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Mediating Role Of Logistics Service Quality In Relationship Between Warehouse Management, Work Behavior, And Digitalization On Performance Of Cianjur Post Office Warehouse

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Abstract

PT Pos Indonesia Cianjur Branch Consolidation Warehouse faces operational challenges, including delays in vehicle arrivals, shipment processing, sorting errors, and scan failures, which contribute to Customer Complaint Handling (CCH) cases, may reduce logistics service quality and warehouse performance. This study examines effects of warehouse management, work behavior, and digitalization on warehouse performance, with logistics service quality as a mediating variable. A quantitative survey was conducted involving 69 employees, and data were analyzed using Structural Equation Modeling-Partial Least Squares (SEM-PLS). The results indicate that warehouse management positively affects logistics service quality (β = 0.286; p = 0.005) and warehouse performance (β = 0.204; p = 0.011). Work behavior positively influences logistics service quality (β = 0.264; p = 0.010) and warehouse performance (β = 0.177; p = 0.015). Digitalization significantly improves logistics service quality (β = 0.379; p < 0.001) but has no direct effect on warehouse performance (β = −0.030; p = 0.740). Logistics service quality significantly improves warehouse performance (β = 0.669; p < 0.001), partially mediating effects of warehouse management and work behavior, and fully mediating effect of digitalization. The model explains 65.6% of warehouse performance and highlights logistics service quality as a key mechanism linking operational factors to performance improvement.

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Keywords: Warehouse Management, Work Behavior, Digitalization, Logistics Service Quality, Warehouse Performance, SEM-PLS.

INTRODUCTION

The rapid growth of e-commerce and courier services has significantly increased the demand for reliable logistics operations. Customers increasingly expect shipments to be delivered accurately, safely, and within the promised delivery time, forcing logistics providers to continuously improve operational efficiency and service quality (Yao dkk., 2022). Within this context, warehouse operations have become a strategic component of logistics systems because they integrate receiving, sorting, temporary storage, scanning, and distribution activities before shipments reach their final destinations (Karimi & Osoro, 2024). Consequently, warehouse performance directly influences logistics service quality and customer satisfaction.

As one of Indonesia's largest logistics service providers, PT Pos Indonesia operates an extensive distribution network supported by consolidation warehouses across the country. One of these facilities is the Consolidation Warehouse of PT Pos Indonesia KC Cianjur, which functions as the primary processing center for parcels and documents before they are distributed to destination branches. The warehouse performs various operational activities, including unloading, sorting, scanning, temporary storage, and bagging. The effectiveness of these processes determines the timeliness, accuracy, and reliability of logistics services delivered to customers.

Despite its strategic role, the warehouse continues to experience several operational problems. Delayed vehicle arrivals often postpone parcel processing, while sorting errors and scan failures reduce shipment accuracy and data reliability. Furthermore, fluctuating shipment volumes require warehouse personnel to maintain high operational efficiency under increasing workloads. These operational challenges are reflected in Customer Complaint Handling (CCH) records (table 1), which show complaints related to delivery delays (Over Service Level Agreement), misrouted parcels, and lost shipments (table 2). Such complaints indicate that warehouse operational performance remains below the expected service standard and requires continuous improvement.

Table 1. Customer Complaint Handling (CCH) KC Cianjur

No.	Kantor Cabang Pembantu	Num. of Complaint
1	KCP CIDAUN 43287B1	23

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2	KCP CAMPAKACIANJUR 43263	22
3	KCP CIBEBER 43262	4
4	KCP GEKBRONG 43287B1	12
5	KC CIANJUR 43200	27
6	KCP SINDANGBARANG 43272	3
7	KCP BOJONGPICUNG 43283	2
8	KCP SINDANGLAYA 43264	16
9	KCP SUKANEGARA 43264	6
10	KCP PAGELARANCIANJUR 43266	2
11	KCP MANDE 43292B1	4
12	KCP CIKALONG 46495B1	5
13	KCP CIRANJANG 43282	1
14	KCP TANGGEUNG 43267	8
15	KCP CILAKU 43285B2	3
16	KCP WARUNGKONDANG	1
17	KCP PASIRHAYAM 43285B1	1
JUMLAH		**140**

Source : KC Cianjur, 2026.

