

THE EFFECT OF LOGISTICS SERVICE QUALITY AND PERCEIVED MARINE CARGO INSURANCE ON CUSTOMER SATISFACTION: THE MEDIATING ROLE OF TRUST AMONG LOGISTICS SERVICE USERS

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Abstract

This study investigates the mediating role of Trust in the relationship between Logistics Service Quality (LSQ), Marine Cargo Insurance (MCI), and Customer Satisfaction among logistics service users. A quantitative approach with a cross-sectional survey design was employed. Data were collected from 100 respondents who had experience using logistics services and were familiar with Marine Cargo Insurance. Purposive sampling was applied, and the data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS. The results indicate that Logistics Service Quality has a positive and significant effect on Trust, whereas Marine Cargo Insurance does not significantly influence Trust. Furthermore, Trust has a positive and significant effect on Customer Satisfaction. The mediation analysis reveals that Trust significantly mediates the relationship between Logistics Service Quality and Customer Satisfaction. However, Trust does not mediate the relationship between Marine Cargo Insurance and Customer Satisfaction due to the insignificant effect of Marine Cargo Insurance on Trust. This study contributes to the logistics and relationship marketing literature by emphasizing the central role of Trust in translating service quality into customer satisfaction. The findings suggest that customers tend to place greater emphasis on service performance than on risk protection mechanisms such as Marine Cargo Insurance when developing trust toward logistics service providers. Practically, the results provide insights for logistics companies and insurance providers in enhancing customer trust and satisfaction through service quality improvement and more effective communication of insurance benefits.

Keywords: Logistics Service Quality; Marine Cargo Insurance; Trust; Customer Satisfaction; Relationship Marketing; Logistics Services.

1. Introduction

The logistics industry plays a strategic role in facilitating the efficient movement of goods in both domestic and international trade. With the rapid growth of e-commerce and increasing trade activities, the demand for reliable, efficient, and secure logistics services has become increasingly important. In this context, logistics service providers are expected not only to ensure operational excellence but also to consistently meet customer expectations (Minh et al., 2024; Yin, 2024).

One of the key determinants of customer evaluations of logistics services is Logistics Service Quality (LSQ). LSQ reflects the ability of logistics providers to deliver services that are timely, accurate, responsive, and reliable (Arabelen & Kaya, 2021; Minh et al., 2024). These abilities are perceived to be high-quality logistics services that contribute to positive customer perceptions, customer satisfaction and foster long-term relationships between customers and services provider, according to previous studies conducted by (Firdaus et al., 2023; Minh et al., 2024; Pertiwi & Sofia, 2025; Pramudita & Guslan, 2025). However, in logistics environments characterized by high levels of uncertainty, service quality alone may not fully explain customer evaluations. Customers often incorporate perceptions of risk and trust when assessing service

performance and making judgments about logistics providers (Featherman & Pavlou, 2003; Morgan & Hunt, 1994; Supli et al., 2025).

Uncertainty in logistics services, including the risks of delivery delays, cargo damage, and shipment loss, increases customer sensitivity to risk-related issues throughout the transportation process (du Plessis et al., 2023; Mokhtari & Ren, 2014). Under such circumstances, customers require a psychological mechanism that can reduce uncertainty and enhance their confidence when evaluating service providers. Trust has been widely recognized as one of the most important mechanisms for reducing uncertainty in service relationships. According to Morgan & Hunt (1994) and Gefen (2002), Trust reflects customers' confidence in the competence, integrity, and reliability of a service provider in fulfilling its service commitments. When customers trust a logistics service provider, they are more likely to perceive the provider as capable of delivering services reliably and managing potential risks effectively. Consequently, Trust serves as an important mechanism linking customers' perceptions of service quality to their overall evaluations of logistics services.

In addition to service quality, risk management has become an increasingly important aspect of logistics operations. One commonly adopted risk mitigation mechanism in risk management is Marine Cargo Insurance (MCI). MCI provides protection against potential financial losses arising from cargo damage, theft, loss, and other transportation-related risks during shipment. Marine Cargo Insurance functions as a risk-transfer mechanism that helps cargo owners mitigate the financial consequences of logistics disruptions and claim-related losses (Mokhtari & Ren, 2014; Pius & Sekar, 2025; Ritonga et al., 2021). From the customer's perspective, MCI may function not only as a financial protection instrument but also as a signal of a logistics provider's commitment to risk management and service reliability (Featherman & Pavlou, 2003; Mokhtari & Ren, 2014). Such signals may enhance customers' sense of security and reduce uncertainty, thereby strengthening trust in logistics service providers.

