

DOI: <https://doi.org/10.38035/sjtl.v4i2.1063><https://creativecommons.org/licenses/by/4.0/>

Service Reliability, Service Value, and Timeliness as Drivers of Customer Loyalty: The Mediating Roles of Relationship Marketing and Customer Satisfaction in Corporate Logistics Services

Della Galuh Anastasia¹, Maniah², Erna Mulyati³

¹Universitas Logistik dan Bisnis Internasional, Bandung, Indonesia, dellagaluhanastasia@gmail.com

²Universitas Logistik dan Bisnis Internasional, Bandung, Indonesia, maniah@ulbi.ac.id

³Universitas Logistik dan Bisnis Internasional, Bandung, Indonesia, ernamulyati@ulbi.ac.id

Corresponding Author: dellagaluhanastasia@gmail.com¹

Abstract: One of decisive challenges faced within business-to-business (B2B) logistics industry is maintaining customer loyalty due to customer expectations and inconsistent findings increasement regarding its determinants. The impacts analysis towards service reliability and value, also timeliness onto customer loyalty were developed extensively in this research, using relationship marketing as well customer satisfaction for corporate logistics services at PT Pos Indonesia (Persero). A quantitative descriptive-verificative methodology was applied. Purposive sampling technique was used to collect 157 corporate customers data eligibly in Regional 2 Jakarta to get examined with Partial Least Squares Structural Equation Modeling (PLS-SEM). Test outcome explains service reliability ($\beta = 0.279$; $t = 2.298$) and timeliness ($\beta = 0.426$; $t = 3.529$) significantly affect relationship marketing, whereas service value does not ($\beta = 0.155$; $t = 1.166$). Significant influence delivered by relationship marketing onto customer satisfaction with ($\beta = 0.809$; $t = 20.776$) while loyalty contributed ($\beta = 0.330$; $t = 3.623$), meanwhile satisfaction notably affects loyalty ($\beta = 0.558$; $t = 6.819$). Relationship marketing mediates only the effect of timeliness on customer loyalty, whereas relationship mediation was delivered by satisfaction onto marketing relation towards customer loyalty, highlighting sequential relational mechanisms in corporate logistics. These findings provide theoretical and managerial implications for improving customer retention strategies in B2B corporate logistics services.

Keywords: Corporate Logistics Services, Customer Loyalty, Customer Satisfaction, Relationship Marketing, Service Reliability.

Indonesian Abstract: Salah diantara tantangan utama yang dihadapi dalam industri logistik bisnis-ke-bisnis (B2B) adalah mempertahankan loyalitas pelanggan, mengingat ekspektasi pelanggan dan temuan yang tidak konsisten mengenai faktor-faktor penentu loyalitas. Kajian pengaruh terhadap keandalan dan nilai layanan, serta ketepatan waktu bagi loyalitas pelanggan diteliti mendalam melalui riset berikut, dengan menggunakan pemasaran hubungan serta kepuasan pelanggan terhadap layanan logistik korporat di PT Pos Indonesia (Persero). Penyusunan riset mengaplikasikan metodologi kuantitatif berbasis deskriptif dan verifikatif.

Teknik purposive sampling diaplikasikan guna mengumpulkan data 157 pelanggan logistic korporat dan memenuhi persyaratan, di Wilayah 2 Jakarta untuk dianalisa dengan Partial Least Squares Structural Equation Modeling (PLS-SEM). Keluaran pengujian menjelaskan keandalan layanan ($\beta = 0,279$; $t = 2,298$) dan ketepatan waktu ($\beta = 0,426$; $t = 3,529$) berpengaruh signifikan terhadap relationship marketing, sedangkan nilai layanan tidak berpengaruh signifikan ($\beta = 0,155$; $t = 1,166$). Relationship marketing memberikan signifikansi pengaruh untuk kepuasan pelanggan ($\beta = 0,809$; $t = 20,776$), loyalitas berkontribusi ($\beta = 0,330$; $t = 3,623$); sementara kepuasan dengan signifikansi memengaruhi loyalitas ($\beta = 0,558$; $t = 6,819$). Relationship marketing hanya memediasi pengaruh ketepatan waktu terhadap loyalitas pelanggan, sedangkan mediasi hubungan disumbangsih kepuasan pelanggan untuk relationship marketing dengan loyalitas pelanggan, sehingga menjelaskan mekanisme rasional dalam pembentukan loyalitas pelanggan pada layanan logistic korporat.

Keywords: Loyalitas Pelanggan; Layanan Logistik Korporat; Relationship Marketing; Kepuasan Pelanggan; Keandalan Layanan.

INTRODUCTION

The logistics industry has undergone rapid transformation driven by digitalization, global supply chain integration, and the continuous growth of electronic commerce, resulting in increasingly intense competition among logistics service providers. In this dynamic environment, companies are no longer expected merely to deliver goods efficiently but also to provide reliable, value-added, and timely services that meet increasingly complex customer expectations. Consequently, customer loyalty has evolved from an operational outcome into a strategic asset that supports sustainable business performance, particularly in service industries where long-term relationships create competitive advantages. For logistics providers, maintaining loyal customers is essential not only to secure recurring business but also to strengthen profitability, improve customer retention, and sustain organizational competitiveness in an increasingly demanding market (Kusumawardani & Hastayanti, 2020; Sudirjo et al., 2024).

