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The Influence of Warehouse Capability, Inventory Management, and Human Resource Competence on the Effectiveness of Warehouse Management Mediated by Supply Chain Optimization (A Case Study of Aluminium and Ferronickel Warehouses at PT Sinergi Mitra Lestari)

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Abstract: PT Sinergi Mitra Lestari Indonesi is a company engaged in the management and distribution of mining products, particularly tin and ferronickel. In its business operations, the company relies on warehouse performance as a central hub for controlling the flow of goods and information. This study seeks to identify and empirically analyze how warehouse capability, inventory management, and human resource competence contribute to the effectiveness of tin and ferronickel warehouse management at PT Sinergi Mitra Lestari Indonesia. Furthermore, the study explores how the effectiveness of warehouse management impacts the optimization of the company's supply chain. Employing a quantitative approach, data were collected through questionnaires distributed to 229 respondents consisting of the warehouse staff, logistics personnel, and management level. This data is subsequently analyzed using the SEM-PLS method to analyze both direct and indirect relationships among variables. Furthermore, supply chain optimization significantly mediates the relationships between these independent variables and warehouse management outcomes, emphasizing its crucial role in translating operational capabilities into performance improvements. Among the predictors, warehouse capability demonstrates the strongest total effect on management effectiveness, highlighting the importance of infrastructure and technological support in logistics operations. This shows that PT Sinergi Mitra Lestari Indonesia must enhance warehouse efficiency, optimize space utilization, and strengthen supply chain processes to remain competitive in the mining sector.

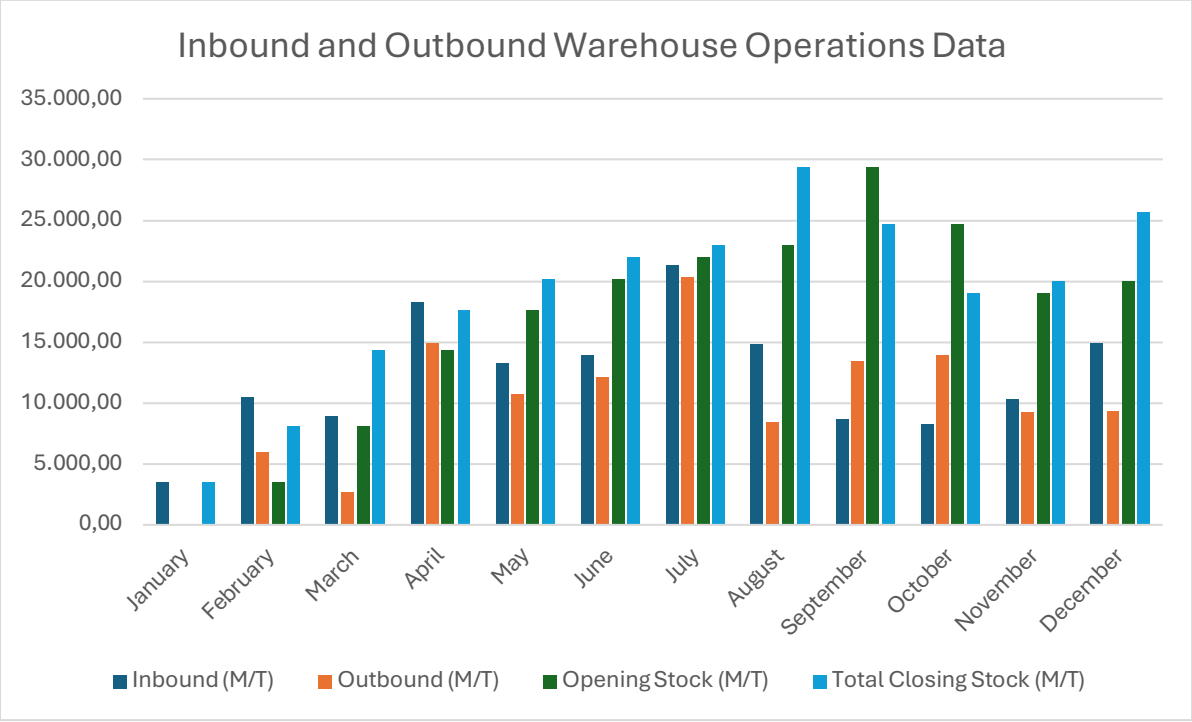
Keywords: PT Sinergi Mitra Lestari Indonesia, Warehouse Capabilities, Supply Chain Optimization, Warehouse Management Effectiveness

INTRODUCTION

In the era of advancing globalization and digitalization, logistics systems have emerged as a critical component in sustaining and accelerating industrial growth, both at national and international levels. Modern logistics no longer solely focus on transportation activities but also encompass storage, inventory management, distribution, and the comprehensive coordination of supply chain operations. Among these components, warehouses play a pivotal role. A warehouse is not merely a facility for storing goods, but also serves as a distribution hub, inventory control center, and logistics information management node that ensures the smooth flow of goods and information throughout the supply chain (Frazelle 2002).