Although previous studies have extensively examined the relationships among service quality, trust, and customer satisfaction, most research has primarily focused on the direct effect of service quality on customer satisfaction. Meanwhile, risk mitigation mechanisms such as Marine Cargo Insurance have largely been investigated from operational and managerial perspectives rather than as factors influencing customer trust within an integrated behavioral framework (du Plessis et al., 2023; Pius & Sekar, 2025). Furthermore, empirical studies that simultaneously incorporate service quality and risk management mechanisms in explaining customer trust remain relatively limited.

In addition, limited research has examined Marine Cargo Insurance from a customer behavioral perspective. Existing studies predominantly focus on operational risk management, claims handling, and insurance administration, while empirical evidence regarding how insurance protection influences customer trust and satisfaction remains scarce. As a result, there is still limited understanding of whether the presence of insurance protection can strengthen customer trust and subsequently improve customer satisfaction in logistics services. This gap is particularly important for the insurance industry, as understanding customers' perceptions of insurance protection may help insurers design more effective communication and customer engagement strategies.

Addressing these research gaps, the present study proposes a model that positions Trust as a mediating variable in the relationship between Logistics Service Quality, Marine Cargo Insurance, and Customer Satisfaction. Specifically, the study examines whether LSQ and MCI influence customer satisfaction indirectly through trust. By focusing on trust as a central psychological mechanism, this study contributes to the logistics, relationship marketing, and customer behavior literature by providing a more integrated understanding of how service quality and risk management mechanisms jointly shape customer evaluations.

From a practical perspective, the findings are expected to provide valuable insights for both logistics service providers and insurance companies. For logistics providers, the study highlights that customer satisfaction depends not only on operational performance but also on the organization's ability to build customer trust through consistent service quality. For the insurance industry, particularly Marine Cargo Insurance providers, the findings offer important implications regarding customer perceptions of insurance protection and the effectiveness of insurance products as trust-building mechanisms. Ultimately, the study is expected to support the development of more customer-oriented logistics and insurance strategies that enhance trust, satisfaction, and long-term customer relationships.

2. Literature Review

2.1 Logistics Service Quality and Trust

Logistics Service Quality (LSQ) refers to customers' perceptions of a logistics service provider's ability to deliver services reliably, accurately, responsively, and in a timely manner. In the logistics industry, LSQ is widely recognized as a key determinant of customer evaluations and overall service performance because it directly influences customers' experiences throughout the delivery process (Minh et al., 2024; Yin, 2024).

LSQ encompasses various dimensions of service performance, including delivery timeliness, reliability, responsiveness, assurance, and information accuracy. These dimensions reflect not only the operational effectiveness of logistics providers but also their ability to meet customer expectations consistently (Parasuraman et al., 1988). When customers perceive that logistics services are delivered efficiently and reliably, they are more likely to develop favorable evaluations of the service provider.

From the perspective of relationship marketing, service quality serves as a fundamental basis for establishing and maintaining long-term relationships between customers and service providers. Morgan & Hunt (1994) argue that Trust is a central component of successful relationship development because it reflects customers' confidence in the integrity, competence, and reliability of a service provider. In service environments characterized by uncertainty, customers often have limited ability to directly evaluate the quality of services before experiencing them. As a result, they rely on their perceptions of service performance to assess whether a service provider is competent, dependable, and capable of meeting their expectations. Consequently, consistent and high-quality service performance can strengthen customers' Trust in the service provider.

In the context of logistics services, customers are exposed to various uncertainties, including delivery delays, damaged goods, inaccurate shipment information, and service disruptions (du Plessis et al., 2023; Mokhtari & Ren, 2014). These uncertainties may hinder customers' ability to evaluate whether a logistics provider can deliver services reliably and consistently. Consequently, customers often rely on their actual service experiences when forming judgments about a provider's trustworthiness. When logistics providers consistently deliver high-quality services and demonstrate reliability in handling shipments, customers become more confident in the provider's competence and dependability. As a result, high levels of Logistics Service Quality can reduce perceived uncertainty and strengthen customers' Trust in the service provider (Gefen, 2002; Supli et al., 2025; Widyantara et al., 2026).

Previous studies have consistently reported a positive relationship between service quality and Trust across various service industries, including logistics and transportation services. Customers who perceive high levels of service quality are more likely to develop Trust in service providers because consistent and reliable service performance reduces uncertainty and strengthens confidence in the provider's ability to deliver services effectively. When customers receive satisfactory service repeatedly, they become more confident in the provider's competence and dependability, which subsequently fosters Trust (Gefen, 2002; Supli et al., 2025; Widyantara et al., 2026). Therefore, Logistics Service Quality is considered an important antecedent of Trust in logistics service relationships.