These challenges are particularly relevant to PT Pos Indonesia (Persero), which has transformed from a traditional postal operator into an integrated logistics and supply chain service provider with corporate logistics as one of its strategic business segments. As the largest contributor to the company's revenue, corporate logistics is considered to essential element to sustaining long-term business performance through high-value and long-term contractual relationships with business customers. Nevertheless, empirical evidence indicates that the number of active corporate logistics customers, transaction volumes, and revenue fluctuated during 2024–2025, suggesting that customer growth and business performance have not yet been consistently sustained. Although the company maintained a high Service Level Agreement on-time performance, customer satisfaction indicators declined, as reflected by decreases in the Customer Satisfaction Index and Net Promoter Score. These conditions suggest that strengthened customer loyalty endurance may be inadequate contributed solely by operational performance, highlighting the need to better understand the relational mechanisms underlying customer retention in corporate logistics services.

From the perspective of Customer Relationship Management (CRM), the combined influence given by service quality and relational factors resulting customer loyalty rather than through operational performance alone (Buttle & Maklan, 2019; Payne & Frow, 2005). Consistent with the Logistics Service Quality (LSQ) mechanism as suggested by Mentzer et al. (2001), service quality in corporate logistics should be viewed as a customer-oriented process in which operational performance directly shapes customers' perceptions of service excellence and long-term relationships. In this context, service reliability reflects how capable the provider

is for delivering services consistently as promised, service value represents customers' comprehensive assessment of the advantages obtained in relation to the expenses invested, and timeliness indicates the provider's capability to ensure punctual and dependable delivery. These operational attributes are expected to strengthen relationship marketing by fostering logistic providers collaboration with corporate customer that grounded in trust, commitment, communication, also long-term collaboration between logistics providers and corporate customers. Stronger relational exchanges subsequently enhance customer satisfaction, which ultimately encourages customers to maintain long-term partnerships and increases customer loyalty. Accordingly, customer loyalty in corporate logistics is viewed as the result of an integrated process involving operational excellence, relational quality, and customer satisfaction rather than the direct consequence of service performance alone.

Recent studies have consistently identified service reliability, service value, and timeliness as important determinants of customer loyalty in service industries. Earlier studies by Mentzer et al. (2001) and Davis and Mentzer (2006) also demonstrated that logistics service quality constitutes a strategic resource for strengthening customer relationships with customer loyalty continuously, in particular within business-to-business logistics environments. Reliable service delivery has been shown to strengthen customers' trust and commitment, thereby fostering long-term relationships with service providers. Likewise, superior service value enhances customers' overall evaluation of service performance and encourages continued patronage, while timely service delivery is recognized as a critical operational capability that improves customer satisfaction and relationship quality. Furthermore, relationship marketing has been widely acknowledged as an effective strategy for developing long-term customer relationships through trust, commitment, communication, and mutual benefits (Palmatier et al., 2006; Hennig-Thurau et al., 2002), whereas customer satisfaction remains a key antecedent of customer loyalty across various service contexts (Yang & Peterson, 2004). Nevertheless, numbers of earlier research outcome are reportedly contradictory about variables direct and indirect impacts into customer loyalty, indicating that such mechanisms through which operational service attributes translate into long-term loyalty have not been fully explained, particularly in the context of corporate logistics services.

Notwithstanding the numerous research about customer loyalty, the gap in studies remain. Firstly, existing research have predominantly examined customer loyalty in business-to-consumer settings, whereas limited attention has been given to business-to-business corporate logistics, where long-term contractual relationships and operational reliability play a more strategic role. Second, previous studies have generally investigated service reliability, service value, timeliness, relationship marketing, and customer satisfaction separately or through partial models, leaving limited understanding of how these factors jointly influence customer loyalty within an integrated framework. Third, empirical findings regarding the relationships among these variables remain inconclusive, with prior studies reporting inconsistent results on how service quality component as well as relational factors are affecting customer loyalty. These gaps indicate the need for holistic analysis modelling that is capable to explain such mechanism using operational service attributes and relational factors interacting to strengthen customer loyalty in the corporate logistics sector.

Building upon these research gaps, this study proposes an integrated framework for explaining customer loyalty in corporate logistics services by simultaneously examining the roles of service reliability, service value, timeliness, relationship marketing, customer satisfaction, also customer loyalty within a structural modelling. Unlike previous studies that primarily focused on isolated relationships among these variables or were conducted in broader service settings, this study emphasizes the business-to-business corporate logistics context, where long-term relational exchanges and operational performance are equally essential. By incorporating relationship marketing and customer satisfaction as sequential mediating variables. The compiled research extends Customer Relationship Management theoretically

implementation, leading to provide deepened understanding and insight into how operational service characteristics convert into enduring customer loyalty.

According to identified research gaps, writers acknowledge urgency to enact deepened understanding about customer loyalty within corporate logistics services. The outcome is intended for examining on how's service reliability, service value, also timeliness impacting customer loyalty, mediated via relationship marketing also customer satisfaction at PT Pos Indonesia (Persero). By validating the proposed integrated model for business-to-business corporate logistics scope, this paper is objected for enriching Customer Relationship Management theoretically application to explain customer loyalty while providing practical insights for logistics service providers in developing relationship-oriented strategies to enhance customer retention and sustainable business performance.