PT Sinergi Mitra Lestari Indonesia, a logistics and mining product management company specializing in aluminium and ferronickel and based in Surabaya, plays a strategic role in distributing mineral commodities both domestically and internationally. However, initial observations and internal discussions have revealed several challenges in warehouse operations, including insufficient capacity to store the full volume of mining outputs, the absence of integrated information systems for inventory management, and gaps in staff competence. Manual processes still occur in some areas, increasing the risk of errors and data loss, while the lack of standardized operating procedures leads to inconsistencies in handling activities. These issues are critical, as effective warehouse management is vital for ensuring efficiency and accuracy in high-volume, high-value industries like mining. According to (Mulyati 2025), logistics capabilities are essential for driving digital transformation, enhancing operational efficiency and information accuracy. This aligns with findings that modern warehouse performance relies heavily on integrated systems and skilled human resources to maintain supply chain resilience, particularly in complex sectors such as mining logistics (Maniah, 2023).

Figure 1. Inbound and Outbound Warehouse Operations Data



Based on data from inbound and outbound warehouse operations 2024 above, it is evident that there are issues concerning the balance of goods flow. From April onward and in the following months, the volume of inbound goods consistently exceeds that of outbound goods. This imbalance indicates that the volume of incoming goods consistently exceeds outgoing

goods, resulting in cumulative stock buildup over successive months. This situation is reflected in the graph showing steadily increasing initial stock levels each month, signaling an accumulation of inventory that has not been properly distributed. The problem becomes more pronounced during the period from July to September, where the graph of total ending stock rises significantly, potentially exceeding the warehouse's maximum capacity. The sharp fluctuations between inbound and outbound volumes also pose a distinct challenge, making optimal warehouse space planning difficult, consistent with findings that sudden changes in inventory levels complicate layout utilization and increase operational costs (Lee & Park, 2022).

The data collection techniques used were interviews, documentation, and observation. This research aims to analyze how warehouse capability, inventory management, and human resource competence influence the effectiveness of warehouse management, with supply chain optimization acting as a mediating variable, in the aluminium and ferronickel warehouses at PT Sinergi Mitra Lestari. The study seeks to identify both the direct and indirect effects of these factors and to provide practical recommendations for improving warehouse efficiency, inventory accuracy, and overall operational performance in the mining logistics sector.

Literature Review

Several previous studies have examined factors influencing warehouse performance, including warehouse capability, inventory management, and human resource (HR) competence. (Zhang and Chen 2021) found that warehouse capability significantly impacts supply chain performance, especially when supported by strong supply chain integration; however, without such integration, its influence tends to be insignificant in companies with rigid organizational structures and lengthy bureaucracy. (Fitriani 2022) emphasized HR competence as a key factor in effective warehouse management, whereas (Garcia 2020) offered a contrasting view, arguing that HR competence is less significant in technology-intensive industries such as aluminium and ferronickel, where processes rely more on machines and automation. (Abdullah 2023) and (Pratama 2024) indicated that good inventory management practices, such as ERP systems, barcode systems, and reorder point policies, enhance warehouse effectiveness in terms of service speed and stock data accuracy. However, (Sari 2023) pointed out that in certain sectors, particularly large-scale mining industries, technology is perceived as more dominant than HR or inventory management due to highly automated warehouse systems. (Kaur and Singh 2020) and (Lee and Park 2022) recognized that supply chain optimization can serve as an important mediating factor in improving warehouse performance, although (Lee and Park 2022) argued that the mediation effect is significant mainly in large-scale enterprises with complex supply chain infrastructures.

Based on these previous studies, there remain divergent findings regarding the influence of warehouse capability, inventory management, and HR competence on the effectiveness of warehouse management, as well as the effectiveness of supply chain optimization as a mediating variable. This indicates a research gap, particularly in the mining sector, where commodity warehousing for products like aluminium and ferronickel features unique characteristics related to high volume, high value, and complex handling processes. Few studies have examined these three independent variables alongside the mediating role of supply chain optimization within a comprehensive model. Therefore, this study is important to strengthen scientific understanding and provide practical contributions to PT Sinergi Mitra Lestari in improving performance and competitiveness in the mining industry.