Table 2. Complaint Data

No	CCH Causes	Numb. of Iregularitas
1	Over SLA	87
2	Misrouted Parcels	28
3	Lost Shipment	1
Total		**118**

Source : KC Cianjur, 2026.

Previous studies have demonstrated that warehouse performance is influenced by multiple operational factors. Warehouse management has been reported to improve operational efficiency through effective warehouse layout, facility management, and process control (Ghazali et al., 2024; Januarny & Harimurti, 2021; Utami & Sanjaya, 2022). Likewise, employee work behavior, including discipline, teamwork, and work quality, contributes to smoother warehouse operations (Setayesh et al., 2025; Silen, 2021). The increasing adoption of digital technologies, such as Warehouse Management Systems (WMS), barcode scanning, RFID, and automated

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information systems, has also been recognized as an important driver of logistics performance by improving operational visibility and reducing human error (Herdianzah et al., 2022; Sahara & Silitonga, 2022; Zulfikar et al., 2023; Setiawan et al., 2024).

However, previous findings remain inconsistent. Several studies reported that warehouse management, work behavior, and digitalization directly improve warehouse performance. In contrast, other studies concluded that these factors do not directly influence operational performance but instead enhance logistics capabilities or service quality (Baglio et al., 2023; Batarlienė & Jarašūnienė, 2024), which subsequently improve organizational performance. These inconsistent findings indicate that the mechanism through which operational factors influence warehouse performance has not yet been fully explained.

From a theoretical perspective, most previous studies examine warehouse management, employee behavior, or digitalization independently. Only a limited number of studies integrate these operational factors into a single analytical framework while considering logistics service quality as an intervening variable. Moreover, empirical evidence from postal consolidation warehouses remains scarce, despite their unique operational characteristics compared with manufacturing or retail warehouses.

Accordingly, this study proposes logistics service quality as the mediating mechanism linking warehouse management, work behavior, and digitalization to warehouse performance. Logistics service quality is reflected in operational indicators such as processing timeliness, shipment accuracy, and parcel reliability, all of which are closely associated with warehouse operational activities. By incorporating these relationships into a single Structural Equation Modeling–Partial Least Squares (SEM-PLS) framework, this study extends existing logistics literature and provides a more comprehensive understanding of warehouse performance improvement within Indonesia's postal logistics sector.

OVERVIEW OF RESEARCH ON POSTAL AND COURIER SERVICES SECTOR

Research in postal and courier services has shown that operational issues related to warehousing and distribution have been extensively studied from various perspectives. Ramadani et al. (2025) used a Design Thinking approach to improve delivery performance and operational efficiency at JNE Jambi's warehouse. The results of this study emphasize that process innovation and continuous improvement play a crucial role in enhancing the quality of distribution services. In a similar context within courier services, Pasaribu et al. (2025) analyzed

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the relationship between delivery timeliness and package condition on customer satisfaction levels through a case study at JNE's Purwokerto branch. Consistent with this research, Atmoko (2022) also found that timeliness and price are significant factors influencing customer satisfaction at the courier service company Ninja Express.

Furthermore, Fakhirah et al. (2025) examined shipping errors at courier service companies from perspective of non-litigious consumer dispute resolution and concluded that shipping errors are influenced by human error, weak internal controls, inconsistent verification procedures, and high shipment volumes. In terms of space and storage management, Nugroho et al. (2023) conducted an analysis to improve goods storage allocation at the PT Tiki JNE Bandung Branch fulfillment warehouse by implementing the Dedicated Storage and Class-Based Storage methods. The results showed that a more systematic storage arrangement can improve warehouse operational efficiency.

