality services among Jordanian public hospitals: A preliminary review. In Proceedings of the International Conference on Emerging Technologies and Intelligent Systems.

Alqudah, A., Abualrejal, H. M. E., & Elias, E. (2021). Hospital supply chain management and quality of services within hospitals: A preliminary review. In Proceedings of the International Conference of Reliable Information and Communication Technology.

Al-Shammari, M. M. (2023). Production value chain model for sustainable competitive advantage. Management Systems in Production Engineering, (1 (31), 27-32.

Al-Shboul, M. D. A. (2024). Artificial intelligence drivers' effect on willingness to adopt the human capital supply chain in manufacturing firms: An empirical investigation from developing countries – a mediation model. Industrial Management & Data Systems, 124(10), 2919–2938.

Alshura, M. S., & Awawdeh, L. (2016). Logistics in Jordan: The need for reform. International Journal of Supply Chain Management, 5(3), 52–59.

Al-Tarawneha, A., Haddada, E., Mo'd Al-Dwairi, R., Yahya Al-Freijat, S., Mansour, A., & Abdulaziz AL-Obaidly, G. (2024). The impact of strategic and innovativeness entrepreneurship and social capital on business overall performance through building a sustainable supply chain management at Jordan Private Universities.

Asamoah, D., Nuertey, D., Agyei-Owusu, B., & Akyeh, J. (2021). The effect of supply chain responsiveness on customer development. The International Journal of Logistics Management, 32(4), 1190-1213.

Attaran, M. (2020). Digital technology enablers and their implications for supply chain management. In Supply chain forum: an international journal (Vol. 21, No. 3, pp. 158-172). Taylor & Francis.

Bag, S., Gupta, S., & Luo, Z. (2020). Examining the role of logistics 4.0 enabled dynamic capabilities on firm performance. The International Journal of Logistics Management, 31(3), 607–628.

Bataineh, M. J., Sánchez-Sellero, P., & Ayad, F. (2024). Green is the new black: How research and development and green innovation provide businesses a competitive edge. Business Strategy and the Environment, 33(2), 1004-1023.

Bon, A. T., Zaid, A. A., & Jaaron, A. (2018, March). Green human resource management, Green supply chain management practices and Sustainable performance. In 8th International Conference on Industrial Engineering and Operations Management (IEOM),(Bandung, Indonesia) March (pp. 6-8).

Cao, M., & Zhang, Q. (2011). Supply chain collaboration: Impact on collaborative advantage and firm performance. Journal of Operations Management, 29(3), 163–180.

Chatterjee, S., Rana, N. P., Tamilmani, K., & Sharma, A. (2021). Theorizing the role of digital intelligence in organizational agility: Insights from a digital transformation perspective. Information Systems Frontiers, 23(4), 1031–1050.

Cheng, Y., Masukujjaman, M., Sobhani, F. A., Hamayun, M., & Alam, S. S. (2023). Green logistics, green human capital, and circular economy: The mediating role of sustainable production. Sustainability, 15(2), 1045.

Chillakuri, B., & Vanka, S. (2021). Examining the effects of workplace well-being and high-performance work systems on health harm: A SHRM perspective. Society and Business Review, 16(1), 71–93.

Cohen, J. (1988). Statistical power analysis for the behavioral sciences (2nd ed.). Lawrence Erlbaum Associates.

Dadouchi, C., & Agard, B. (2021). Recommender systems as an agility enabler in supply chain management. Journal of Intelligent Manufacturing, 32(5), 1229-1248.

Dehgani, R., & Jafari Navimipour, N. (2019). The impact of information technology and communication systems on the agility of supply chain management systems. Kybernetes, 48(10), 2217-2236.

Dogara, G., Kamin, Y. B., & Saud, M. S. B. (2020). The impact of assessment techniques on the relationship between work-based learning and teamwork skills development. IEEE Access, 8, 59715–59722.

Ehnert, I., Parsa, S., Roper, I., Wagner, M., & Muller-Camen, M. (2016). Reporting on sustainability and HRM: A comparative study. The International Journal of Human Resource Management, 27(1), 88–108.