METHOD

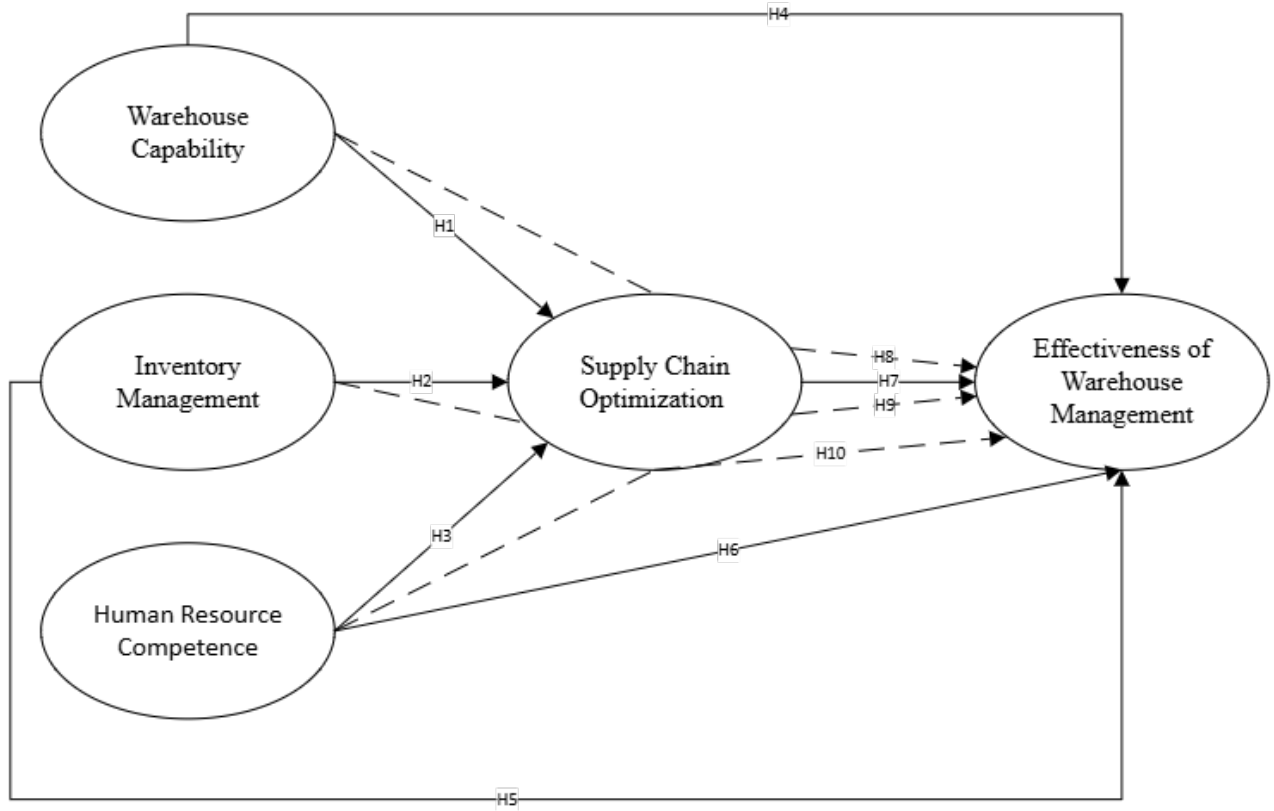
This study employs an explanatory quantitative design, which aims to explain causal relationships between variables and to test pre-formulated hypotheses (Creswell & Creswell

2023). According to (Sugiyono 2021), explanatory quantitative research is used to test hypotheses and analyze the influence among variables statistically through numerical data collection and specific analytical techniques. (Hair et al. 2022) emphasize that explanatory studies are often employed to identify direct, indirect, mediating, or moderating relationships among variables. (Neuman 2022) and (Sekaran & Bougie 2020) also argue that this approach is suitable when research is focused on generalizing findings and empirically validating theoretical models.

This study adopts the Structural Equation Modeling - Partial Least Squares (SEM-PLS) method, which is appropriate for analyzing complex relationships between constructs. This study also adopts a case study approach, specifically focusing on the Aluminium and Ferronickel Warehouses at PT Sinergi Mitra Lestari to ensure high practical relevance. (Yin 2021) explains that case studies are used to explore contextual phenomena deeply within a bounded system. Therefore, this research design—an explanatory quantitative case study using SEM-PLS—is suitable for investigating the effectiveness of warehouse management and the mediating role of supply chain optimization in the mineral warehousing industry.