Farhan and Hidayat (2021) found that improvements in logistics management have a positive effect on warehouse performance. Similar findings were also reported by Januarny and Harimurti (2021), Utami and Sanjaya (2022), and Ghazali et al. (2024), who demonstrated that warehouse layout, workflow management, and proper storage space organization can enhance operational efficiency. However, different results were found by Baglio et al. (2023) and Batarlienė & Jarašūnienė (2024), who stated that improvements in physical aspects of the warehouse do not always have a direct impact on organizational performance, rather, they need to be supported by improvements in service quality, such as timeliness, accuracy, and reliability. These differing findings suggest that logistics service quality has the potential to serve as a mediating variable in the relationship between warehouse management and warehouse performance.

OVERVIEW OF HUMAN

In terms of warehouse management, human factors and work procedures also play a significant role. Human error, work discipline, and cooperation among employees—as aspects of work behavior—can affect warehouse operations (Setayesh et al., 2025). In line with this, Silen (2021) states that the readiness and competence of human resources in understanding and implementing standard operating procedures (SOPs) play a crucial role in improving the accuracy of goods management processes. However, Ziyaduddin et al. (2025) found different results, showing that collaboration or cooperation does not have a significant direct effect on logistics

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performance but rather acts through a mediating variable: logistics capability. These differing findings indicate that the relationship between work behavior and performance is not yet fully consistent, thus necessitating the testing of mediating variables. In this study, logistics service quality is proposed as the mediating variable linking work behavior to warehouse performance.

OVERVIEW OF WAREHOUSE PERFORMANCE

Research by Ferdira et al. (2025) found that efficiency, accuracy, and service quality can improve warehouse reliability and performance. This is supported by results from Staudt et al., as cited in Faveto et al. (2023), indicating four categories of Key Performance Indicators (KPIs) that directly measure warehouse performance improvement: time, cost, service quality, and productivity. Additionally, there are indirect KPI categories covering flexibility, customer perception, and added value. From the perspective of logistics service quality, failures in operational processes—such as delays, delivery discrepancies, or handling errors—can trigger service failures, which ultimately lead to customer complaints (Parluhutan and Santoso, 2021).

OVERVIEW OF DIGITALIZATION

Digitization is a key factor in improving operational efficiency and data accuracy in warehousing activities. The implementation of digital technologies such as Warehouse Management Systems (WMS), RFID, and automation systems enables the management, identification, and tracking of goods to be carried out more quickly, accurately, and in an integrated manner, thereby reducing the potential for human error in warehouse operations (Herdianzah et al., 2022; Sahara & Silitonga, 2022; Zulfikar et al., 2023; Setiawan et al., 2024). However, Taufiq and Qamari (2021) found different results, showing that information systems do not have a significant direct effect on supply chain performance but rather exert an effect through the mediating role of logistics service quality. These findings suggest that digitalization does not necessarily improve performance directly but must first lead to better logistics service quality. Therefore, logistics service quality is hypothesized to act as a mediating variable in the relationship between digitalization and warehouse performance.

RESEARCH GAPS

Based on these findings, it can be concluded that, from an empirical perspective, previous research has shown inconsistencies regarding the effects of warehouse management, work

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behavior, and digitalization on performance. Some studies have found a direct effect on operational performance, while others have shown that this effect does not occur directly but rather through an improvement in service quality or operational capabilities first. These differing findings indicate that the mechanisms underlying the relationship between operational factors and warehouse performance require further testing.

From a theoretical perspective, research that integrates warehouse management factors, work behavior, and the implementation of digitalization as key operational factors—with logistics service quality as a mediating variable and warehouse performance as the primary outcome—into a single analytical model, particularly in the context of consolidation warehouses for courier service companies, remains limited. In this study, logistics service quality is viewed as the quality of logistics services resulting from warehouse operational processes, as reflected in the timeliness of goods processing (Over SLA), sorting accuracy (Misrouting), and the security and control of goods (Lost Goods). Thus, logistics service quality serves as a mechanism that explains how operational factors—such as warehouse management, work behavior, and digitalization—influence warehouse performance by improving the quality of logistics services provided.