El Dessouky, N. F., & Alquaiti, H. O. (2020, November). Impact of green human resource management (GHRM) practices on organizational performance. In 2020 Second international sustainability and resilience conference: Technology and innovation in building designs (51154) (pp. 1-4). IEEE.

Evangelista, P., Kianto, A., Hussinki, H., Vanhala, M., & Nisula, A. M. (2023). Knowledge-based human resource management, logistics capability, and organizational performance in small Finnish logistics service providers. Logistics, 7(1), 12.

Flynn, B. B., Huo, B., & Zhao, X. (2010). The impact of supply chain integration on performance: A contingency and configuration approach. Journal of Operations Management, 28(1), 58–71.

Gelagay, D. A., & Werke, S. Z. (2024). Impact of green human resource management and internal green supply chain management practices on operational performance: An empirical investigation of manufacturing sector. Business Strategy & Development, 7(2), e399.

George, G., Haas, M. R., & Pentland, A. (2014). Big data and management. Academy of Management Journal, 57(2), 321–326.

Guerci, M., Rahimian, M., & Carollo, L. (2016). A paradox view on green human resource management: Insights from the Italian context. The International Journal of Human Resource Management, 27(2), 212-238.

Gyensare, M. A., Adomako, S., & Amankwah-Amoah, J. (2024). Green HRM practices, employee well-being, and sustainable work behavior: Examining the moderating role of resource commitment. Business Strategy and the Environment, 33(4), 3129–3141.

Hair, J. F. (2014). A primer on partial least squares structural equation modeling (PLS-SEM). Sage.

Haq, M. Z. U., Asadullah, M. A., & Manzoor, F. (2023). The impact of human resource and information technology on supply chain learning and operational performance. Journal of Business & Industrial Marketing, 38(9), 1927-1940.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Hofmann, E., & Rüsch, M. (2017). Industry 4.0 and the current status as well as future prospects on logistics. Computers in Industry, 89, 23–34.

Huang, M. H., & Rust, R. T. (2021). A strategic framework for artificial intelligence in marketing. Journal of the Academy of Marketing Science, 49(1), 30–50.

Jahangir, S., Xie, R., Iqbal, A., & Hussain, M. (2025). The influence of sustainable human resource management practices on logistics agility: The mediating role of artificial intelligence. Sustainability, 17(7), 3099.

Jarlstrom, M., Saru, E., & Vanhala, S. (2018). SHRM with salience of stakeholders. Journal of Business Ethics, 152(3), 703–724.

Jaskeviciute, V., Stankeviciene, A., Diskiene, D., & Savicke, J. (2021). The relationship between employee well-being and organizational trust in the context of sustainable human resource management. Problems and Perspectives in Management, 19(2), 118–131.

Khaliq, A., Kayani, U., & Mir, G. (2020). Relationship of employee training, employee empowerment, teamwork with job satisfaction. Journal of Arts & Social Sciences, 7(2), 185–198.

Khan, M., Parvaiz, G. S., Ali, A., Jehangir, M., Hassan, N., & Bae, J. (2022). A model for understanding the mediating association of transparency between emerging technologies and humanitarian logistics sustainability. Sustainability, 14(11), 6917.

Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. International Journal of e-Collaboration, 11(4), 1–10. https://doi.org/10.4018/ijec.2015100101

Kourda Hayat, P. (2021). The impact of information and communication technologies on the performance of human resources management and the mediating role of artificial intelligence. International Journal of Trend in Scientific Research and Development, 5(4), 740–754.

Kramar, R. (2014). Beyond strategic human resource management: Is sustainable human resource management the next approach? The International Journal of Human Resource Management, 25(8), 1069–1089.

Lacerenza, C. N., Marlow, S. L., Tannenbaum, S. I., & Salas, E. (2018). Team development interventions: Evidence-based approaches for improving teamwork. American Psychologist, 73(4), 517–531.

