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Analysis of Factors that Influencing Interest in Green Warehouse Adoption

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Abstract: The growth of the logistics sector in Indonesia has highlighted the importance of sustainable practices, including the adoption of green warehouses. This study investigates the factors influencing interest in green warehouse adoption, focusing on warehouse leader orientation, knowledge of green warehouses, and awareness of green warehouse regulations. Using a quantitative approach with a survey of 43 respondents from two institutions, the study employed Structural Equation Modeling-Partial Least Squares (SEM-PLS) for analysis. The findings reveal that knowledge of green warehouses significantly and positively impacts the interest in adoption, while warehouse leader orientation and knowledge of regulations show no significant influence. The study underscores the importance of enhancing knowledge and awareness about green warehouses to promote their adoption and contribute to environmental sustainability in the logistics sector.

Keywords: Green Warehouse, Green Logistics, Suistanable Supply Chain, Warehouse Adoption.

INTRODUCTION

Indonesia, as the world's largest archipelago with more than 17,000 islands, faces unique logistics challenges. The logistics sector plays a vital role in connecting different regions, enabling efficient distribution of goods and supporting economic growth. From a geographical point of view, the existence of effective sea, land and air routes is crucial to ensure goods can reach the market quickly and in good condition. In recent years, the Indonesian government has focused on improving logistics infrastructure through major projects such as the construction of new ports, toll roads, and the development of information technology for better supply chain management. These improvements are expected to

overcome geographical challenges and increase logistics efficiency, thereby strengthening the national economy.

Data from (Badan Pusat Statistik, 2023) shows that Indonesia's economy grew by 5.05 per cent in 2023, with the Transportation and Warehousing sector contributing the highest growth of 13.96 per cent. This figure demonstrates the important role logistics, particularly warehousing, plays in driving national economic growth. This significant growth reflects how the logistics sector has become the backbone in ensuring the smooth distribution of goods and supply chain efficiency across the country. The Indonesian government has been focusing on improving logistics infrastructure through major projects such as the construction of new ports, toll roads, and the development of information technology for better supply chain management.

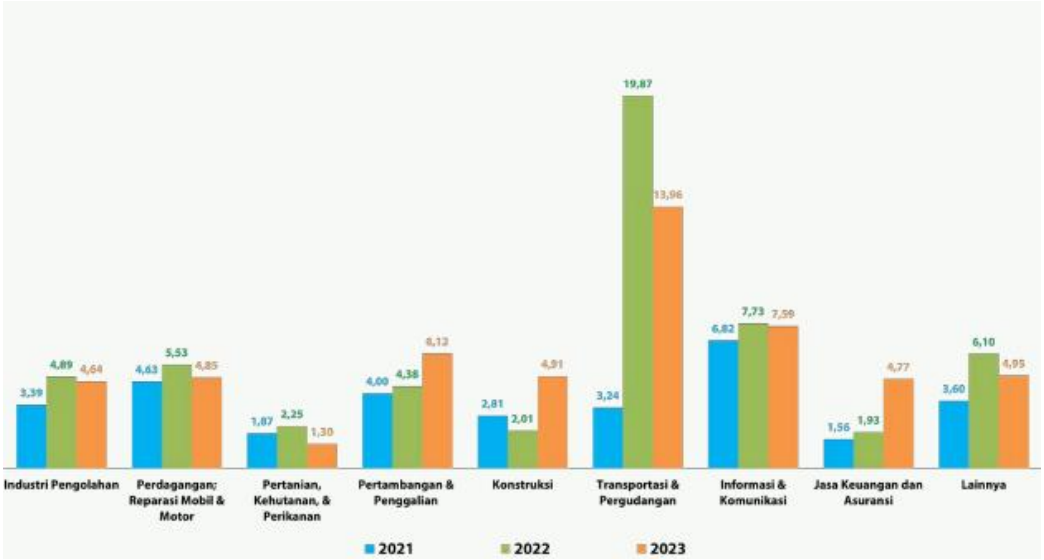

Fig. 1 GDP Growth of Several Business Fields *(y-y)* (%)

Along with the increasing global awareness of the importance of sustainability, the concept of green logistics has become a major vector in the development of logistics businesses in the world. Greening logistics activities, which include the use of environmentally friendly transportation and technologies that conserve natural resources, is increasingly considered a priority by consumers. According to (Dzwigol et al., 2021), "Greening logistics activities is the main vector for business development, since most consumers consider the priority of companies that carry out cargo transportation with 'green' transportation and use technologies that conserve natural resources". The implementation of green logistics not only helps reduce negative impacts on the environment, but can also improve operational efficiency and reduce long-term costs. In Indonesia, the implementation of this concept is beginning to be seen with initiatives to use cleaner fuels, optimizing delivery routes, and using information technology to reduce carbon footprints in the supply chain. This shows that the integration of environmental aspects in logistics is not only relevant at the global level but also important for the sustainability of economic growth in Indonesia.