METHODS

The relationship analysis towards service reliability, service value, timeliness, relationship marketing, customer satisfaction, also customer loyalty within corporate logistics services, quantitative methodology is applied under the research, supported with descriptive and verificative techniques. The descriptive method was applied to describe the characteristics of the research variables and respondents; The verificative approach was employed to evaluate the suggested hypotheses and investigate the causal connections among the variables. A cross-sectional research methodology was utilized, wherein data were gathered at a singular moment via a structured questionnaire distributed to corporate logistics customer of PT Pos Indonesia (Persero). This approach was considered appropriate because it enabled to test the proposed modelling conceptually and empirically, also assess how's research variables relation directly and indirectly.

The study was conducted at PT Pos Indonesia (Persero), specifically within the Enterprise Business Division of Regional 2 Jakarta, which manages corporate logistics services for business customers. This research setting was selected because Regional 2 Jakarta represents one of the company's major business regions with a substantial number of corporate logistics customers and plays a strategic role in supporting the company's logistics business performance. The study focused on customers who actively used corporate logistics services during the research period. Data collection was conducted from March to May 2025 by distributing structured surveys for selecting eligible participants in accordance with the predetermined sampling criteria.

To accomplish data population, it comprised all corporate logistics customers actively of PT Pos Indonesia (Persero) Regional 2 Jakarta. The fact is, since the population were not fulfilling study objectives criteria, purposive sampling methodology applied to guarantee related experiences retained by participants in using company's corporate logistics services. The sample consisted of 157 corporate customers, selected based on predetermined criteria, including customers who actively utilized corporate logistics services and had sufficient experience for assessing services quality, relationship marketing practice, customer satisfaction, also customer loyalty qualifications. Those selected samples were considered appropriate for hypothesis testing, utilizing Partial Least Squares Structural Equation Model to give predictive analysis and complex structural models adequately that involve multiple latent constructs and mediation relationships.

To collect primary data, survey method is systematically addressed towards corporate logistics customers from PT Pos Indonesia (Persero) Regional 2 Jakarta to obtain primary data. The survey was constructed with proven metrics derived from earlier research and consisted of statements representing each research variable. To assess the reaction elicited, five-point likert scale is implemented within the range of 1 (strongly disagree) into 5 (strongly agree). Additionally, the collection of secondary data were from internal company reports, corporate

performance documents, and literature relevantly that include books, peer-reviewed journal articles to support research background as well as interpretate study findings.

The research variables were operationalized into measurable indicators adapted from established literatures in which ensure data usage is valid and reliable under measurement instrument. To measure every construct variable that has reflective parameters, a five-point Likert scale is implemented ranging among 1 (strongly disagree) into 5 (strongly agree). Projected **Table 1** below lists every variable studied include operational definitions, measurement indicators, as well as literature references.

Table 1. Operational Definition of Research Variables

Variable	Operational Definition	Indicators	Code	Scale
Service Reliability (X1)	The company's ability to provide logistics services consistently, accurately, and in accordance with the promises made to customers (Somadi, 2020).	Services are delivered as promised (Somadi, 2017).	X1.1	Likert 1–5
		Shipments are delivered accurately (Rani et al., 2020).	X1.2	Likert 1–5
		Shipment information is provided consistently (Stank, 1970).	X1.3	Likert 1–5
		Service problems are handled effectively (Rani et al., 2020).	X1.4	Likert 1–5
		Logistics services can be relied upon at all times (Stank, 1970; Lai et al., 2008).	X1.5	Likert 1–5
Service Value (X2)	Customers' perception of the balance between the benefits received and the costs incurred (Ridhasyabina et al., 2024).	Service costs are commensurate with the benefits received (Sinaga et al., 2020).	X2.1	Likert 1–5
		The service provides added value (Bungatang & Reynel, 2021).	X2.2	Likert 1–5
		Service prices are competitive (Haryoko et al., 2020).	X2.3	Likert 1–5
		The service has high value (Zeithaml et al., 2020).	X2.4	Likert 1–5
		Service quality is proportional to the costs incurred (Irawan Lubis et al., 2023).	X2.5	Likert 1–5
Timeliness (X3)	The company's ability to fulfill promised service schedules and delivery times (Zeithaml et al., 2002).	Deliveries are completed on time (Khurrohman & Junaidi, 2023).	X3.1	Likert 1–5
		Delivery schedules are fulfilled (Kaligis et al., 2024).	X3.2	Likert 1–5
		Delivery delays rarely occur (Somadi, 2020).	X3.3	Likert 1–5
		Service time is consistent with the promised schedule (Lubis & Andayani, 2018).	X3.4	Likert 1–5
		The company responds promptly to customers' time-related needs (Tang et al., 2022).	X3.5	Likert 1–5
Relationship Marketing (M1)	The company's efforts to establish long-term relationships with customers through communication, trust, and mutual benefits,	Communication with customers is effective (Dewi, 2025).	M1.1	Likert 1–5
		The company demonstrates long-term commitment (Hasan, 2021).	M1.2	Likert 1–5
		The company understands customer needs (Iglesias et al., 2018).	M1.3	Likert 1–5
		Cooperative relationships are well maintained (Korsberg, 2025).	M1.4	Likert 1–5
		Customers feel valued (Blasius et al., 2018).	M1.5	Likert 1–5
Customer Satisfaction (M2)	Customers' level of satisfaction after comparing their expectations with the service	Customers are satisfied with service quality (Juliana & Keni, 2020; Shahzad et al., 2022).	M2.1	Likert 1–5
		Services meet customer expectations (Mirella et al., 2022; Sasongko, 2021).	M2.2	Likert 1–5