The research model formulated in this study serves to depict and clarify the theoretical framework underpinning the relationships among the key variables, namely warehouse capability, inventory management, human resource competence, supply chain optimization as a mediating variable, and the effectiveness of warehouse management. This model is systematically illustrated and explained in Figure 2 below, providing a visual representation of the hypothesized direct and indirect relationships that are subsequently tested through empirical analysis.

Figure 2. Conceptual Framework



Hypothesis

The author proposes several hypotheses, as detailed below:

H1: There is a positive and significant influence of Warehouse Capability on Supply Chain Optimization.

H2: There is a positive and significant influence of Inventory Management on Supply Chain Optimization.

H3: There is a positive and significant influence of Human Resource Competence on Supply Chain Optimization.

H4: There is a positive and significant influence of Warehouse Capability on the Effectiveness of Warehouse Management.

H5: There is a positive and significant influence of Inventory Management on the Effectiveness of Warehouse Management.

H6: There is a positive and significant influence of Human Resource Competence on the Effectiveness of Warehouse Management

H7: There is a positive and significant influence of Supply Chain Optimization on the Effectiveness of Warehouse Management.

H8: There is a positive and significant influence of Warehouse Capability on the Effectiveness of Warehouse Management through Supply Chain Optimization as a mediating variable.

H9: There is a positive and significant influence of Inventory Management on the Effectiveness of Warehouse Management through Supply Chain Optimization as a mediating variable.

H10: There is a positive and significant influence of Human Resource Competence on the Effectiveness of Warehouse Management through Supply Chain Optimization as a mediating variable.

RESULT AND DISCUSSION

Outer Model or Measurement Model Analysis

Convergent validity analysis measures the extent to which indicators consistently explain a construct. Convergent validity is assessed based on the loading factor of each indicator on its corresponding construct. An indicator is considered valid if its loading factor exceeds 0.7, in accordance with the recommendation by (Hair et al. 2022).

Table 1. Outer Loadings (Measurement Model)

	Effectiveness of Warehouse Management	Inventory Management	Warehouse Capability	Human Resource Competency	Supply Chain Optimization
EPG1	0.805				
EPG2	0.828				
EPG3	0.735				
EPG4	0.799				
EPG5	0.826				
EPG6	0.880				
EPG7	0.889				
EPG8	0.732				
EPG9	0.820				
IM1		0.803			
IM2		0.877			
IM3		0.852			
IM4		0.885			

	Effectiveness of Warehouse Management	Inventory Management	Warehouse Capability	Human Resource Competency	Supply Chain Optimization
IM5		0.879			
IM6		0.913			
IM7		0.875			
KP1			0.803		
KP2			0.822		
KP3			0.832		
KP4			0.848		
KP5			0.888		
KP6			0.751		
KP7			0.743		
KP8			0.744		
KP9			0.870		
KS1				0.729	
KS10				0.793	
KS2				0.837	
KS3				0.837	
KS4				0.742	
KS5				0.752	
KS6				0.812	
KS7				0.842	
KS8				0.835	
KS9				0.850	
ORP1					0.820
ORP10					0.784
ORP2					0.828
ORP3					0.775
ORP4					0.813
ORP5					0.844
ORP6					0.850
ORP7					0.827
ORP8					0.768
ORP9					0.803

Source: 2025 Questionnaire Processing Data

The analysis indicated that most indicators met the established threshold, suggesting that these indicators significantly contribute to representing the latent variables. Therefore, the constructs used in this research model can be considered convergently valid, as the indicators are closely interrelated in measuring the same underlying concept.

Evaluate Reliability and Average Variance Extracted (AVE)

According to (Hair et al. 2022), AVE (Average Variance Extracted) is used to indicate the average amount of variance explained by a construct through its indicators, compared to the total variance of those indicators. A construct is considered to have a good level of reliability if its Composite Reliability value reaches 0.70 or higher, and the AVE value exceeds 0.50.

Table 2. Composite Reliability and AVE

	Cronbach's Alpha	Rho A	Composite Reliability	Average Variance Extracted (AVE)
Effectiveness of Warehouse Management	0.935	0.938	0.946	0.659
Inventory Management	0.945	0.946	0.955	0.751
Warehouse Capability	0.934	0.936	0.945	0.657
Human Resource Competency	0.939	0.941	0.949	0.647
Supply Chain Optimization	0.942	0.943	0.951	0.659

Source: 2025 Questionnaire Processing Data

Referring to Table 2, it can be concluded that all constructs—namely Effectiveness of Warehouse Management, Inventory Management, Warehouse Capability, Human Resource Competency and Supply Chain Optimization have met the reliability standards. This is evident from the fulfillment of all reliability assessment criteria, including rho_A, Cronbach's Alpha, Composite Reliability, and AVE values.