The novelty of this research lies in three aspects. First, it addresses the empirical inconsistency regarding the direct effects of warehouse management, work behavior, and digitalization on warehouse performance. Second, it develops an integrated theoretical model that positions logistics service quality as a mediating variable connecting operational factors with warehouse performance. Third, it provides empirical evidence from the Consolidation Warehouse of PT Pos Indonesia KC Cianjur, a context that has received limited attention in previous logistics studies.

METHODS

RESEARCH APPROACH

This study employs a quantitative method because it focuses analysis of numerical data obtained through questionnaire distribution. According to Sugiyono (2022:15), quantitative research is a research method grounded in the philosophy of positivism, it is used to study a specific population or sample, involves data collection using research instruments, and employs quantitative or statistical data analysis with the aim of testing established hypotheses.

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TYPES OF RESEARCH DATA

The types of data used were primary data in form of questionnaires and secondary data in form of CCH data obtained from PT Pos Indonesia's Cianjur Branch Office.

POPULATION AND SAMPLE

The population of this study consisted of all employees under the operational division of PT Pos Indonesia KC Cianjur, totaling 86 employees. The sample comprised 69 employees who were directly involved in warehouse consolidation and distribution activities at the Consolidation Warehouse. The sample was selected using a purposive sampling technique rather than a statistical sample size formula. Purposive sampling was chosen because the study specifically targeted employees who were actively engaged in warehouse operational processes and therefore possessed relevant knowledge and experience regarding warehouse management, work behavior, digitalization, logistics service quality, and warehouse performance. According to Sugiyono (2023), purposive sampling is a non-probability sampling technique in which respondents are selected based on specific characteristics or criteria that are relevant to the research objectives.

RESEARCH INSTRUMENTS

In this study, the instrument used was a questionnaire developed based on indicators for each research variable. Each statement in the questionnaire was measured using a five-point Likert scale (1 = strongly agree, 2 = agree, 3 = unsure, 4 = disagree, 5 = strongly disagree), which was used to measure the respondents' level of agreement with each statement of indicators (Table 2).

Table 2. Variable, Operational Variable and Dimensions

Variable	Operational Variable	Dimensions/Indicators
Warehouse Management (X1) (Rushton et al., 2022)	Warehouse management refers to the effectiveness of warehouse operational management in supporting smooth goods handling through an appropriate warehouse layout, adequate	**Warehouse layout and workflow** (X1.1–X1.2): Arrangement of operational areas that facilitates material flow, accessibility, and operational efficiency. **Warehouse facilities** (X1.3): Availability and condition of

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	facilities, effective operational supervision, and standardized operating procedures.	facilities supporting storage, sorting, and distribution activities. **Warehouse process management** (X1.4–X1.5): Supervision and implementation of warehouse operations in accordance with standard operating procedures (SOPs).
Work Behavior (X2) (Bryson, cited in Sugma, 2022)	Work behavior refers to employees' attitudes and behaviors during work, reflecting cooperation, work quality, work habits, and self-control.	**Teamwork** (X2.1): Ability to cooperate and coordinate with colleagues in achieving warehouse operational targets. **Work quality** (X2.2): Ability to perform tasks accurately, carefully, and according to operational standards. **Self-control and professionalism** (X2.3): Ability to maintain accuracy and professionalism under workload pressure.
Digitalization (X3) (Alherimi et al., 2024; Setiawan et al., 2024)	Digitalization refers to implementation of digital technologies to automate and optimize warehouse operations. In this study, digitalization is represented by the utilization of Mile.App application.	**Technology utilization** (X3.1): Extent to which Mile.App supports daily warehouse operations. **System integration** (X3.2): Ability of system to integrate operational processes and provide relevant information. **Data accuracy** (X3.3): Ability of Mile.App to generate accurate shipment information and minimize recording errors.