Variable	Operational Definition	Indicators	Code	Scale
Customer Loyalty (Y)	performance received (Sasongko, 2021).	The service experience is satisfying (Pinyanitikorn et al., 2023).	M2.3	Likert 1–5
		Choosing the service is the right decision (Gaudenzi et al., 2020).	M2.4	Likert 1–5
		Overall, customers are satisfied (Stank et al., 2003).	M2.5	Likert 1–5
		Intention to reuse the service (Lin et al., 2023).	Y1	Likert 1–5
		Willingness to recommend the service to others (Ortega et al., 2020).	Y2	Likert 1–5
Customer Loyalty (Y)	Customers' commitment to continue using the company's services and maintain a long-term relationship (Balci et al., 2019).	Unwillingness to switch to another service provider (Laura et al., 2018, p. 1187).	Y3	Likert 1–5
		Long-term commitment to the company (Navarro, 2011).	Y4	Likert 1–5
		The company is considered the first choice for logistics services (Cunningham & Kettlewood, 1976).	Y5	Likert 1–5

Source: Prepared by the Authors (2026).

As presented in Table 1, the research instrument comprises six latent variables: service reliability, service value, timeliness, relationship marketing, customer satisfaction, also customer loyalty. All metrics were modified from earlier validated research to preserve content validity and guarantee alignment with the suggested conceptual framework.

The implementation of Partial Least Squares Structural Equation Modeling aimed at data collection analysis through SmartPLS software. The chosen technique was considered for its applicability to examine complex relations structurally that involve multiple latent constructs and mediating variables while accommodating predictive analysis.

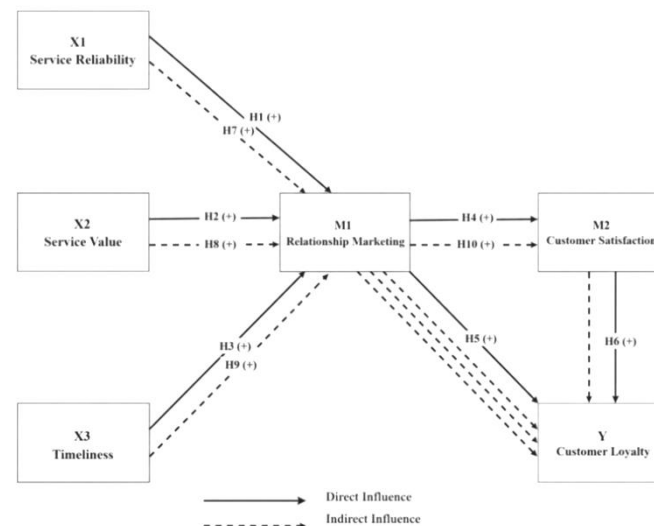


Figure 1. Conceptual Research Framework

Source: Prepared by the Authors (2026).

There are two phases compiled in analyzing data, firstly it tested convergent and discriminant validity, also construct reliability to measure the modelling. Secondly, it assessed modelling structurally through analysis of determination coefficient, impact size, predictive relevance, also hypothesis testing that utilized bootstrapping mechanism. Hypotheses acceptance then be based on test output with t-statistic valued goes beyond 1.96 while p-value fell under 0.05 indicating statistically significant relationships among the research variables.

RESULTS AND DISCUSSION

Respondent Characteristics

Table 2. Characteristics of Respondents

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	72	45.9
	Female	85	54.1
Age	< 25 years	5	3.2
	25–35 years	103	65.6
	36–45 years	35	22.3
	> 45 years	14	8.9
Customer Relationship Duration	< 1 year	23	14.6
	1–3 years	52	33.1
	4–5 years	22	14.0
	> 5 years	60	38.2
Organization Ownership	Private	82	52.2
	State-Owned / Regional-Owned	46	29.3
	Government Institution	29	18.5
Service Usage Frequency	Very Frequent	23	14.6
	Frequent	63	40.1
	Occasionally	53	33.8
	Rarely	18	11.5

Source: Processed by the Authors (2026).

Information presented in table 2 suggest participant characteristics difference demographically and organizational within this research. From the 157 business customer examined, 54.1% were female and 45.9% were male, indicating a relatively balanced gender distribution. Age categorization was showing that most respondents (65.6%) are 25–35 years, following 22.3% within range of 36–45 years. Such result emphasize that respondents in major were categorized as working-age productively and actively involved in corporate logistics activities.

Regarding customer relationship duration, 38.2% of respondents had been using PT Pos Indonesia's corporate logistics services for more than five years, while 33.1% had maintained the relationship for one to three years. This indicates that most respondents possessed sufficient experience to provide reliable evaluations of the company's service performance and long-term business relationships. In terms of organizational ownership, private companies constituted the largest group (52.2%), followed by state-owned or regional-owned enterprises (29.3%) and government institutions (18.5%).

With respect to service usage frequency, 40.1% of respondents reported using the corporate logistics services frequently, whereas 14.6% used the services very frequently. The remaining respondents reported occasional (33.8%) or rare (11.5%) usage. The outputs suggest that participants were predominantly were generally familiar with corporate logistics services provided by PT Pos Indonesia (Persero), thereby supporting the reliability of their assessments regarding service reliability and value, timeliness, relationship marketing, customer satisfaction, as well as customer loyalty were necessary.