Green warehouse is one of the important aspects in the formation of green logistics as a whole. In recent years, several studies have proven the importance of green warehouse practices. Research by (Fichtinger et al., 2015; RDCP Indrasiri & WLRathnayake, 2015; Wahab, 2019), for example, showed how green warehouses can reduce energy consumption and carbon emissions, as well as improve operational efficiency. Research conducted by (RDCP Indrasiri & WLRathnayake, 2015) in Sri Lanka specifically describes the practice of implementing green warehouses, which includes the use of environmentally friendly building materials, the implementation of renewable energy systems, and better waste management.

These studies confirm that the adoption of green warehouses is not only beneficial to the environment but can also provide long-term economic benefits for companies. Therefore, this study focuses on the adoption of green warehouses in Indonesia, to understand how this practice can be applied effectively and its contribution to logistics efficiency and national economic sustainability. A study by (Ricardianto et al., 2022) demonstrated that implementing Green Supply Chain Management (GSCM) in the Indonesian pharmaceutical industry can lead to significant advantages, including waste reduction and improved operational efficiency. This highlights the potential positive impact of green practices across various industries, including the food industry, which is the focus of this research. The case study on the implementation of green supply chain management in the tempeh industry in North Jakarta (Nasution et al., 2024) demonstrates that practices such as the use of organic raw materials and effective waste management have been implemented. This underscores the feasibility of adopting green practices even in traditional industries, and provides valuable insights for this research on green warehouse adoption in the food industry.

Leadership orientation plays a key role in determining how organizations respond to and manage environmental issues according to (Brady, 2005). Proactive leadership policies that are integrated into the company's strategy can ensure that the company not only complies with environmental regulations but also takes advantage of opportunities for innovation and efficiency improvement. (Brady, 2005) also added that "Environmental issues have a significant impact on the organization, both in terms of operations and strategy," which shows that the response to environmental issues can affect the competitiveness and sustainability of the company. Therefore, leadership policies that support environmentally friendly practices such as green warehouses can be a decisive factor in achieving operational efficiency and competitive advantage. In Indonesia, the role of strong and environmentally-oriented leadership orientation is essential to encourage the widespread adoption of green warehouses, which in turn will strengthen the logistics sector and the national economy as a whole.

A company's knowledge of green warehouses is crucial in ensuring the successful implementation of these sustainable practices. (Mckinnon et al., 2010) emphasizes that companies are faced with pressure to reduce the environmental impact of their logistics operations, including through the use of green warehouses. In-depth knowledge of green logistics strategies and technologies not only allows companies to meet increasingly stringent regulatory demands but also to create added value through operational efficiency and a better reputation in the eyes of consumers and stakeholders. By having deeper knowledge, companies can design and implement green warehouses more effectively, optimising resource use and significantly reducing their environmental footprint. Therefore, investing in improving companies' knowledge of green warehouses is not only strategic but also crucial for the long-term sustainability of companies in an increasingly sustainable economy.

As the world's largest archipelago, there is a growing need for the implementation of regulations that support green warehouse practices. As stated in (Mckinnon et al., 2010) "Governments often develop policies and regulations to encourage the use of more environmentally friendly practices in logistics and warehouses." These regulations may include standards for energy efficiency, emissions reduction, and the use of sustainable materials in warehouse construction and operations, with the primary goal of reducing the environmental impact of goods storage and distribution activities. The adoption of green warehouse practices not only aims to fulfil increasingly stringent regulatory demands, but also to improve operational efficiency and create long-term added value for the company.