Structural Model Testing (Inner Model)

Testing Goodness Of Fit Model

In the PLS inner model, there are two types of latent variables: exogenous and endogenous. Exogenous variables are not influenced by other variables and are characterized by the absence of incoming arrows. Structural model analysis examines path coefficients to assess the strength and direction of the relationships among latent variables (Hair et al. 2022).

Table 3. R-Square Value

	R Square	Adjusted R Square
Effectiveness of Warehouse Management	0.964	0.964
Supply Chain Optimization	0.912	0.911

Source: 2025 Questionnaire Processing Data

Table 3 displays the R-Square and Adjusted R-Square values for the endogenous variables in this study. The Effectiveness of Warehouse Management variable has an R-Square value of 0.964, indicating that 96.4% of its variance can be explained by the combined influence of Warehouse Capability, Inventory Management, and Human Resource Competency. This reflects a very high level of explanatory power from the independent variables.

Meanwhile, the Supply Chain Optimization variable shows an R-Square value of 0.912, suggesting that 91.2% of the variability in this construct is accounted for by the influence of Effectiveness of Warehouse Management. These findings demonstrate that the model has strong predictive relevance for both dependent variables.

Partial Effect Hypothesis Testing (Direct Effect)

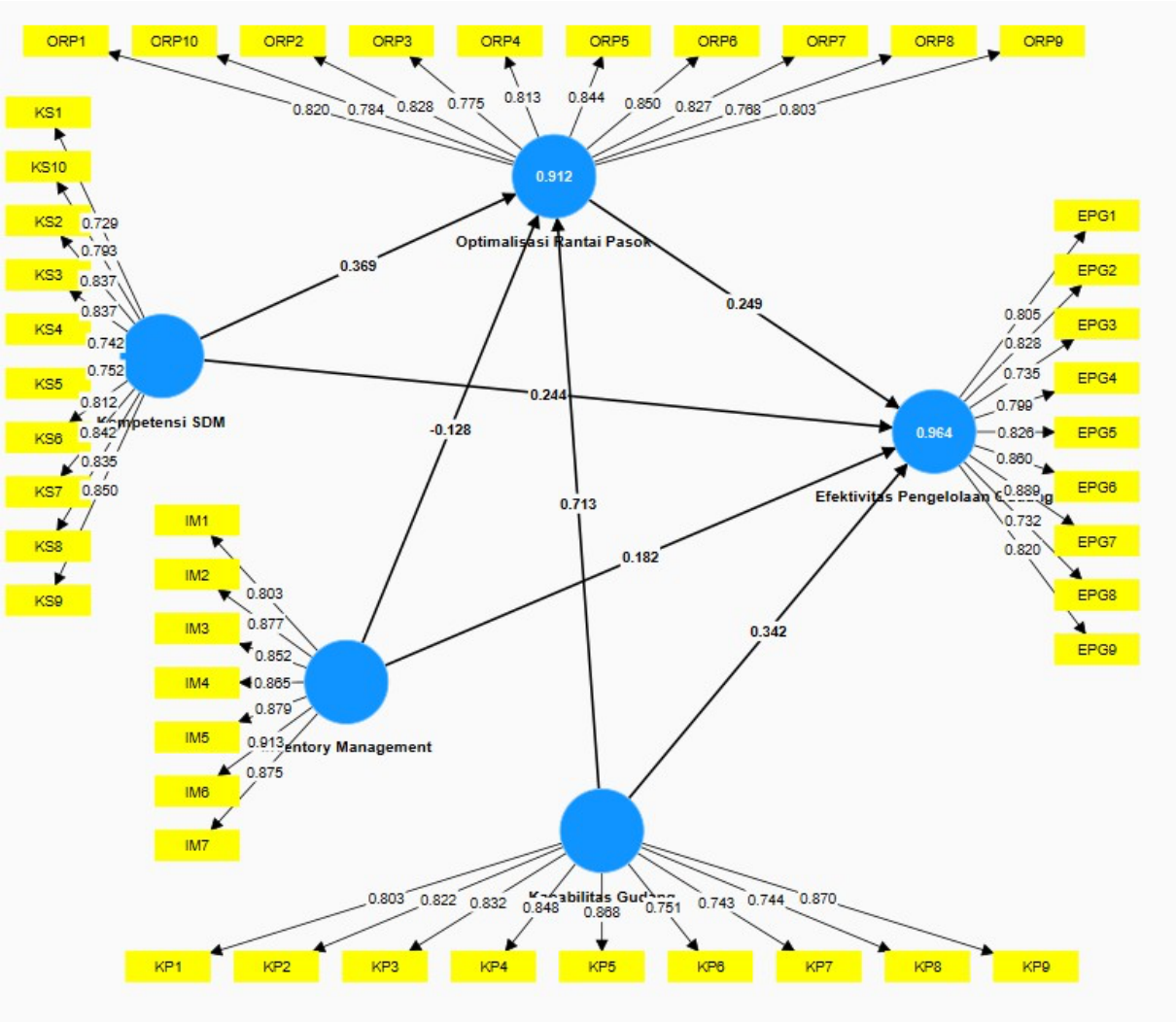


Figure 2. Estimation Output for Structural Model Testing

The following are the bootstrapping estimation results obtained through Smart-PLS, which are presented in detail in Table 4.

Table 4. Results for Inner Weights (Direct Effect)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Inventory Management -> Effectiveness of Warehouse Management	0.182	0.182	0.057	3.205	0.001
Inventory Management -> Supply Chain Optimization	0.306	0.296	0.138	2.223	0.027
Warehouse Capability -> Effectiveness of Warehouse Management	0.342	0.347	0.079	4.334	0.000
Warehouse Capability -> Supply Chain Optimization	0.713	0.709	0.072	9.968	0.000
Human Resource Competency -> Effectiveness of Warehouse Management	0.244	0.246	0.093	2.618	0.009
Human Resource Competency -> Supply Chain Optimization	0.369	0.376	0.117	3.161	0.002

Supply Chain Optimization -> Effectiveness of Warehouse Management	0.249	0.242	0.069	3.612	0.000

Source: 2025 Questionnaire Processing Data

As presented in Table 4, all direct relationships among the variables exhibit positive and statistically significant effects. Firstly, Inventory Management has a positive influence on the Effectiveness of Warehouse Management, with a path coefficient of 0.182 and a t-statistic of 3.205 (p = 0.001). This indicates that improvements in inventory control significantly enhance the effectiveness of warehouse operations.