Measurement Model Assessment

1. Indicator Reliability Assessment

Table 3. Indicator Reliability Assessment (Outer Loadings)

Construct	Indicator	Outer Loading	Decision
Service Reliability (X1)	X1.1	0.834	Valid
	X1.2	0.883	Valid
	X1.3	0.838	Valid
	X1.4	0.810	Valid

Construct	Indicator	Outer Loading	Decision
Service Value (X2)	X1.5	0.866	Valid
	X2.1	0.797	Valid
	X2.2	0.871	Valid
	X2.3	0.848	Valid
	X2.4	0.874	Valid
	X2.5	0.863	Valid
Timeliness (X3)	X3.1	0.860	Valid
	X3.2	0.876	Valid
	X3.3	0.826	Valid
	X3.4	0.887	Valid
	X3.5	0.817	Valid
Relationship Marketing (M1)	M1.1	0.875	Valid
	M1.2	0.926	Valid
	M1.3	0.918	Valid
	M1.4	0.923	Valid
	M1.5	0.903	Valid
Customer Satisfaction (M2)	M2.1	0.883	Valid
	M2.2	0.927	Valid
	M2.3	0.916	Valid
	M2.4	0.870	Valid
	M2.5	0.922	Valid
Customer Loyalty (Y)	Y1	0.895	Valid
	Y2	0.898	Valid
	Y3	0.905	Valid
	Y4	0.915	Valid
	Y5	0.909	Valid

Source: Processed by the Authors (2026)

Tabel 3-5 aside projected assessment outcomes of reliability, construct reliability, convergent also discriminant validity, as it projected in measuring and evaluating this research model.

To indicate reliability, tests were implemented to get outer loading value from every indicator measured. As presented in Table 3, all indicators exhibited valuable outer loading above threshold limit by 0.70, with values obtained were in range of 0.797 into 0.927. The highest outer loading value was observed for Customer Satisfaction indicator M2.2 (0.927), whereas the lowest value was recorded for Service Value indicator X2.1 (0.797). Despite this variation, all indicators satisfied the recommended criterion for indicator reliability, demonstrating that every measured variable was sufficiently reflecting the latent construct corresponded. Therefore, no measurement indicators were removed from the model, and metrics were totally contained to ensure validity, reliability, and structural modeling assessment.

2. Construct Reliability and Convergent Validity

Table 4. Construct Reliability and Convergent Validity

Construct	AVE	Cronbach's Alpha	Composite Reliability	Decision
Service Reliability	0.719	0.902	0.927	Accepted
Service Value	0.724	0.905	0.929	Accepted
Timeliness	0.732	0.909	0.932	Accepted
Relationship Marketing	0.835	0.950	0.962	Accepted
Customer Satisfaction	0.817	0.944	0.957	Accepted
Customer Loyalty	0.820	0.945	0.958	Accepted

Source: Processed by the Authors using SmartPLS 4 (2026).

Step ahead, Construct reliability and convergent validity assessment utilize Average Variance Extracted (AVE), Cronbach's Alpha, also Composite Reliability. As presented in Table 4, constructs overall achieved AVE values within range of 0.719 into 0.835, exceeding the recommended threshold which is 0.50.

In addition, Cronbach's Alpha values ranged from 0.902 to 0.950, while Composite Reliability values ranged from 0.927 to 0.962, all of which were above the suggested minimum value which is 0.70. These constructs variable result in overall demonstrate satisfactory convergent validity also internal consistency reliability that indicate appropriation of measurement model for subsequent structural model evaluation.

3. Discriminant Validity

Table 5. Discriminant Validity Assessment Using the HTMT Criterion

Construct Pair	HTMT	Decision (< 0.90)
Relationship Marketing (M1) – Customer Satisfaction	0.854	Accepted
Service Reliability (X1) – Relationship Marketing (M1)	0.798	Accepted
Service Reliability (X1) – Customer Satisfaction (M2)	0.838	Accepted
Service Value (X2) – Relationship Marketing (M1)	0.776	Accepted
Service Value (X2) – Customer Satisfaction (M2)	0.865	Accepted
Timeliness (X3) – Relationship Marketing (M1)	0.813	Accepted
Customer Loyalty (Y) – Relationship Marketing (M1)	0.824	Accepted
Customer Loyalty (Y) – Service Reliability (X1)	0.785	Accepted
Customer Loyalty (Y) – Service Value (X2)	0.804	Accepted
Customer Loyalty (Y) – Timeliness (X3)	0.826	Accepted
Timeliness (X3) – Service Reliability (X1)	0.862	Accepted
Timeliness (X3) – Service Value (X2)	0.870	Accepted
Service Value (X2) – Service Reliability (X1)	0.906	Accepted
Timeliness (X3) – Customer Satisfaction (M2)	0.920	Accepted
Customer Loyalty (Y) – Customer Satisfaction (M2)	0.873	Accepted

Source: Processed by the Authors using SmartPLS 4 (2026).