2.2 Trust and Customer Satisfaction

Trust is a fundamental concept in relationship marketing that reflects customers' confidence in the competence, integrity, and benevolence of a service provider (Gefen, 2002; Morgan & Hunt, 1994). In logistics services, Trust becomes particularly important because customers face various uncertainties related to delivery timeliness, shipment conditions, information accuracy, and service reliability. These uncertainties often make it difficult for customers to evaluate service outcomes before they are fully experienced, increasing the importance of Trust in customer-provider relationships.

Within the logistics context, Trust is reflected in customers' belief that a service provider can consistently deliver promised services and appropriately manage potential service failures. When customers perceive a logistics service provider as trustworthy, they become more confident in the provider's ability to handle shipments reliably and fulfill its service responsibilities. As a result, Trust functions as a psychological mechanism that reduces perceived uncertainty and encourages customers to engage in service transactions with greater confidence in the provider's reliability and integrity (Gefen, 2002; Salim et al., 2023). As uncertainty decreases, customers tend to evaluate service experiences more positively, which subsequently contributes to higher levels of Customer Satisfaction.

Customer Satisfaction refers to a customer's overall evaluation of whether a service experience meets or exceeds expectations (Oliver, 1997). In service relationships, customers continuously evaluate not only the outcomes of a service but also the extent to which a service provider can be relied upon to deliver consistent and satisfactory performance. In this context, Trust has been recognized as an important antecedent of Customer Satisfaction because it influences how customers interpret and evaluate their service experiences. Customers who trust a service provider are more likely to perceive service outcomes positively, as Trust reduces uncertainty and increases confidence in the provider's competence, integrity, and reliability. Consequently, customers tend to develop more favorable evaluations of the service relationship, which ultimately contributes to higher levels of Customer Satisfaction (Gefen, 2002; Salim et al., 2023).

Within the logistics context, trust develops through repeated positive experiences and consistent service performance. According to Mayer et al. (1995), trust reflects a customer's willingness to rely on a service provider based on perceptions of competence, reliability, and integrity. Therefore, when logistics providers consistently fulfill customer expectations by demonstrating competence in service execution, reliability in meeting commitments, and integrity in handling customer transactions, and demonstrate reliable service delivery, customers become increasingly confident in the provider's ability to perform its responsibilities effectively. Over time, this confidence evolves into trust as customers develop stronger beliefs regarding the provider's dependability (Mayer et al., 1995; Morgan & Hunt, 1994).

Trust subsequently influences how customers evaluate their service experiences. In logistics services, customers often face uncertainty and risk associated with shipment delays, cargo damage, loss, and other operational disruptions (du Plessis et al., 2023; Mokhtari & Ren, 2014). Trust helps reduce perceived uncertainty and risk, enabling customers to form more favorable perceptions of service performance (Featherman & Pavlou, 2003; Salim et al., 2023). As a result, customers who trust their logistics providers are more likely to feel secure and comfortable throughout the service process, which contributes positively to their overall satisfaction.

Recent evidence from the Indonesian logistics industry further supports the importance of trust in shaping customer evaluations. Trust affects the manner in which customers interpret and assess the value and reliability of logistics services based on their actual experiences. Supli et al. (2025) found that trust significantly influences customers' perceived value of logistics services, indicating that customers who trust logistics providers tend to develop more favorable assessments of service outcomes. Such positive evaluations subsequently contribute to higher levels of customer satisfaction. Similarly, Widyantara et al. (2026) reported that trust has a significant positive effect on customer satisfaction in logistics services. Therefore, trust is expected to positively influence customer satisfaction in logistics service relationships.

Previous studies have consistently reported a positive relationship between trust and customer satisfaction across various service sectors. Customers who trust service providers tend to express higher levels of satisfaction because trust reduces uncertainty and strengthens positive perceptions of service performance (Gefen, 2002; Morgan & Hunt, 1994). This mechanism is particularly relevant in logistics services, where customers face various operational risks and uncertainties, including shipment delays, cargo damage, loss, and disruptions throughout the delivery process (du Plessis et al., 2023; Mokhtari & Ren, 2014).

When customers trust a logistics provider, they are more likely to believe that the provider is capable of handling such uncertainties effectively and fulfilling its service commitments. Consequently, customers develop more favorable evaluations of the service experience, which ultimately leads to higher levels of customer satisfaction (Featherman & Pavlou, 2003; Widyantara et al., 2026). Therefore, trust is considered an important determinant of customer satisfaction in logistics service relationships.