Inventory Management also positively affects Supply Chain Optimization, with a coefficient of 0.306 and a t-statistic of 2.223 (p = 0.027), suggesting that efficient inventory practices contribute meaningfully to optimizing the supply chain.

Warehouse Capability demonstrates a strong and significant impact on both dependent variables. It positively influences the Effectiveness of Warehouse Management with a path coefficient of 0.342 and t-statistic of 4.334 (p = 0.000). Its effect on Supply Chain Optimization is even more pronounced, with a coefficient of 0.713 and a t-statistic of 9.968 (p = 0.000). These results confirm that warehouse capabilities are critical drivers of both effective warehouse management and supply chain efficiency.

Similarly, Human Resource Competency shows a statistically significant impact on both outcomes. It affects Warehouse Management Effectiveness with a coefficient of 0.244 and t-statistic of 2.618 (p = 0.009), and influences Supply Chain Optimization with a coefficient of 0.369 and t-statistic of 3.161 (p = 0.002). This highlights the importance of skilled human resources in enhancing warehouse performance and supply chain operations.

Finally, Supply Chain Optimization has a positive and significant direct effect on Warehouse Management Effectiveness, with a path coefficient of 0.249 and a t-statistic of 3.612 (p = 0.000). This implies that a well-optimized supply chain directly contributes to more effective warehouse management.

Indirect Effect Test (Mediation)

Table 5. Indirect Influence

	Original Sample (O)	Sample Mean	Standard Deviation	T Statistics (O/STDEV)	P Values
Inventory Management -> Supply Chain Optimization -> Effectiveness of Warehouse Management	0.304	0.294	0.137	2.223	0.027
Warehouse Capability -> Supply Chain Optimization -> Effectiveness of Warehouse Management	0.576	0.590	0.135	4.268	0.000
Human Resource Competency -> Supply Chain Optimization -> Effectiveness of Warehouse Management	0.246	0.248	0.026	9.598	0.000

Source: 2025 Questionnaire Processing Data

The results in Table 5 indicate that Inventory Management has a statistically significant indirect effect on the Effectiveness of Warehouse Management through Supply Chain Optimization, with a path coefficient of 0.304, a t-statistic of 2.223, and a p-value of 0.027. This suggests that improvements in inventory practices can indirectly enhance warehouse management effectiveness by first optimizing the supply chain.