The assesment of discriminant validity was conducted through Heterotrait–Monotrait Ratio (HTMT) test, that has threshold limit by 0.90. As presented in Table 5, the majority of HTMT values fell below threshold limit, signifying adequate discriminant validity amidst latent constructs. Although the HTMT values the relationship between Service Reliability and Service Value (0.906) and between Timeliness and Customer Satisfaction (0.920) slightly exceeded the threshold limit. Discriminant validity from the measured modelling then was considered acceptable for its remaining construct pairs satisfied the HTMT requirement and complementary validity assessments supported the distinctiveness of the constructs. Therefore, the measurement model was deemed appropriate to evaluate following model structurally. Nevertheless, the discriminant validity was retained because measurement model overall was supported by convergent validity, construct reliability, and acceptable outer loading values.

Structural Model Assessment

Table 6. Coefficient of Determination (R^2)

Endogenous Construct	R^2	Adjusted R^2	Interpretation
Relationship Marketing (M1)	0.646	0.639	Moderate
Customer Satisfaction (M2)	0.654	0.652	Moderate
Customer Loyalty (Y)	0.719	0.715	Moderate

Source: Processed by the Authors using SmartPLS 4 (2026).

Within this test, determination coefficient (R^2) was applicated to examine how significant was proposed model structurally being explained. As presented in Table 6, endogenous constructs demonstrate moderate explanatory power. Relationship Marketing (M1) achieved 0.646 value for R^2 whereas it indicated that Service Reliability, Service Value, also Timeliness jointly explained 64.6% of the variance in Relationship Marketing. Customer Satisfaction (M2) valuable was obtained with 0.654 for R^2 , suggesting that Relationship Marketing explained 65.4% from the total variance. Meanwhile, Customer Loyalty (Y) recorded the highest R^2 value of 0.719, indicating that Relationship Marketing and Customer Satisfaction collectively explained 71.9% of the variance in Customer Loyalty. These findings indicate that model used was explanatory capable for predicting the endogenous constructs.

Table 7. Effect Size Assessment (f^2)

Structural Relationship	f^2	Effect
Service Reliability (X1) → Relationship Marketing (M1)	0.061	Small
Service Value (X2) → Relationship Marketing (M1)	0.018	Negligible
Timeliness (X3) → Relationship Marketing (M1)	0.160	Medium
Relationship Marketing (M1) → Customer Satisfaction (M2)	1.893	Large
Relationship Marketing (M1) → Customer Loyalty (Y)	0.134	Small
Customer Satisfaction (M2) → Customer Loyalty (Y)	0.383	Large

Source: Processed by the Authors using SmartPLS 4 (2026).

To ascertain how significant is every exogenous construct to correspond endogenous construct, effect size (f^2) was evaluated. As presented in Table 7, Relationship Marketing exerted a large effect on Customer Satisfaction ($f^2 = 1.893$) meanwhile it also demonstrated large impact towards Customer Loyalty ($f^2 = 0.383$). Timeliness showed a medium effect on Relationship Marketing ($f^2 = 0.160$), whereas Service Reliability ($f^2 = 0.061$) and Relationship Marketing on Customer Loyalty ($f^2 = 0.134$) exhibited small effects. In contrast, Service Value had a negligible effect on Relationship Marketing ($f^2 = 0.018$).

Table 8. Predictive Performance Assessment (PLSpredict)

Evaluation Criterion	Results	Interpretation
Q ² Predict	All indicators produced Q ² values greater than zero (0.449–0.606).	The model demonstrates predictive relevance.
Comparison of RMSE (PLS-SEM vs. LM)	Fourteen indicators showed lower RMSE values under the PLS-SEM model than under the Linear Model (LM), and no indicators exhibited higher RMSE values than the LM.	High predictive power.
CVPAT	All indicators produced negative average loss difference values.	The predictive capability of the PLS-SEM model is supported.

Source: Processed by the Authors using SmartPLS 4 (2026).

PLSpredict procedure was implemented to evaluate proposed structural model performance predictively. From Table 8 presented, it was found that all indicators produced positive Q²predict values within the range of 0.449 into 0.606, explained a predictive relevance possessed by the model. Furthermore, all fourteen indicators exhibited reduced RMSE values when it was analyzed with PLS-SEM modelling, compared to Linear Model (LM). On another part, the CVPAT results showed negative average loss differences across all indicators. These findings confirmed predicable ability of proposed model to evaluate structural relationship among the research variables.

Table 9. Direct Effects

Hypothesi	Structural Relationship	Path Coefficient (β)	t-value	p-value	Decision
H1	Service Reliability → Relationship Marketing	0.279	2.298	0.022	Supported
H2	Service Value → Relationship Marketing	0.155	1.166	0.244	Not Supported
H3	Timeliness → Relationship Marketing	0.426	3.529	< 0.001	Supported
H4	Relationship Marketing → Customer Satisfaction	0.809	20.776	< 0.001	Supported
H5	Relationship Marketing → Customer Loyalty	0.330	3.623	< 0.001	Supported
H6	Customer Satisfaction → Customer Loyalty	0.558	6.819	< 0.001	Supported

Source: Processed by the Authors using SmartPLS 4 (2026).

Furter test was intended to test hypothesis through bootstrapping technique for assessing how significant was proposed direct relationship. As presented in Table 9, there were five

hypotheses directly assessed. Service Reliability and Timeliness significantly influenced Relationship Marketing, whereas Service Value showed no significant effect. Furthermore, Relationship Marketing impacted Customer Satisfaction also Customer Loyalty in significant, while Customer Satisfaction impacted Customer Loyalty positively and significantly. Whether Relationship Marketing or Customer Satisfaction were contributed centrally to explaining customer loyalty within corporate logistics services framework.