2.3 Marine Cargo Insurance as a Risk Reduction Signal

Marine Cargo Insurance (MCI) is a formal risk management mechanism that provides financial protection against potential losses arising during the transportation of goods (Mokhtari & Ren, 2014; Ritonga et al., 2021). Traditionally, MCI has been viewed as a risk transfer instrument that enables cargo owners and logistics users to transfer the financial consequences of transportation-related risks to insurance providers. Through this mechanism, the adverse effects of risks such as cargo damage, theft, and loss can be mitigated, thereby enhancing the overall security of logistics operations (Mokhtari & Ren, 2014; Ritonga et al., 2021).

Beyond its role as a risk transfer instrument, Marine Cargo Insurance represents a broader protection mechanism through which customers obtain protection against transportation-related risks. The effectiveness of this mechanism depends not only on the availability of insurance coverage but also on customers' understanding and perceptions of the protection offered (Pius & Sekar, 2025).

Ritonga et al. (2021) argued that the effectiveness of Marine Cargo Insurance depends not only on the availability of insurance coverage but also on the mechanisms that enable customers to access and utilize the protection provided when transportation-related incidents occur. As part of this broader protection system, claim management plays an important role by facilitating financial recovery for customers who experience losses during the transportation process (Ritonga et al., 2021). However, customers' evaluations of insurance protection are closely associated with their perceptions of risk and the extent to which available risk mitigation mechanisms are perceived as effective and reliable (Featherman & Pavlou, 2003; Pius & Sekar, 2025).

Perceived risk represents an important determinant of behavioral intentions because uncertainty regarding potential negative outcomes can inhibit customers' evaluations of a service and their intentions to adopt it (Featherman & Pavlou, 2003). In the logistics context, Marine Cargo Insurance functions as an important risk mitigation mechanism that protects cargo owners against transportation-related losses and enhances operational resilience by addressing risks such as theft, damage, and natural disasters (Pius & Sekar, 2025). This argument is supported by Mokhtari & Ren (2014), who emphasize that marine insurance constitutes an important component of maritime risk management, serving as a risk mitigation and risk transfer mechanism to address cargo losses, damages, and operational uncertainties throughout logistics and supply chain activities. Their findings further suggest that insurance mechanisms, including Marine Cargo Insurance, contribute to mitigating transportation-related risks within logistics operations.

According to Featherman & Pavlou (2003), perceived risk has been identified as an important determinant of customers' behavioral intentions, particularly when uncertainty regarding service outcomes remains high. In the logistics context, Marine Cargo Insurance may function as a tangible risk mitigation mechanism that demonstrates a provider's commitment to safeguarding customer interests during transportation activities. By offering protection against potential cargo losses and damages, such insurance can reduce customers' perceived risk and enhance their confidence in the logistics service provider (Mokhtari & Ren, 2014).

As logistics services become increasingly interconnected and involve multiple transportation stages, customers must rely on service providers to manage various risks that may arise throughout the delivery process (Mokhtari & Ren, 2014). In such environments, risk mitigation mechanisms play an important role not only in protecting shipments but also in shaping customers' perceptions of service providers.

From a customer perspective, Marine Cargo Insurance may therefore serve a broader function than merely providing financial compensation when losses occur. According to Featherman & Pavlou (2003), customers tend to evaluate services more favorably when mechanisms are available to reduce perceived risk and uncertainty. In the logistics context, Marine Cargo Insurance serves as an important risk management mechanism that helps address transportation-related risks and potential financial losses associated with cargo movements (Pius & Sekar, 2025).

In this regard, the availability of Marine Cargo Insurance as a risk mitigation mechanism may shape how customers perceive the level of protection offered by a logistics provider. This perception of protection can strengthen customers' sense of security during the service process. As customers perceive lower levels of risk associated with shipment-related uncertainties, they are more likely to develop favorable evaluations of the logistics provider. Such evaluations may contribute to perceptions of trustworthiness, particularly when the provider is viewed as competent, reliable, and capable of managing risks effectively (Featherman & Pavlou, 2003; Mayer et al., 1995). According to Mayer et al. (1995), trust is more likely to develop when individuals perceive that another party possesses the ability and willingness to fulfill its obligations reliably. In the logistics context, the availability of Marine Cargo Insurance provides protection against potential losses and damages associated with cargo transportation (Pius & Sekar, 2025). Such safeguards may contribute to customers' confidence in the service provider, particularly when the provider is perceived as capable, reliable, and trustworthy (Mayer et al., 1995).