This research aims to make a significant contribution to understanding and developing green warehouse practices in Indonesia, in response to the complexity of logistics challenges in the world's largest archipelago. By integrating green logistics concepts and implementing green warehouses effectively, it is expected to achieve better operational efficiency,

significant reduction in environmental impact, and improved competitiveness on a global scale. Through an in-depth understanding of literature and best practices from various national and global contexts, this research has the potential to provide strategic guidance for government, industry and academia to collaborate in developing sustainable policies and practices in Indonesia's logistics sector. As such, this research not only explores the challenges and opportunities in green warehouse adoption, but also pushes to build a solid foundation for sustainable economic growth in the future.

Literature Review

Supply Chain Management

Supply chain management (SCM) is a strategic approach that aims to integrate all business processes involved in providing products or services to end customers. The concept includes efficient coordination between various parties, including suppliers, manufacturers, distributors, and retailers, to ensure the smooth flow of goods, information, and funds along the supply chain.

(Simchi-Levi et al., 2000) define SCM as "an approach used efficiently to integrate suppliers, factories, warehouses, and shops so that products are produced and distributed in the right quantity, location and time, as well as in order fulfillment by minimizing the breadth of the system and costs aimed at creating customer satisfaction according to the level of service demands." This definition emphasizes the importance of efficiency, coordination, and meeting customer needs in achieving SCM goals..

The concept of SCM continues to evolve along with increasing attention to environmental issues. One important development is the emergence of green supply chain management (GSCM), which seeks to integrate environmental principles into every stage of supply chain management. Thus, GSCM can be defined as a concept that integrates environmental thinking into all aspects of supply chain management, from product design, procurement and selection of raw materials, manufacturing processes, to the delivery of final products to consumers. The GSCM model is then further elaborated into five variable dimensions, namely: (1) Planning, (2) Procurement, (3) Production, (4) Delivery, and (5) Returns (Ricardianto et al., 2022).

Green Logistic

Green logistics is a concept applied in supply chain management with the main focus on reducing the negative impact on the environment resulting from goods distribution activities. This concept covers various aspects, including material handling, waste management, packaging, and transportation, all aimed at minimizing energy use and environmental damage.

As explained by (Marilyn Winata, 2023), "Green logistics refers to supply chain management techniques and approaches, with an emphasis on material handling, waste management, packaging, and transportation, which reduce the energy and environmental impact of the distribution of goods." Thus, green logistics is not only oriented towards economic efficiency, but also pays attention to environmental and social sustainability aspects.

The implementation of green logistics is driven by increasing awareness of the impact of human activities on the environment. Existing conventional logistics practices are considered unsustainable in the long term (Sbihi & Eglese, 2010). Therefore, green logistics is present as a solution to create a logistics system that is more environmentally friendly, efficient, and responsible for the sustainability of the planet. Green logistics plays a vital role in minimizing the environmental impact of transportation and distribution activities. The research by (Ricardianto et al., 2022) also emphasized the importance of Green Distribution within GSCM, encompassing efficient delivery, sustainable supplier selection, and efficient

energy use. These elements are crucial considerations for food companies aiming to implement green warehouse practices, as they directly influence the overall sustainability of their supply chain.

Green Warehouse

Green warehouse is a warehousing concept that focuses on environmentally friendly practices in all aspects of its operations. This concept aims to minimize the negative impact on the environment resulting from warehousing activities, such as wasteful energy use, excessive waste production, and greenhouse gas emissions.

(Srivastava, 2007) defines a green warehouse as a warehouse that seeks to reduce negative impacts on the environment through the use of technology and sustainable practices. Some of the key characteristics of a green warehouse include energy efficiency, good waste management, environmentally friendly building design, and exhaust gas emission management. Efficient warehouse operations are essential for minimizing waste and optimizing resource utilization. The study by (Ricardianto et al., 2022) also discusses Reverse Logistics as part of GSCM, which aims to extract value from used goods and create added value through environmentally friendly activities. This concept is particularly relevant to the food industry, where proper management of product returns and expired goods can contribute to a more sustainable supply chain.

The implementation of green warehouses provides a number of benefits, both for the company and the environment. Companies can gain operational efficiency through more efficient energy use and better resource management. In addition, green warehouses also help companies meet increasingly stringent environmental regulatory requirements, improve the company's image in the eyes of the public, and create a healthier and safer working environment for employees.