In addition, Warehouse Capability shows a strong and significant indirect impact on Warehouse Management Effectiveness via Supply Chain Optimization, with a path coefficient of 0.576, a t-statistic of 4.268, and a p-value of 0.000. This implies that developing warehouse infrastructure and operational capacity can greatly improve warehouse performance when mediated by a well-optimized supply chain process.

Furthermore, Human Resource Competency also exerts a significant indirect influence on the Effectiveness of Warehouse Management through Supply Chain Optimization, with a coefficient of 0.246, a t-statistic of 9.598, and a p-value of 0.000. This underscores the importance of enhancing employee skills and logistics competencies, as their impact on supply chain optimization ultimately strengthens warehouse management outcomes.

These findings confirm the mediating role of Supply Chain Optimization in linking Inventory Management, Warehouse Capability, and Human Resource Competency to the effectiveness of warehouse management. The results are aligned with previous studies that emphasize the strategic function of supply chain performance as a leverage point for improving internal logistics operations and overall organizational efficiency.

Discussion

This study provides empirical evidence on how Inventory Management, Warehouse Capability, and Human Resource Competency influence both Supply Chain Optimization and the Effectiveness of Warehouse Management within the logistics context. The findings show that these three variables act as foundational antecedents that shape how efficiently and effectively warehouse operations are managed. The statistically significant and positive relationships confirm that managing inventory well, investing in warehouse infrastructure and systems, and ensuring competent human resources are critical to driving overall warehouse performance.

Specifically, the results indicate that Human Resource Competency plays a central role in strengthening Supply Chain Optimization, which subsequently enhances warehouse management effectiveness. This aligns with prior studies such as (Mahendra 2020) and (Zhou et al. 2022), who emphasized that skilled logistics personnel contribute directly to system efficiency, adaptability, and operational accuracy. Moreover, the direct effect of Human Resource Competency on Warehouse Management Effectiveness highlights that the value of human capital is not only limited to upstream planning or support functions, but also manifests in daily operational excellence across warehouse functions such as inventory handling, fulfillment, and internal coordination.

Likewise, Warehouse Capability emerges as a particularly strong predictor of Supply Chain Optimization, as evidenced by its high path coefficient. This underscores the strategic value of physical infrastructure, technology adoption, and space utilization in driving supply chain efficiency. These results are supported by the indirect effects found in the model, which show that the full impact of warehouse capability on warehouse management is largely channeled through supply chain optimization, emphasizing the importance of integration between physical assets and operational systems.

Furthermore, Inventory Management—while often treated as a routine logistics function—demonstrates both direct and indirect effects on Warehouse Management Effectiveness. The indirect pathway, mediated through Supply Chain Optimization, confirms that effective inventory control supports not just availability and cost reduction, but also the broader coordination and flow within the supply chain. These findings reinforce the perspective that inventory management is not a siloed activity, but rather a strategic enabler of warehouse and supply chain excellence.

Crucially, the mediating role of Supply Chain Optimization is confirmed in the model. It serves as a strategic bridge between upstream capabilities (inventory systems, warehouse assets, and HR competencies) and downstream outcomes (effective warehouse operations). This mirrors the conceptual function of Task-Technology Fit in information systems literature, where optimization acts as the mechanism that translates capability into performance. The results are in line with (Pratama & Lestari 2021), who argue that process optimization is a key determinant of operational sustainability and organizational resilience.

In conclusion, this study highlights the importance of optimizing the supply chain as a critical step in improving warehouse management performance. Investment in physical infrastructure, human capital, and inventory systems must be harmonized through a supply chain lens to unlock their full potential. In a logistics environment that is increasingly complex and competitive, organizations must ensure that upstream capabilities are aligned with supply chain strategies to realize operational excellence at the warehouse level.

Practical Implications

This study underscores the need for companies to align inventory management, warehouse capability, and human resource competency through effective supply chain optimization. To enhance warehouse performance, organizations should invest in employee training, upgrade warehouse systems, and treat inventory control as a strategic function.

Supply chain optimization serves as a critical link that transforms these inputs into operational efficiency. Therefore, companies must adopt an integrated approach—ensuring all logistics components work cohesively to achieve higher warehouse effectiveness and long-term competitiveness.