Le, T. T., Nhu, Q., & Behl, A. (2025). Role of digital supply chain in promoting sustainable supply chain performance: The mediating of supply chain integration and information sharing. The International Journal of Logistics Management, 36(5), 1439–1462.

Loughry, M., Ohland, M., & Woehr, D. (2014). Assessing teamwork skills for assurance of learning using CATME team tools. Journal of Marketing Education, 36(1), 5–19.

Ma, L., & Chang, R. (2025). How big data analytics and artificial intelligence facilitate digital supply chain transformation: the role of integration and agility. Management Decision, 63(10), 3557-3598.

Madero-Gómez, S. M., Rubio Leal, Y. L., Olivas-Luján, M., & Yusliza, M. Y. (2023). Companies could benefit when they focus on employee wellbeing and the environment: A systematic review of sustainable human resource management. Sustainability, 15(6), 5435.

Magbool, M. A. H. B., Amran, A., Nejati, M., & Jayaraman, K. (2016). Corporate sustainable business practices and talent attraction. Sustainability Accounting, Management and Policy Journal, 7(4), 539-559.

Makhdoom, Q., Junejo, I., Sohu, J. M., Shah, S. M. M., Alwadi, B. M., Ejaz, F., & Hossain, M. B. (2025). Impact of green supply chain management on sustainable performance: A dual mediated-moderated analysis of green technology innovation and big data analytics capability powered by artificial intelligence. F1000Research, 13, 1140.

Malik, S. Y., Hayat Mughal, Y., Azam, T., Cao, Y., Wan, Z., Zhu, H., & Thurasamy, R. (2021). Corporate social responsibility, green human resources management, and sustainable performance: is organizational citizenship behavior towards environment the missing link?. Sustainability, 13(3), 1044.

Martono, S., Khoiruddin, M., & Wulansari, N. A. (2018). Remuneration reward management system as a driven factor of employee performance. International Journal of Business & Society, 19.

Meng, J., Hao, Z., Yang, J., & Hong, Y. (2025). How does digital transformation affect organisational sustainable performance: The mediating roles of supply chain agility and integration International Journal of Logistics Research and Applications, 28(8), 860–885.

Negi, S. (2021). Supply chain efficiency framework to improve business performance in a competitive era. Management research review, 44(3), 477-508.

Ngwa, W. T., Adeleke, B. S., Agbaeze, E. K., Ghasi, N. C., & Imhanrenialena, B. O. (2019). Effect of reward system on employee performance among selected manufacturing firms in the Litoral region of Cameroon. Academy of Strategic Management Journal, 18(3), 1-16.

Ojo, A., Tan, C., & Alias, M. (2022). Linking green HRM practices to environmental performance through pro-environment behaviour in the information technology sector. Social Responsibility Journal, 18(1), 1-18.

Ojokuku, R., Akanbi, F. K., & Abiodun, Y. A. (2025). green human resource management (ghrm): driving sustainable organizational practices. kings journal of entrepreneurship, innovation, and management (kjeim), 1(1).

Omolabi, I., Ajadi, I. A. A., Kayode, A. A., & Oluwadamilare, B. E. (2024). Performance-Based Reward System and Organizational Agility in the Banking Industry in Nigeria. Malaysian Management Journal (MMJ), 28, 215-244.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. Behavior Research Methods, 40(3), 879–891. https://doi.org/10.3758/BRM.40.3.879

Purnama, Y., & Purwanto, S. (2023). The influence of job training, teamwork, and competence on employee career development. Dinasti International Journal of Management Science (DIJMS), 4(6).

Qahtani, E., & Alsmairat, M. (2023). Assisting artificial intelligence adoption drivers in human resources management: A mediation model. Acta Logistica, 10(1), 141–150.

Qamar, F., Afshan, G., & Rana, S. A. (2023). SHRM and well-being: Systematic review and future research agenda. Management Review Quarterly, 1–51.

Rubina Yeasmin, K. (2024). Recruitment and Selection Process.