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		Automation (X3.4): Ability of the application to simplify and accelerate warehouse processes.
Logistics Service Quality (M) (Yanuar & Bisma, 2025)	Logistics service quality refers to the organization's ability to satisfy customer expectations by ensuring timely, accurate, and reliable logistics services. In this study, it is reflected by low levels of processing delays, sorting errors, and lost shipments.	**Timeliness (Over SLA)** (M1): Ability to complete warehouse processes within the targeted processing time. **Order accuracy** (M2–M4): Accuracy of sorting, shipment identification, and destination matching. **Order condition** (M5–M6): Ability to maintain shipment security and minimize loss or damage during warehouse processing.
Warehouse Performance (Y) (Faveto et al., 2024)	Warehouse performance refers to the effectiveness and efficiency of warehouse operations in managing goods and supporting logistics activities.	**Time** (Y1–Y2): Ability to complete operational processes within the targeted processing time. **Productivity** (Y3–Y4): Ability to efficiently manage shipment volumes and warehouse resources. **Service quality** (Y5–Y6): Ability to provide accurate, efficient, and reliable warehouse services supported by appropriate facilities.

Source : Literature Review, 2026.

Framework Model

Figure 1 below shows the research framework model that illustrates relationships between the variables under study. The black lines indicate direct effects or partial tests of each

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independent variable on the dependent variable and mediating variables. Blue lines indicate indirect effects—that is, the relationship between independent variables and dependent variables via mediating variables. Meanwhile, orange lines indicate simultaneous effects.

On the left side are several independent variables, including warehouse management (X1), work behavior (X2), and digitization (X3), while warehouse performance serves as the dependent variable. In this model, logistics service quality serves as a variable that explains how the independent variables influence the dependent variable, both directly and indirectly. The aim is to identify the factors that influence warehouse performance, particularly in the context of improving service quality and handling customer complaints.

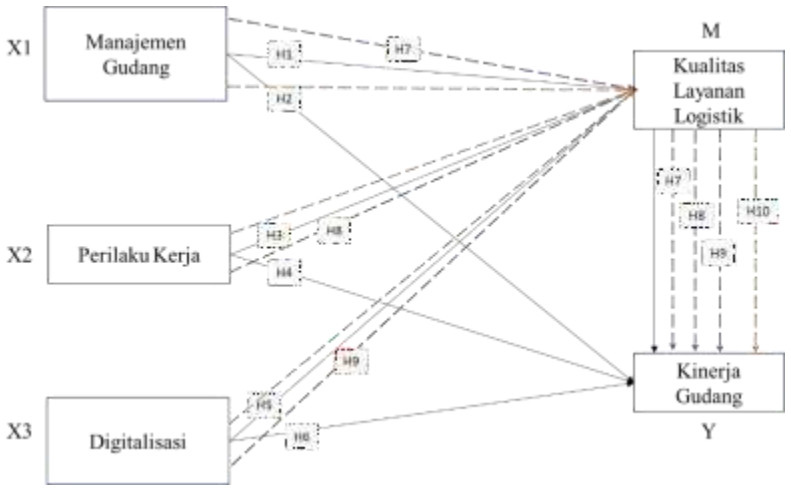


Figure 1. Framework Model

Research Hypotheses

H1: Warehouse management has a positive effect on logistics service quality.
H2: Warehouse management has a positive effect on warehouse.
H3: Work behavior has a positive effect on logistics service qualit.
H4: Work behavior has a positive effect on warehouse performance.
H5: Digitalization has a positive effect on logistics service quality.
H6: Digitalization has a positive effect on warehouse performance.
H7: Logistics service quality has a positive effect on warehouse performance.
H8: Logistics service quality mediates the positive relationship between warehouse management and warehouse performance.
H9: Logistics service quality mediates the positive relationship between work behavior and warehouse performance.

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H10: Logistics service quality mediates the positive relationship between digitalization and warehouse performance.

Data Analysis Techniques

Data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with SmartPLS software. SEM-PLS was selected because it is suitable for analyzing complex structural models, accommodates relatively small sample sizes, and does not require normally distributed data (Hair et al., 2022).

The analysis consisted of two stages: measurement model (outer model), evaluation and structural model (inner model) evaluation. The outer model was assessed by examining convergent validity and construct reliability. Convergent validity was evaluated using outer loadings (≥ 0.70) and Average Variance Extracted (AVE) (≥ 0.50). Construct reliability was assessed using Composite Reliability (CR) and Cronbach's Alpha (CA), with acceptable values of ≥ 0.70 (Hair et al., 2022).