CONCLUSIONS

The results of this study demonstrate that inventory management, warehouse capability, and human resource competency significantly influence the effectiveness of warehouse management, both directly and indirectly through supply chain optimization. Among these, warehouse capability shows the strongest total impact, emphasizing that well-developed infrastructure and warehouse systems are vital for supporting overall logistics performance. In addition, human resource competency plays a dual role—directly improving warehouse effectiveness and indirectly enhancing it through supply chain optimization. This reflects the strategic value of a skilled workforce in maintaining operational continuity and adaptability across logistics functions. Inventory management, while often considered a routine function, also proves to be a meaningful contributor to both supply chain efficiency and warehouse performance. Furthermore, supply chain optimization serves as a key mediating variable, effectively translating upstream capabilities into operational outcomes. This underscores the importance of viewing logistics processes as interconnected systems rather than isolated functions. Therefore, companies should adopt an integrated logistics strategy by aligning inventory policies, strengthening warehouse infrastructure, and investing in workforce development. Prioritizing process optimization, technology integration, and cross-functional coordination will enable firms to enhance warehouse performance and achieve sustainable competitiveness in the logistics sector.

REFERENCES

Mahendra, R. (2020). *Peran Kompetensi SDM dalam Meningkatkan Efektivitas Operasional Logistik*. Jurnal Manajemen dan Logistik, **8**(2), 112–123.

Zhou, Y., Wang, J., & Liu, H. (2022). *The impact of logistics employee capabilities on supply chain performance: Evidence from manufacturing firms*. *International Journal of Logistics Management*, **33**(1), 85–102. https://doi.org/10.1108/IJLM-05-2021-0176

Pratama, D. A., & Lestari, N. P. (2021). *Optimizing Business Process Integration in the Supply Chain: A Mediated Model of Operational Sustainability*. *Jurnal Ilmu Manajemen Terapan*, **14**(1), 43–57.

Christopher, M. (2016). *Logistics & Supply Chain Management* (5th ed.). Pearson Education Limited.

Rushton, A., Croucher, P., & Baker, P. (2017). *The Handbook of Logistics and Distribution Management: Understanding the Supply Chain* (5th ed.). Kogan Page Publishers.

Gunasekaran, A., & Ngai, E. W. T. (2004). *Information systems in supply chain integration and management*. *European Journal of Operational Research*, **159**(2), 269–295.

Frazelle, E. H. 2002. *World-Class Warehousing and Material Handling*. New York: McGraw-Hill.

Mulyati, E. 2025. The Role of Logistics Capabilities in Driving Digital Transformation: A Case Study of PT Pos Indonesia Persero. *International Journal of Logistics and Supply Chain Management*, 15(1), 45–5

Setiyanto, S., Utomo, I. C., Dawis, A. M., Yuliati, T., Nugraha, N. B., Maniah, M., … & Syujak, A. R. (2023). Multimedia dan Sains: Penerapan Teknologi untuk Penelitian dan Penyampaian Informasi. Bandung: Widina Media Utama.

Sari, R. 2023. Technology Dominance in Large-Scale Mining Warehouse Operations. Mining Industry Journal, 8(2), 77–86.

Lee, S., & Park, J. 2022. Mediating Role of Supply Chain Optimization in Warehouse Performance. Asian Journal of Business and Logistics, 14(3), 199–213.

Zhang, Y., & Chen, L. 2021. Warehouse Capability and Supply Chain Performance: The Mediating Role of Supply Chain Integration. Journal of Operations Management, 65(4), 403–418.

Fitriani, L. 2022. The Role of Human Resource Competence in Warehouse Management Effectiveness. Indonesian Journal of Logistics, 10(1), 22–31.

Garcia, J. 2020. Human Competence and Technology in Bulk Commodity Warehousing. International Journal of Operations & Production Management, 40(7), 1045–1062.

Abdullah, M. 2023. Inventory Management Practices and Warehouse Performance in Mining Industries. Journal of Supply Chain Management, 18(2), 55–67.

Pratama, D. 2024. ERP Implementation and Warehouse Performance in Indonesian Mining Companies. Journal of Business Logistics, 19(1), 12–24.

Kaur, H., & Singh, P. 2020. Supply Chain Optimization and Warehouse Performance. International Journal of Logistics Research and Applications, 23(6), 715–732.

Creswell, J. W., & Creswell, J. D. 2023. Research Design: Qualitative, Quantitative, and Mixed Methods Approaches (6th ed.). SAGE Publications.

Sugiyono. 2021. Metode Penelitian Kuantitatif, Kualitatif dan R&D. Bandung: Alfabeta.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. 2022. A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) (3rd ed.). SAGE Publications.

Neuman, W. L. 2022. Social Research Methods: Qualitative and Quantitative Approaches (8th ed.). Pearson.

Sekaran, U., & Bougie, R. 2020. Research Methods for Business: A Skill-Building Approach (8th ed.). Wiley.

Yin, R. K. 2021. Case Study Research and Applications: Design and Methods (6th ed.). SAGE Publications.