METHOD

This research adopts a quantitative approach using a physical survey as a data collection method. The sampling technique used was a saturated sample, involving a total of 43 respondents, including warehouse heads, staff, and those knowledgeable about green warehouses. The survey was conducted at two institutions, namely UPTD Farmasi Tangerang Selatan and Pamulang Hospital. The validity test was carried out with the help of the SmartPLS 4.0 application (Hair et al., 2024), while the reliability calculation used Cronbach's alpha with a threshold of > 0.60 to ensure the research instrument was reliable. Furthermore, data analysis was carried out by applying the Structural Equation Modeling-Partial Least Squares (SEM-PLS) method, which includes evaluating the measurement model (outer model) through Convergent Validity, Discriminant Validity, and Composite Reliability, as well as testing the structural model (inner model) by assessing R-square and direct impact analysis.

Table 3.1 Measurement of Variables

Variable			Indicators	References
Warehouse Orientation	Leader	X1.1	Willing to invest resources for green warehouse	(Zhu et al., 2012) (Porter & Kramer, 2006)
		X1.2	Have a clear vision of a green warehouse	
		X1.3	Understand the importance of environmental sustainability	
		X1.4	Build an environmentally oriented organisational culture	
		X1.5	Understand the latest green warehouse technologies and practices	

Knowledge of Green Warehouse	X2.1	Understand the relationship between green warehouse and environmental sustainability	(Zhu et al., 2012) (Porter & Kramer, 2006)
	X2.2	Know various green warehouse practices (e.g., use of renewable energy, waste management, use of environmentally friendly materials)	
	X2.3	Understand the technologies that support green warehouses (e.g. energy management systems, LED lighting systems)	
	X2.4	Understand the initial and long-term costs of green warehouse implementation	
	X2.5	Know the barriers to adopting a green warehouse (e.g., high investment costs, lack of management support)	
Knowledge of Green Warehouse Regulations	X3.1	Know the business opportunities that arise from green warehouse regulations	(Zhu et al., 2012) (Porter & Kramer, 2006)
	X3.2	Keeping up with the latest developments in green warehouse regulations	
	X3.3	Understand the impact of regulatory changes on business	
	X3.4	Implement practices that comply with green warehouse regulations	
	X3.5	Realise the importance of regulatory compliance	
Green Warehouse Adoption Interest	X4.1	Knowing the warehouse space that uses green technology	(Zhu et al., 2012) (Porter & Kramer, 2006)
	X4.2	Number of green warehouse practices implemented in the company	
	X4.3	Integration of green warehouse practices into the company's overall management system	
	X4.4	Level of employee awareness of green warehouse practices	
	X4.5	Effective waste management for the company	

RESULTS AND DISCUSSION

Respondent Demographics

Table 4.1 Demographics of Respondents

Demographic Variables	Details	Frequency	Percentage (%)
Position in The Institution	Head of Warehouse	2	5 %
	Head of Directors	1	2 %
	Deputy Directors	5	12 %

	Head of Administration	1	2 %
	Staff	34	79 %
Age	20-30	19	44 %
	31-40	21	49 %
	41-50	2	5 %
	51 - 60	1	2 %
Gender	Male	18	42 %
	Female	25	58 %
Institution	Pamulang Hospital	17	40 %
	UPTD Farmasi Tangerang Selatan	26	60 %

The respondent table shows that the majority of respondents (79%) are staff, indicating that this study primarily involves those directly engaged in daily warehouse operations. Although the respondents also include some leadership positions such as warehouse heads, directors, and deputy directors, their proportion is relatively small, indicating that the staff perspective is the main focus in this study.

The age distribution of respondents shows that most respondents (93%) are in the productive age group, which is between 20 to 40 years old. This indicates that this research involves individuals who are active and potentially have a good understanding of current practices in warehouse management, including the green warehouse concept.

The proportion of respondents by gender shows that there are more female respondents (58%) than male (42%). This shows that women have a significant role in logistics and warehouse management in both institutions studied.

The distribution of respondents by institution showed that the majority of respondents (60%) came from UPTD Farmasi Tangerang Selatan, while 40% came from Pamulang Hospital. This difference in proportion needs to be considered in further analyses, as there may be differences in warehouse management characteristics or practices between the two institutions.

Outer Model Analysis

Convergent Validity

Convergent Validity test indicators in this sub chapter using outer loading and Average Variance Extracted (AVE).