Scholten, K., & Schilder, S. (2015). The role of collaboration in supply chain resilience. Supply Chain Management, 20, 471-484. https://doi.org/10.1108/scm-11-2014-0386.

Sekaran, U., & Bougie, R. (2019). Research methods for business: A skill-building approach (8th ed.). Wiley.

Setyadi, A., Akbar, Y. K., Ariana, S., & Pawirosumarto, S. (2023). Examining the effect of green logistics and green human resource management on sustainable development organizations: The mediating role of sustainable production. Sustainability, 15(13), 10667.

Setyaningrum, R., & Muafi, M. (2023). Green human resource management, green supply chain management, green lifestyle: Their effect on business sustainability mediated by digital skills. Journal of Industrial Engineering and Management, 16(1), 1–26.

Shayegan, S., Bazrkar, A., & Yadegari, R. (2023). Realization of Sustainable Organizational Performance Using New Technologies and Green Human Resource Management Practices. Foresight and STI Governance. https://doi.org/10.17323/2500-2597.2023.2.95.105.

Shayegan, S., Bazrkar, A., & Yadegari, R. (2023). Realization of sustainable organizational performance using new technologies and green human resource management practices. Foresight and STI governance, 17.

Stone, M. (1974). Cross-validatory choice and assessment of statistical predictions. Journal of the Royal Statistical Society: Series B (Methodological), 36(2), 111–147.

Tao, H., Sun, X., Liu, X., Tian, J., & Zhang, D. (2022). The impact of consumer purchase behavior changes on the business model design of consumer services companies over the course of COVID-19. Frontiers in Psychology, 13, 818845.

Tharenou, P., Saks, A, & Moore, C. (2007). Training and development in organizations. Annual Review of Psychology, 58, 451–474.

Tortia, E., Sacchetti, S., & López, F. (2022). A human growth perspective on SHRM practices, worker well-being and organizational performance. Sustainability, 14(17), 11064.

Tramarico, C. L., Marins, F. A., Urbina, L. M., & Salomon, V. A. (2015). Benefits assessment of training on supply chain management. International Journal of the Analytic Hierarchy Process, 7(2).

Ullah, M. M. (2017). Integrating environmental sustainability into human resources management: A comprehensive review on green human resources management (Green HRM) Practices. Economics and management, 6(1), 14-19.

Vaka, D. K. (2024). Integrating inventory management and distribution: A holistic supply chain strategy. the International Journal of Managing Value and Supply Chains, 15(2), 13-23.

Vardarlier, P. (2019). Digital transformation of human resource management: digital applications and strategic tools in HRM. In Digital business strategies in blockchain ecosystems: Transformational design and future of global business (pp. 239-264). Cham: Springer International Publishing.

Wamba, S. F., & Akter, S. (2019). Understanding supply chain analytics capabilities and agility for data-driven insights. International Journal of Operations & Production Management, 39(6/7/8), 887–912.

Wang, M., Kumar, M., & Tsolakis, N. (2025). Exploring the role of job satisfaction in enhancing logistics performance in the era of Industry 5.0. International Journal of Logistics Research and Applications, 1–25.

Yahaya, M. (2019). Partial least square structural equation modeling (PLS-SEM): A note for beginners.

Yamin, M. A., Almuteri, S. D., Bogari, K. J., & Ashi, A. K. (2024). The influence of strategic human resource management and artificial intelligence in determining supply chain agility and supply chain resilience. Sustainability, 16(7), 2688.

Ye, A., Cai, J., Yang, Z., Deng, Y., & Li, X. (2025). The impact of intelligent logistics on logistics performance improvement. Sustainability, 17(2), 659.

Yildirim Ozmutlu, S., & Arun, K. (2025). Proactive or reactive resilience: Does it matter on logistics performance index with the digitalization effect. IIMBG Journal of Sustainable Business and Innovation.

Zhang, T. (2023). Measuring the level of digital intelligence technology in logistics enterprises: A text mining-based approach. Journal of Management and Humanity Research, 9, 81–90.