Furthermore, perceived risk theory suggests that mechanisms designed to reduce uncertainty can positively influence customers' evaluations of service providers (Featherman & Pavlou, 2003). As a result, Marine Cargo Insurance may contribute to the development of trust by reinforcing perceptions of provider reliability and commitment to customer protection. Empirical evidence also supports the importance of insurance protection from the customer perspective (Pius & Sekar, 2025). Their findings indicate that customers view Marine Cargo Insurance as an essential element of cargo transportation and place strong importance on insurance coverage for various transportation-related risks, reflecting a proactive approach to

risk management. Despite the recognized importance of Marine Cargo Insurance in mitigating transportation-related risks, limited research has explored how its availability may function as a customer-oriented signal of risk protection that shapes trust in logistics service providers.

Drawing upon perceived risk theory and trust literature, the availability of Marine Cargo Insurance may serve as a visible indication of a logistics provider's capability to address transportation-related risks, thereby reducing customers' perceived risk and reinforcing positive trust evaluations (Featherman & Pavlou, 2003; Mayer et al., 1995). Consequently, Marine Cargo Insurance is expected to contribute positively to the development of Trust in logistics service relationships.

2.4 Trust as a Mediating Variable

Trust is widely recognized as a central mechanism in relationship marketing because it influences how customers evaluate service providers and develop long-term relationships (Morgan & Hunt, 1994). In service settings characterized by uncertainty, trust serves as an intermediary psychological process through which customers translate their perceptions of service attributes into overall evaluations and behavioral outcomes (Gefen, 2002; Mayer et al., 1995; Morgan & Hunt, 1994).

Within logistics services, customers often operate under conditions of uncertainty due to the complexity of transportation processes and the possibility of service disruptions (Mokhtari & Ren, 2014). As a result, customers often rely on trust to reduce uncertainty and assess whether a service provider is capable of fulfilling its commitments. High-quality logistics services and effective risk management mechanisms may therefore influence customer satisfaction indirectly by strengthening customer trust (Gefen, 2002; Mayer et al., 1995; Supli et al., 2025).

Previous studies have suggested that trust functions as an important mediating variable linking service-related factors to customer outcomes (Gefen, 2002; Supli et al., 2025; Widyantara et al., 2026). Customers who perceive superior service quality are more likely to develop trust, which subsequently enhances their satisfaction with the service experience (Gefen, 2002; Morgan & Hunt, 1994; Widyantara et al., 2026). Similarly, risk reduction mechanisms that increase customers' sense of security may contribute to customer satisfaction through the development of trust (Featherman & Pavlou, 2003; Mayer et al., 1995; Supli et al., 2025).

Taken together, the preceding arguments suggest that trust functions as a key psychological mechanism through which customers translate both service-related experiences and risk protection perceptions into satisfaction evaluations. Accordingly, trust is expected to act as an intermediary mechanism that explains how Logistics Service Quality and Marine Cargo Insurance influence Customer Satisfaction. The inclusion of trust as a mediating variable provides a more comprehensive explanation of how customers transform perceptions of service quality and risk protection into satisfaction evaluations within logistics services.

2.5 Research Gap

Previous studies have consistently demonstrated that Logistics Service Quality (LSQ) plays an important role in enhancing customer satisfaction within logistics and transportation services (Minh et al., 2024; Tjendana & Pranasari, 2024; Yin, 2024). However, most existing studies primarily focus on the direct relationship between service quality and customer satisfaction, providing limited explanation regarding the underlying psychological mechanisms through which service quality influences customer evaluations.

Within the relationship marketing literature, Trust has been recognized as a critical factor in establishing and maintaining long-term relationships between customers and service providers (Morgan & Hunt, 1994). Although prior studies have acknowledged the importance of trust in logistics relationships (Morgan & Hunt, 1994; Supli et al., 2025; Widyantara et al., 2026), empirical evidence regarding its role as an intervening mechanism between Logistics Service Quality and Customer Satisfaction remains limited.

Furthermore, research on Marine Cargo Insurance (MCI) has predominantly focused on operational risk management, cargo protection mechanisms, and insurance claims handling processes (du Plessis et al., 2023; Mokhtari & Ren, 2014; Ritonga et al., 2021). Existing studies have primarily examined Marine Cargo Insurance from operational and administrative perspectives, emphasizing risk mitigation, weather-related risk exposure, and claim management effectiveness rather than customer behavioral outcomes (du Plessis et al., 2023; Ritonga et al., 2021). Consequently, limited attention has been given to the role of Marine Cargo Insurance as a customer-oriented risk reduction signal that may influence trust and customer evaluations of logistics service providers.