Mediation analysis performance was aimed at assessing the indirect effects among the proposed constructs. From presented Table 10, it was found that Relation Marketing mediation did not significantly impact Service Reliability and Service Value effect towards Customer Loyalty. However, Relationship Marketing played crucial mediating role to connect Timeliness with Customer Loyalty in relation. Furthermore, Relationship Marketing in relation to Customer Loyalty was also mediated by Customer Satisfaction, indicating that variable position as key factor to strengthen customer loyalty within the context corporate logistics services.

Table 10. Indirect Effects (Mediation Analysis)

Hypothesis	Indirect Relationship	Path Coefficient (β)	t-value	p-value	Decision
H7	Service Reliability → Relationship Marketing → Customer Loyalty	0.092	1.696	0.090	Not Supported
H8	Service Value → Relationship Marketing → Customer Loyalty	0.051	1.187	0.235	Not Supported
H9	Timeliness → Relationship Marketing → Customer Loyalty	0.140	2.375	0.018	Supported
H10	Relationship Marketing → Customer Satisfaction → Customer Loyalty	0.452	6.016	< 0.001	Supported

Source: Processed by the Authors using SmartPLS 4 (2026).

Discussion

Based on data analysis before, results show that Relationship Marketing is positively and significantly influenced by Service Reliability and Timeliness, in which Service Value has no major effect towards Relationship Marketing. These results suggest that, in corporate logistics services, long-term customer relationships are primarily established through consistent operational performance rather than customers' perceptions of service value. This finding supports Customer Relationship Management (CRM) Theory, which emphasizes that sustainable business relationships are built through trust, commitment, and the company's capability in fulfilling consistent service like promised. In particular, reliable service delivery and on-time performance strengthen customers' confidence in maintaining long-term business relationships. Therefore, the study outcomes have aligned with Wang et al. (2024) as well Wardhani et al. (2020) found that service reliability enhances customer trust while also strengthens long-term business relationships. They also support the Logistics Service Quality framework proposed by Mentzer et al. (2001), which emphasizes that reliable logistics

processes form the basis of superior customer evaluations and long-term relationships. Similarly, Davis and Mentzer (2006) demonstrated test result whereas high-quality logistics services strengthen supplier–customer relationships and contribute to customer loyalty in B2B environments. Likewise, the significant effect of timeliness is relevance with study of An et al. (2024) and Liao et al. (2023) identified time delivery as a critical determinant of relationship quality in logistics services. In contrast, the insignificant effect of Service Value indicates that corporate customers tend to prioritize operational performance, particularly reliability and delivery timeliness, over perceived value when evaluating long-term relationships with logistics providers. This finding reinforces the Logistics Service Quality perspective, suggesting that operational consistency serves as the primary foundation for developing relational exchanges in B2B logistics. Unlike consumer markets, corporate customers tend to evaluate logistics providers based on their ability to support business continuity through reliable and timely operations rather than solely on perceived economic value.

The findings further illustrate that Relationship Marketing delivers beneficial and substantial effect towards both Customer Satisfaction and Customer Loyalty, while Customer Satisfaction also exerts numbers positively influence towards Customer Loyalty. These results suggest that fostering enduring relationships via trust, dedication, and proficient communication not only improves customer happiness but also motivates customers to sustain ongoing business associations with the organization. This perspective is further supported by Palmatier et al. (2006) study which is found meta-analysis correlation from relationship marketing to strengthens customer trust, commitment, and long-term loyalty across various business settings. Study from Sharma et al. (2023) and Nuryanto et al. (2022) also supports the findings that indicate effective relationship marketing significantly improvement towards customer satisfaction by strengthening customer trust and relationship quality. Furthermore, Relationship Marketing's influence that is significantly impacting Customer Loyalty aligns with Hakim et al. (2021) findings, in relevance with Rosali and Margaretha (2025) studey, while Customer Satisfaction positively impacts Customer Loyalty support relevance studies from Cesariana et al. (2022) and Putra (2021). In addition, the results have also shown consistency with Hennig-Thurau et al. (2002) study, who identified customer satisfaction and relationship quality as fundamental outcomes of relationship marketing that ultimately contribute to customer loyalty. These findings imply that relationship marketing and customer satisfaction function as complementary mechanisms in strengthening long-term customer loyalty within PT Pos Indonesia's corporate logistics services. The finding also implies that relationship marketing should not be viewed as communication strategy solely rather than be long-term relational capability that enhances customers' confidence and commitment. For corporate logistics providers such as PT Pos Indonesia, relationship marketing should therefore be integrated into customer management strategies that encourage continuous collaboration, responsiveness, and mutual trust beyond individual service transactions.