The inner model was evaluated using the coefficient of determination (R^2) to assess the model's explanatory power and path coefficients to determine the direction and strength of relationships among the latent variables.

Hypothesis testing was performed using the bootstrapping procedure. The significance of direct and indirect (mediating) effects was determined based on the t-statistic (> 1.96) and p-value (< 0.05) at a 5% significance level. The bootstrapping analysis was conducted to examine the direct effects of warehouse management, work behavior, and digitalization on warehouse performance, as well as the mediating role of logistics service quality.

RESULT

MEASUREMENT MODEL ASSESSMENT

The measurement model (outer model) was evaluated to assess the validity and reliability of the measurement instruments. This evaluation ensures that the indicators adequately represent their respective latent constructs and are suitable for subsequent structural model analysis. The bootstrapping results are presented below (figure 2).

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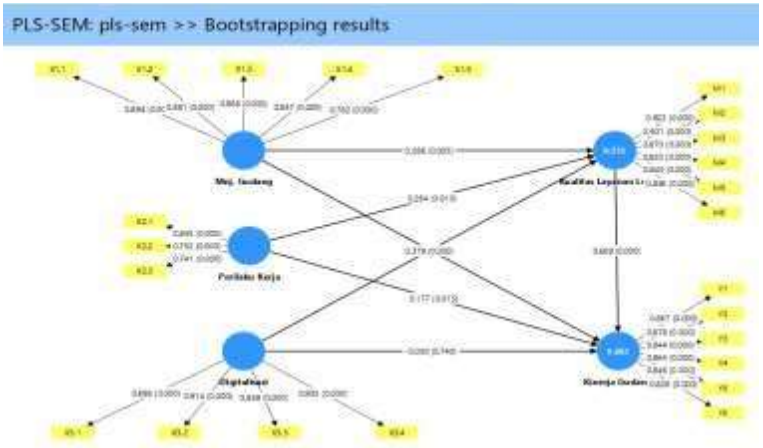


Figure 2. Bootstrapping Results

Based on figure 2 above, all constructs met the recommended thresholds, with outer loadings above 0.70 (see table 3), Average Variance Extracted (AVE) values exceeding 0.50, and Composite Reliability (CR) and Cronbach's Alpha (CA) values above 0.70 (Hair et al., 2022), confirming adequate convergent validity and internal consistency. Specifically, the AVE values ranged from 0.730 to 0.800, while the CR values ranged from 0.917 to 0.941, indicating that all constructs were appropriate for structural model evaluation (see table 4).

Table 3. Outer Loadings

Item	*Outer loadings*	*Item*	*Outer loadings*
X1.1	0.894	M1	0.922
X1.2	0.881	M2	0.901
X1.3	0.868	M3	0.870
X1.4	0.847	M4	0.820
X1.5	0.782	M5	0.840
X2.1	0.863	M6	0.836
X2.2	0.945	Y1	0.868
X2.3	0.788	Y2	0.878
X3.1	0.897	Y3	0.844
X3.2	0.914	Y4	0.864
X3.3	0.859	Y5	0.846
X3.4	0.905	Y6	0.826

Source : SEM-PLS, 2026.

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Table 4. AVE, CR and α value

Variable	AVE	CR	α
Warehouse Management (X1)	0.732	0.930	0.909
Work Behaviour (X2)	0.753	0.954	0.841
Digitalitation (X3)	0.800	0.917	0.916
Logistics Service Quality (M)	0.749	0.941	0.933
Warehouse Performance (Y)	0.730	0.927	0.926

Source : SEM-PLS, 2026.

STRUCTURAL MODEL ASSESSMENT

The structural model showed moderate explanatory power (see table 5). Warehouse performance achieved an R^2 value of 0.656, indicating that warehouse management, work behavior, digitalization, and logistics service quality explained 65.6% of the variance in warehouse performance. Meanwhile, logistics service quality obtained an R^2 value of 0.409, indicating that warehouse management, work behavior, and digitalization explained 40.9% of its variance. These findings suggest that the proposed model adequately explains the relationships among the studied constructs.