Convergence validity, which measures the extent to which the indicators of a construct are well correlated, can be achieved if the Average Variance Extracted (AVE) value exceeds 0.5 or all the outer loading values of the variable are greater than 0.5 (Chin, 2010). Indicators with an outer load of less than 0.5 are considered invalid measuring their constructs and can be deleted. Meanwhile, indicators with an outer loading between 0.5 and 0.7 should not be removed immediately, as long as the AVE and communality values are above 0.5. The ideal loading factor value is above 0.7, indicating that the indicator is valid for measuring constructs. However, in practice, a score above 0.5 is still acceptable, even some experts consider 0.4 to be sufficient (Chin, 2010).

Table 4.2 Outer Loadings Results

Variables	Item	Outer Loadings	Note
Warehouse Leader Orientation	WLO1	0,916	Valid
	WLO2	0,934	Valid
	WLO4	0,711	Valid
Knowledge of Green	KGW1	0,734	Valid

Warehouse	KGW2	0,813	Valid
	KGW3	0,814	Valid
	KGW4	0,796	Valid
	KGW5	0,811	Valid
Knowledge of Green Warehouse Regulations	KGR1	0,931	Valid
	KGR2	0,915	Valid
	KGR3	0,869	Valid
Green Warehouse Adoption Interest	AI1	0,911	Valid
	AI2	0,922	Valid
	AI4	0,931	Valid
	AI5	0,907	Valid

Indicators in a study are considered reliable or consistent if they have an outer loading value that exceeds 0.70 (Jonathan, 2010). However, an outer loading value of up to 0.50 is still acceptable, while a value below 0.50 indicates that the indicator is not reliable and should be excluded from the analysis (Chin, 2010). In this study, all variables, namely X1, X2, X3, and Y are valid with values above 0.70.

Based on table 4.3 all constructs show AVE values greater than 0.50 with the smallest value of 0.631 for the variable knowledge of green warehouse regulations and for the largest value of 0.842 for the warehouse leader orientation variable. (Chin, 2010)

Table 4.3 Average Variance Ectracted (AVE) Results

Variables	**Average Variance Extracted (AVE)**
Warehouse Leader Orientation	0,842
Knowledge of Green Warehouse	0,739
Knowledge of Green Warehouse Regulations	0,631
Green Warehouse Adoption Interest	0,820

Discriminant Validity

The discriminant validity test indicators in this sub chapter use Cross Loading

Discriminant validity, which measures the extent to which a construct is distinct from other constructs, can be achieved if the square root of a construct's AVE is greater than the correlation between that construct and other constructs (Fornell & Larcker, David, 1981). Another approach to testing discriminant validity is to examine the cross loading value of each instrument, which should be greater than 0.50 (Fornell & Larcker, David, 1981). In this study, the correlation value of each variable with itself is higher than its correlation with other variables. Thus, all variables in this study are considered valid and have fulfilled the discriminant validity test.

Table 4.4 Discriminant Validity (Outer Loadings) Results

Indicators	Variables			
	WLO	KGW	KGR	AI
WLO1	**0,916**	0,591	0,689	0,596
WLO2	**0,934**	0,625	0,638	0,574
WLO4	**0,711**	0,555	0,479	0,341
KGW1	0,546	**0,734**	0,526	0,490
KGW2	0,577	**0,813**	0,567	0,497
KGW3	0,524	**0,814**	0,614	0,713
KGW4	0,531	**0,796**	0,431	0,511
KGW5	0,537	**0,811**	0,414	0,610
KGR1	0,704	0,677	**0,931**	0,614
KGR2	0,609	0,526	**0,915**	0,526
KGR3	0,604	0,528	**0,869**	0,382
AI1	0,616	0,716	0,609	**0,911**
AI2	0,571	0,615	0,550	**0,922**
AI4	0,569	0,698	0,528	**0,931**
AI5	0,449	0,623	0,416	**0,907**

Realibility Test

The reliability of a construct or variable can be evaluated through the composite reliability value. According to (Chin, 2010), a construct is considered reliable if it has a composite reliability value greater than 0.7.