In addition, studies integrating Logistics Service Quality, Marine Cargo Insurance, Trust, and Customer Satisfaction within a single research framework remain scarce. This limitation creates a gap in understanding how service quality and risk management mechanisms jointly influence customer satisfaction through trust in logistics service relationships.

To address these gaps, the present study develops an integrated model that positions Trust as a mediating mechanism between Logistics Service Quality, Marine Cargo Insurance, and Customer Satisfaction. By incorporating both service quality and risk management perspectives, this study contributes to the logistics, relationship marketing, and insurance literature while providing a more comprehensive understanding of customer behavior in logistics services.

2.6 Conceptual Framework and Hypotheses Development

2.6.1 Conceptual Framework

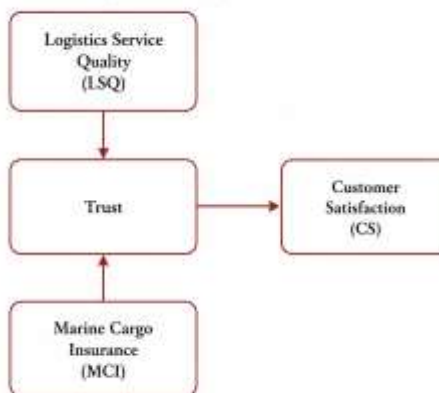
The conceptual framework of this study is developed based on relationship marketing theory and perceived risk theory. The model proposes that Logistics Service Quality and Marine Cargo Insurance shape customers' perceptions of service reliability and risk protection, which subsequently foster Trust and contribute to Customer Satisfaction.

Logistics Service Quality is expected to enhance Trust by providing reliable, responsive, accurate, and timely logistics services (Mayer et al., 1995). Consistent service performance reduces customer uncertainty and strengthens confidence in the service provider (Mayer et al., 1995; Morgan & Hunt, 1994). In addition, Marine Cargo Insurance is expected to contribute to Trust by serving as a risk reduction mechanism that enhances customers' perceptions of security and protection against potential losses during the transportation process (Featherman & Pavlou, 2003; Mokhtari & Ren, 2014).

Trust is subsequently expected to influence Customer Satisfaction because customers who trust a logistics service provider are more likely to evaluate the service experience positively and perceive that the provider has fulfilled its commitments (Gefen, 2002; Morgan & Hunt, 1994). Therefore, Trust is positioned as the central mediating mechanism through which customers translate perceptions of service quality and risk protection into satisfaction evaluations within logistics services. Based on the proposed relationships among the study variables, the conceptual framework is presented in Figure 1.

Figure 1 presents the conceptual framework of this study. The framework proposes that Logistics Service Quality and Marine Cargo Insurance influence Customer Satisfaction through the mediating role of Trust. In this model, Trust functions as the central mechanism through which customers translate perceptions of service quality and risk protection into satisfaction evaluations within logistics services.

Figure 1. Conceptual Framework



2.6.2 Hypotheses Development

H1: Logistics Service Quality and Trust

Logistics Service Quality reflects the ability of logistics service providers to deliver reliable, accurate, responsive, and consistent services. High levels of service quality enhance customers' perceptions of provider credibility and reliability, thereby strengthening trust (Mayer et al., 1995; Morgan & Hunt, 1994). According to relationship marketing theory, customers are more likely to trust service providers that consistently fulfill

their service commitments and demonstrate competence in service delivery (Gefen, 2002; Morgan & Hunt, 1994).

Previous studies have also reported a positive relationship between service quality and trust in logistics and service-related contexts. Customers who perceive superior service quality tend to develop greater confidence in the provider's ability to meet their expectations and manage service processes effectively (Supli et al., 2025; Widyantara et al., 2026).

H1: Logistics Service Quality has a positive effect on Trust.

H2: Marine Cargo Insurance and Trust

Marine Cargo Insurance functions as a risk reduction mechanism that helps customers mitigate potential financial losses arising from cargo damage, theft, or loss during transportation. From a customer perspective, the availability of insurance protection may serve as a signal that the logistics provider is committed to managing transportation-related risks and protecting customer interests. Such signals reduce perceived uncertainty and increase customers' perceptions of security when using logistics services (Featherman & Pavlou, 2003; Mayer et al., 1995).

When customers perceive that a logistics provider offers adequate protection against potential risks, they may become more confident in the provider's ability to manage uncertainties effectively. Consequently, Marine Cargo Insurance is expected to contribute positively to the development of customer trust (Gefen, 2002; Pius & Sekar, 2025).

H2: Marine Cargo Insurance has a positive effect on Trust.