Table 5. R-square

	R-square	R-square adjusted
Warehouse Performance	0.656	0.635
Loigistics Service Quality	0.409	0.382

Source : SEM-PLS, 2026.

HYPOTHESIS TESTING

The bootstrapping results (See table 5) indicate that warehouse management positively influences logistics service quality (β = 0.286, p = 0.005) and warehouse performance (β = 0.204, p = 0.011). Similarly, work behavior positively affects logistics service quality (β = 0.264, p= 0.010) and warehouse performance (β = 0.177, p = 0.015). Digitalization significantly improves logistics service quality (β = 0.379, p < 0.001) but does not have a significant direct effect on warehouse performance (β = –0.030, p = 0.740). In addition, logistics service quality has the strongest

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positive effect on warehouse performance (β = 0.669, p < 0.001), indicating that service quality is a key determinant of warehouse operational performance.

Table 5. Direct Effect

	Original sample	T statistics	P values	Keterangan
Warehouse Management -> Logistics Service Quality	0.286	2.839	0.005	H1 accepted
Warehouse Management -> Warehouse Performance	0.204	2.559	0.011	H2 accepted
Work Behaviour -> Logistics Service Quality	0.264	2.590	0.010	H3 accepted
Work Behaviour -> Warehouse Performance	0.177	2.440	0.015	H4 accepted
Digitalitation-> Logistics Service Quality	0.379	4.044	0.000	H5 accepted
Digitalitation -> Warehouse Performance	-0.030	0.331	0.740	H6 rejected
Logistics Service Quality -> Warehouse Performance	0.669	9.296	0.000	H7 accepted

While, the mediation analysis or indirect effect (see table 6) further revealed that logistics service quality partially mediates the relationships between warehouse management and warehouse performance (β = 0.192, p = 0.009) and between work behavior and warehouse performance (β = 0.177, p = 0.012). In contrast, logistics service quality fully mediates the relationship between digitalization and warehouse performance (β = 0.254, p = 0.001). These findings suggest that improvements in warehouse management and employee work behavior can directly enhance warehouse performance while simultaneously improving logistics service quality. However, the benefits of digitalization are realized only when digital technologies enhance logistics service quality.

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Table 6. Inderect Effect

	Original sample (O)	T statistics	P values	Description
Wh. Management -> Logistics Service Quality -> Wh. Performance	0.192	2.622	0.009	H8 accepted
Work Behaviour -> Logistics Service Quality -> Wh. Performance	0.177	2.513	0.012	H9 accepted
Digitalitation -> Logistics Service Quality -> Wh. Performance	0.254	3.460	0.001	H10 accepted

Source : SEM-PLS, 2026.

DISCUSSION

The findings demonstrate that warehouse management and work behavior contribute directly to warehouse performance and indirectly through improvements in logistics service quality. Effective warehouse layout, adequate facilities, standardized operating procedures, and disciplined employee behavior enable more accurate, timely, and reliable warehouse operations, ultimately improving organizational performance.

Digitalization, however, did not directly improve warehouse performance. This finding reflects the operational conditions at PT Pos Indonesia Cianjur Branch Consolidation Warehouse, where the current digital system (Mile.App and barcode technology) primarily supports shipment tracking, data recording, and shipment visibility rather than core warehouse operations. Critical activities such as sorting, item placement verification, and material handling remain highly dependent on manual processes. Consequently, digitalization enhances service quality by improving tracking accuracy and information availability but has not yet translated into higher operational efficiency or productivity.

Overall, the results highlight logistics service quality as the primary mechanism through which warehouse management, work behavior, and digitalization contribute to warehouse performance. Therefore, organizations should prioritize improvements in service quality while strengthening warehouse management practices, employee competencies, and digital capabilities to achieve sustainable operational performance.