Table 4.5 Composite Reliability and Cronbach's Alpha Results

	Cronbach's Alpha	Composite Reliability
Green Warehouse Adoption Interest	0,938	0,955
Orientation Warehouse Leader	0,823	0,893
Knowledge of Green Warehouse	0,854	0,895
Knowledge of Green Warehouse Regulations	0,892	0,932

In conclusion, all variables in this study showed good reliability as their composite reliability values exceeded 0.7, in accordance with the criteria set by (Nunnaly & Bernstein, 1994). In addition, the Cronbach's alpha values for all variables are also more than 0.8, indicating that all variables have "Good" reliability based on (George & Mallery, 2003) classification. The values are as follows

Cronbach's alpha (α) > .9 Excellent
Cronbach's alpha (α) > .8 Good
Cronbach's alpha (α) > .7 Acceptable
Cronbach's alpha (α) > .6 Questionable
Cronbach's alpha (α) > .5 Poor
Cronbach's alpha (α) < .5 Unaccaptable

Inner Model Analysis

Evaluation of the structural model or inner model is done by analysing the percentage of variance explained by the model, which is indicated by the R^2 value for the dependent latent construct. In addition, the Stone-Geisser Q^2 test is used to assess the predictive relevance of the model. Structural path coefficients were also examined to understand the relationships between constructs. The stability of the model was tested using t statistics through a bootstrapping procedure.

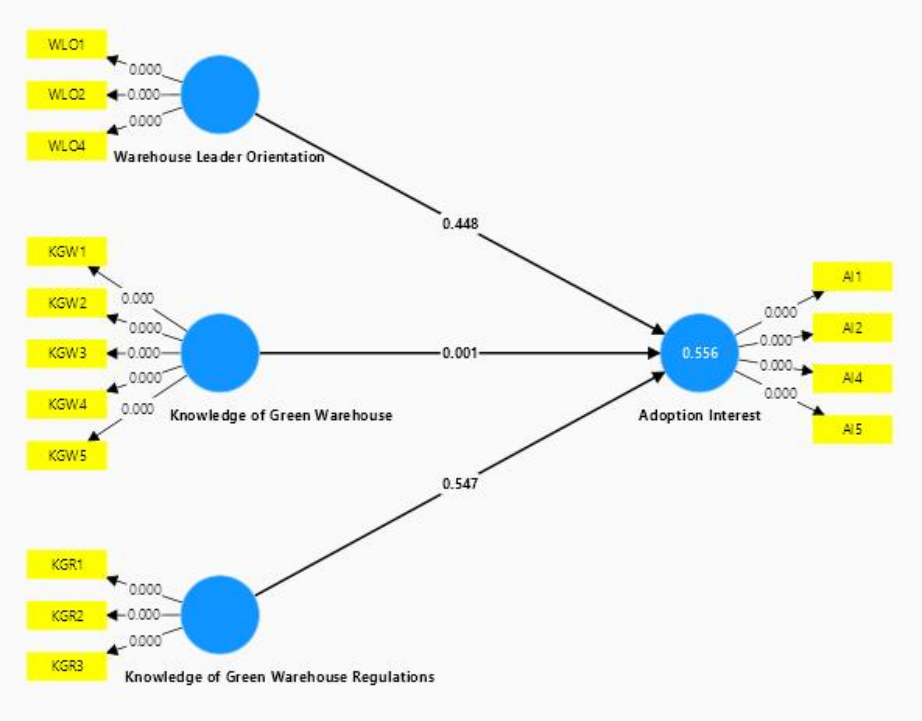

Fig. 2 Graphic Result after Bootstrapping

The result of PLS R-Square represents the amount of variance of the constructs explained by the model. explained by the model. The following presents the results of the calculation of the R-Square value:

Table 4.6 R-Square Value

	R-Square	R-Square Adjusted
Green Warehouse Adoption Interest	0,556	0,521

Testing Research Results

To determine whether a hypothesis is accepted or not, hypothesis testing is required using the Bootstrapping function in SmartPLS 4.0. The criterion for hypothesis acceptance is a significance level of less than 0.1 or a p-value greater than its critical value (Hair et al., 2019). In this context, the t-statistic value used for the 5% significance level is 1.660. Next, we will explain the hypotheses regarding the direct impact that will be tested in this study.