H3: Trust and Customer Satisfaction

Trust reflects customers' confidence in the competence, integrity, and reliability of a service provider. In environments characterized by uncertainty, trust serves as an important psychological mechanism that reduces perceived risk and enhances positive evaluations of service experiences. Customers who trust a service provider are more likely to perceive that the provider fulfills its commitments and delivers satisfactory service outcomes (Gefen, 2002; Widyantara et al., 2026).

As a result, higher levels of trust are expected to lead to greater customer satisfaction because customers feel more secure and confident in their interactions with the service provider (Gefen, 2002; Morgan & Hunt, 1994).

H3: Trust has a positive effect on Customer Satisfaction.

H4: LSQ -> Trust -> Satisfaction

Relationship marketing theory suggests that customers develop satisfaction not only from service performance itself but also from the trust that emerges through consistent and reliable service experiences (Morgan & Hunt, 1994). As discussed previously, high-quality logistics services enhance customers' confidence in the provider's competence and reliability, which subsequently strengthens trust.

Because trust positively influences customer satisfaction, it is expected to mediate the relationship between Logistics Service Quality and Customer Satisfaction.

H4: Trust mediates the relationship between Logistics Service Quality and Customer Satisfaction.

H5: MCI -> Trust -> Satisfaction

Similarly, Marine Cargo Insurance functions as a risk reduction mechanism that helps customers cope with uncertainties associated with logistics activities. By reducing perceived risk and increasing perceptions of protection, Marine Cargo Insurance may strengthen customer trust toward logistics providers (Featherman & Pavlou, 2003; Pius & Sekar, 2025).

As trust contributes positively to customer satisfaction, it is expected to mediate the relationship between Marine Cargo Insurance and Customer Satisfaction.

H5: Trust mediates the relationship between Marine Cargo Insurance and Customer Satisfaction.

3. Research Methodology

3.1 Research Design

This study employs a quantitative approach with an explanatory research design because it seeks to examine causal relationships among Logistics Service Quality, Marine Cargo Insurance, Trust, and Customer Satisfaction within the logistics service context.

A cross-sectional survey design was adopted, whereby data were collected from respondents at a single point in time. This design is appropriate because the study aims to capture respondents' perceptions of logistics services, insurance protection, trust, and satisfaction at a particular point in time.

The study focuses on testing the proposed conceptual model and the mediating role of Trust in explaining the relationships between Logistics Service Quality, Marine Cargo Insurance, and Customer Satisfaction. To achieve this objective, data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). PLS-SEM was selected because it is suitable for predictive and theory-development research, supports mediation analysis, and effectively estimates complex relationships among latent constructs measured through multiple indicators (Hair et al., 2019, 2021). SmartPLS 4 was utilized to estimate the measurement and structural models.

3.2 Population and Sample

The population of this study consists of individuals who have experience using logistics or shipping services for personal or business purposes.

A purposive sampling technique was employed to select respondents who met specific criteria relevant to the objectives of the study (Supli et al., 2025). To ensure that respondents were capable of evaluating all constructs included in the research model, particularly Marine Cargo Insurance (MCI), participants were required to meet the following criteria: (1) have experience using logistics or shipping services, (2) be aware of or have received information regarding Marine Cargo Insurance (MCI), and (3) be at least 17 years old.

The sample size was determined based on the recommendations of (Hair et al., 2019, 2021), who suggest that studies employing PLS-SEM should obtain a sample size ranging from five to ten times the number of indicators included in the research model. Accordingly, 100 valid responses were collected and deemed sufficient for the subsequent PLS-SEM analysis.

3.3 Measurement of Variables

All variables in this study were measured using a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The measurement items were adapted from established studies and modified to fit the context of logistics services and Marine Cargo Insurance and were subjected to content adaptation to ensure relevance to the study context.

The study includes four constructs: Logistics Service Quality (LSQ), Marine Cargo Insurance (MCI), Trust, and Customer Satisfaction. Logistics Service Quality was measured using dimensions adapted from established service quality and logistics studies (Arabelen & Kaya, 2021; Minh et al., 2024; Parasuraman et al., 1988). Trust was measured using indicators derived from the Commitment-Trust Theory and established trust frameworks developed by Morgan & Hunt (1994), Mayer et al. (1995), Gefen (2002), and Mcknight et al. (2002).

Marine Cargo Insurance was operationalized as customers' perceptions of the extent to which insurance protection reduces transportation-related risks and provides a sense of security during the shipping process (Featherman & Pavlou, 2003; Mokhtari & Ren, 2014; Pius & Sekar, 2025). Customer Satisfaction was measured based on the expectation-confirmation perspective, reflecting customers' overall evaluation of whether logistics service performance met or exceeded their expectations (Oliver, 1997; Yin, 2024).