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DISCUSSION

The findings demonstrate that warehouse management and work behavior contribute directly to warehouse performance while also enhancing logistics service quality. Effective warehouse layout, adequate facilities, standardized operating procedures, and disciplined employee behavior improve the accuracy, timeliness, and reliability of warehouse operations, ultimately leading to better operational performance. These findings are consistent with studies of Batarlienė & Jarašūnienė (2024), then Sutrisno et al. (2023), which reported that effective warehouse management enhances operational efficiency and service quality. Similarly, positive effect of work behavior supports the findings of Saputra et al. (2024) and Pandiangan et al. (2025), who emphasized that employee competence, teamwork, and adherence to operational procedures are essential for improving logistics service quality and warehouse performance.

Digitalization, however, did not have a significant direct effect on warehouse performance. This result contrasts with the findings of Aljedaani (2024) and Herdianzah et al. (2022), who found that warehouse digitalization significantly improves operational performance. The discrepancy may be explained by operational conditions at PT Pos Indonesia Cianjur Branch Consolidation Warehouse. The existing digital technologies, including the Mile.App application and barcode system, primarily support shipment tracking, data recording, and shipment visibility rather than core warehouse operations. Activities such as sorting, item placement verification, and material handling remain largely manual, limiting direct contribution of digitalization to operational efficiency.

Nevertheless, digitalization significantly improved logistics service quality, indicating that the current digital system successfully enhances shipment traceability, data accuracy, and information transparency. This finding is in line with Vaičiūtė and Katinienė (2025), who reported that digital technologies improve logistics service quality by increasing visibility, delivery accuracy, and service efficiency. A similar conclusion was reached by Ramdani et al. (2025), who found that digital transformation enhances customer service quality through faster and more reliable information processing.

Mediation analysis further confirms that logistics service quality serves as the primary mechanism linking operational factors to warehouse performance. Logistics service quality partially mediates the relationships between warehouse management and warehouse performance, as well as between work behavior and warehouse performance, while fully mediating the relationship between digitalization and warehouse performance. These findings

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support the studies of Yang et al. (2021) and Lin et al. (2023), which demonstrated that logistics service quality plays a strategic role in translating operational improvements into superior organizational performance. Therefore, digitalization alone is insufficient to improve warehouse performance unless it is accompanied by improvements in logistics service quality.

CONCLUSION

This study demonstrates that warehouse management, work behavior, and logistics service quality significantly improve warehouse performance at PT Pos Indonesia Cianjur Branch Consolidation Warehouse. Warehouse management, work behavior, and digitalization also have significant positive effects on logistics service quality. However, digitalization does not directly improve warehouse performance, indicating that the current digital technologies are primarily utilized to support shipment tracking and information management rather than core warehouse operations.

Furthermore, logistics service quality plays a crucial mediating role in proposed model. It partially mediates effects of warehouse management and work behavior on warehouse performance and fully mediates relationship between digitalization and warehouse performance. Among all constructs, logistics service quality exerts the strongest influence on warehouse performance ($\beta = 0.669$), highlighting its strategic role as the primary mechanism through which operational improvements translate into enhanced warehouse performance. These findings suggest that organizations should prioritize strengthening logistics service quality while improving warehouse management practices, employee work behavior, and digital capabilities to achieve sustainable operational performance.

LIMITATIONS AND FUTURE DIRECTIONS

This study has several limitations that should be considered when interpreting the findings. First, the research was conducted in a single case study at PT Pos Indonesia Cianjur Branch Consolidation Warehouse, which may limit the generalizability of the results to other logistics organizations with different operational characteristics. Second, the study employed a cross-sectional design using self-reported questionnaire data collected at a single point in time, which may not fully capture changes in warehouse operations and employee perceptions over time. Furthermore, although the proposed model explains 65.6% of the variance in warehouse

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performance, the remaining unexplained variance suggests that other factors may also influence warehouse performance.

Therefore, future research is encouraged to examine additional variables, such as technology readiness, warehouse automation, employee technology acceptance, organizational culture, leadership, and employee competence, to better explain the effectiveness of digitalization in warehouse operations. Future studies are also recommended to extend the research to other postal branches, private logistics companies, and e-commerce fulfillment centers, as well as to employ longitudinal research designs to improve the generalizability and robustness of the findings.

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