The mediation analysis reveals that Relationship Marketing does not significantly mediate either Service Reliability or Service Value impact towards Customer Loyalty, but it significantly mediates Timeliness's relationship impact towards Customer Loyalty. Those results emphasize analysis about reliable service and perceived service value alone are insufficient to enhance customer loyalty within indirect relationship marketing's variable. Instead, delivery timeliness delivers critical contribution to fostering customer relationships in long-term, which subsequently encourages customer loyalty. This finding may be explained by the characteristics of B2B corporate logistics services, where customers rely heavily on timely delivery to support production schedules, inventory management, and contractual commitments. Consequently, delivery punctuality becomes a more visible indicator of service performance directly influences customers' trust and willingness that are intended to sustain long-term business relationship. Furthermore, data analysis confirms that Customer Satisfaction contributes to mediate Relationship Marketing relation with Customer Loyalty,

suggesting that customer satisfaction is primary mechanism through which relationship marketing enhances long-term loyalty. This finding highlights that customer satisfaction serves as the critical mechanism through which relationship marketing is translated into customer loyalty, indicating that relationship-oriented activities alone are insufficient to secure customer loyalty unless they generate positive service experiences that reinforce customers' confidence and commitment toward the service provider. These results contribute to the B2B logistics literature by demonstrating that operational excellence alone is insufficient to generate customer loyalty unless it is translated into meaningful relational interactions and customer satisfaction. Therefore, the development of customer loyalty in corporate logistics services depends on the integration of timely service delivery, relationship marketing, and customer satisfaction. This finding suggests that logistics providers should prioritize operational processes that consistently ensure on-time delivery, as punctual service is more likely to strengthen customer relationships and ultimately foster long-term loyalty.

CONCLUSIONS

This study concludes that customer loyalty in PT Pos Indonesia's corporate logistics services is primarily influenced by the integration of operational service performance, relationship marketing, and customer satisfaction. Service Reliability and Timeliness significantly strengthen Relationship Marketing, whereas Service Value does not significantly contribute to relationship development. Furthermore, Relationship Marketing positively influences Customer Satisfaction and Customer Loyalty, while Customer Satisfaction serves as the strongest determinant of Customer Loyalty. The mediation analysis confirms that customer loyalty is developed through a sequential relational mechanism in which Timeliness contributes indirectly through Relationship Marketing, and Relationship Marketing enhances Customer Loyalty through Customer Satisfaction. From research outcome, it is understood that Customer Relationship Management (CRM) is theoretically implemented by demonstrating that sustainable customer loyalty in B2B corporate logistics is achieved through the integration of operational excellence, relationship development, and customer satisfaction. The proposed model provides a more comprehensive explanation of customer loyalty formation in B2B corporate logistics by integrating operational service quality, relationship marketing, and customer satisfaction into a single structural framework.

REFERENCES

- Anderson, E. W. (1998). Customer satisfaction and word of mouth. *Journal of Service Research*, 1(1), 5–17. <https://doi.org/10.1177/109467059800100102>
- Buttle, F., & Maklan, S. (2019). *Customer relationship management: Concepts and technologies* (4th ed.). Routledge.
- Davis, B. R., & Mentzer, J. T. (2006). Logistics service driven loyalty: An exploratory study. *Journal of Business Logistics*, 27(2), 53–73. <https://doi.org/10.1002/j.2158-1592.2006.tb00217.x>
- Gaudenzi, B., Confente, I., & Russo, I. (2021). Logistics service quality and customer satisfaction in B2B relationships: A qualitative comparative analysis approach. *The TQM Journal*, 33(1), 125–140. <https://doi.org/10.1108/TQM-04-2020-0088>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). Partial least squares structural equation modeling (PLS-SEM) using R. Springer. <https://doi.org/10.1007/978-3-030-80519-7>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>

- Hennig-Thurau, T., Gwinner, K. P., & Gremler, D. D. (2002). Understanding relationship marketing outcomes. *Journal of Service Research*, 4(3), 230–247. <https://doi.org/10.1177/1094670502004003006>
- Henseler, J., Hubona, G. S., & Ray, P. A. (2016). Using PLS path modeling in new technology research: Updated guidelines. *Industrial Management & Data Systems*, 116(1), 2–20. <https://doi.org/10.1108/IMDS-09-2015-0382>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Mentzer, J. T., Flint, D. J., & Hult, G. T. M. (2001). Logistics service quality as a segment-customized process. *Journal of Marketing*, 65(4), 82–104. <https://doi.org/10.1509/jmkg.65.4.82.18390>
- Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing*, 58(3), 20–38.
- Oliver, R. L. (1997). *Satisfaction: A behavioral perspective on the consumer*. McGraw-Hill.
- Palmatier, R. W., Dant, R. P., Grewal, D., & Evans, K. (2006). Factors influencing the effectiveness of relationship marketing: A meta-analysis. *Journal of Marketing*, 70(4), 136–153. <https://doi.org/10.1509/jmkg.70.4.136>
- Payne, A., & Frow, P. (2005). A strategic framework for customer relationship management. *Journal of Marketing*, 69(4), 167–176.
- Sugiyono. (2021). *Metode riset kuantitatif, kualitatif, dan R&D*. Alfabeta.
- Wardhani, C. A., Sugianto, A., & Hermana, B. (2020). Pengaruh kualitas layanan logistik, kepuasan pelanggan, dan citra merek terhadap loyalitas pelanggan jasa logistik menggunakan structural equation model. *Jurnal Ilmiah Teknik Industri*, 8(1). <https://doi.org/10.24912/jitiuntar.v8i1.5761>
- Yang, Z., & Peterson, R. T. (2004). Customer perceived value, satisfaction, and loyalty: The role of switching costs. *Psychology & Marketing*, 21(10), 799–822. <https://doi.org/10.1002/mar.20030>
- Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. *Journal of Marketing*, 52(3), 2–22.