H.1 Perception of Warehouse Leader Orientation does not have a significant positive impact on Green Warehouse Adoption Interest

Table 4.7 Hypotesis 1 Result

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Warehouse Leader Orientation > Green Warehouse Adoption Interest	0.148	0.160	0.195	0.759	0.448

Based on table 4.7, it is clear that Warehouse Leader Orientation does not have a significant impact on Green Warehouse Adoption Interest in a negative direction. This can be seen from the t-statistics value of 0.759 > 1.683 or can be seen from the P value which is 0.448 > 0.05 and the original sample value is 0.148. Based on these results, it can be concluded that Warehouse Leader Orientation does not have a significant negative impact on Green Warehouse Adoption Interest, which means that the first hypothesis cannot be accepted.

This result may indicate that in the field, although warehouse leaders have a good orientation towards sustainability, other factors such as budget constraints, lack of support from upper management, or focus on short-term operational priorities may hinder their interest in adopting green warehouses.

H.2 Perception of Knowledge of Green Warehouse has a significant positive impact on Green Warehouse Adoption Interest

Table 4.8 Hypotesis 2 Result

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Knowledge of Green Warehouse > Green Warehouse Adoption Interest	0.548	0.572	0.159	3.435	0.001

Baseed on table 4.8, it is clear that Knowledge of Green Warehouse have a significant impact on Green Warehouse Adoption Interest in a positive direction. This can be seen from the t-statistic value of 3.435 > 1.683 or can be seen from the P value which is 0.001 < 0.05 and the original sample value is 0.548. Based on these results, it can be concluded that Knowledge of Green Warehouse has a significant positive impact on Green Warehouse Adoption Interest, which means that the second hypothesis can be accepted.

This finding is in line with the expectation that a better understanding of green warehousing will drive adoption interest. In the field, this can be implemented by providing training and education to employees about green warehouse concepts, so that they can understand the benefits and importance of these practices for the company and the environment.

H.3 Perception of Knowledge of Green Warehouse Regulations does not have a significant positive impact on Green Warehouse Adoption Interest

Table 4.9 Hypotesis 3 Result

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (|O/STDEV|)	P Values
Knowledge of Green Warehouse Regulations > Green Warehouse Adoption Interest	0.119	0.101	0.198	0.602	0.547

Based on table 4.9, it is clear that Knowledge of Green Warehouse Regulations does not have a significant impact on Green Warehouse Adoption Interest in a negative direction. This can be seen from the t-statistics value of 0.602 > 1.683 or can be seen from the P value which is 0.547 > 0.05 and the original sample value of 0.119. Based on these results, it can be concluded that Knowledge of Green Warehouse does not have a significant negative impact on Green Warehouse Adoption Interest, which means that the third hypothesis cannot be accepted.

This result may suggest that in the field, while knowledge of regulations is important to ensure compliance, this factor does not directly drive interest in green warehouse adoption. Companies may be more motivated by other factors such as cost savings, improved operational efficiency, or improved corporate image, rather than simply fulfilling regulatory requirements.

CONCLUSION

This study identified that knowledge of green warehouses has a significant positive impact on adoption intention, suggesting that a better understanding of the benefits and practices of green warehouses may encourage companies to implement them. Meanwhile, warehouse leader orientation and knowledge of green warehouse regulations did not show a significant affect, indicating that other factors, such as management support or financial incentives, may play more of a role in the adoption decision. These findings offer valuable insights for companies and policymakers, highlighting the need to promote green warehouse practices as a critical step toward environmental conservation and operational efficiency.

Implications

This research provides significant theoretical and practical implications regarding green warehouse adoption. Theoretically, the findings highlight the gap between theory and practice in sustainable technology adoption, emphasising the importance of considering organisational structure and decision-making dynamics. Practically, this research suggests that efforts to increase green warehouse adoption need to involve top-level management and consider factors beyond the knowledge of warehouse staff, such as financial benefits, pressure from external stakeholders, and effective communication strategies. By doing so, companies can create a favourable environment for transformation towards more sustainable logistics practices.

Research Limitations

This study has several limitations that need to be considered. First, the unit of analysis is limited to two institutions, and the majority of respondents are staff, which may limit the generalizability of the findings. Secondly, this study only focuses on three independent variables, so there is a possibility that other factors that also affect the interest in green warehouse adoption have not been included. Therefore, future research is recommended to expand the unit of analysis by involving more companies and respondents from the leadership level, as well as considering other variables such as socialisation and other external factors that can influence green warehouse adoption decisions..

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