The operational definitions and measurement indicators of each construct are presented in Table 1.

Table 1. Measurement of Logistics Service Quality (LSQ)

Variable	Operational Definition	Dimension	Code	Measurement Item	Scale	Source
Logistics Service Quality (LSQ)	Customers' perceptions of the ability of logistics service providers to deliver reliable, timely, accurate, and responsive services that meet shipping needs.	Reliability	LSQ1	The shipping service I use always delivers goods within the promised time.	Likert 1–5	(Minh et al., 2024; Parasuraman et al., 1988)
		Reliability	LSQ2	The shipping service I use	Likert 1–5	(Parasuraman et al., 1988)

			provides consistent service performance in every transaction.		
	Responsive ness	LSQ3	The logistics provider responds promptly to customer complaints and inquiries.	Likert 1– 5	(Arabelen & Kaya, 2021; Parasuraman et al., 1988)
	Responsive ness	LSQ4	I can easily contact customer service whenever I encounter shipping- related problems.	Likert 1– 5	(Parasuraman et al., 1988)
	Assurance	LSQ5	I feel that my goods are secure during the shipping process.	Likert 1– 5	(Parasuraman et al., 1988)
	Assurance	LSQ6	The logistics provider demonstrates professionalis m in handling shipments.	Likert 1– 5	(Parasuraman et al., 1988)
	Accuracy	LSQ7	The shipping information provided is always accurate.	Likert 1– 5	(Arabelen & Kaya, 2021)
	Accuracy	LSQ8	The shipment tracking system is clear and easy to understand.	Likert 1– 5	(Arabelen & Kaya, 2021)

Table 1 presents the operationalization of the Logistics Service Quality (LSQ) construct used in this study. The measurement items were adapted from the SERVQUAL framework developed by Parasuraman et al. (1988) and logistics service quality studies conducted by Arabelen and Kaya (2021) and Minh et al.

(2024). The construct was operationalized using four dimensions: reliability, responsiveness, assurance, and accuracy, which collectively reflect customers' perceptions of the ability of logistics service providers to deliver dependable, responsive, secure, and accurate shipping services. All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 2. Measurement of Marine Cargo Insurance (MCI)

Variable	Operational Definition	Dimension	Code	Measurement Item	Scale	Source
Marine Cargo Insurance (MCI)	Customers' perceptions of the role of Marine Cargo Insurance as a risk reduction mechanism that enhances security and protection in logistics services.	Perceived Risk Reduction	MCI1	Marine Cargo Insurance provides protection against losses or damages to shipped goods.	Likert 1–5	(Mokhtari & Ren, 2014; Pius & Sekar, 2025)
		Perceived Risk Reduction	MCI2	The availability of Marine Cargo Insurance makes me feel safer during the shipping process.	Likert 1–5	(Featherman & Pavlou, 2003)
		Perceived Risk Reduction	MCI3	Marine Cargo Insurance reduces my concerns about the risk of damage or loss during transportation.	Likert 1–5	(Featherman & Pavlou, 2003)
		Perceived Risk Reduction	MCI4	Marine Cargo Insurance helps me feel protected against potential shipping losses.	Likert 1–5	(Mokhtari & Ren, 2014; Pius & Sekar, 2025)
		Perceived Risk Reduction	MCI5	The availability of Marine Cargo Insurance enhances my perception of service security.	Likert 1–5	(Featherman & Pavlou, 2003; Mokhtari & Ren, 2014)

Table 2 presents the operationalization of the Marine Cargo Insurance (MCI) construct used in this study. The measurement items were adapted from previous studies on marine insurance, perceived risk, and logistics risk management conducted by Featherman and Pavlou (2003), Mokhtari and Ren (2014), and Pius and Sekar (2025). The construct was operationalized as a single dimension, namely perceived risk reduction, reflecting customers' perceptions of Marine Cargo Insurance as a mechanism that provides protection against potential losses and enhances security during the shipping process. All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 3. Measurement of Trust

Variable	Operational Definition	Dimension	Code	Measurement Item	Scale	Source
Trust	Customers' confidence in the competence, integrity, and reliability of logistics service providers in fulfilling their service commitments.	Ability	TR1	I believe that the logistics service provider is capable of fulfilling its service promises.	Likert 1–5	(Gefen, 2002; Mayer et al., 1995; Morgan & Hunt, 1994)
		Ability	TR2	I believe that the logistics service provider has the necessary competence to handle shipments effectively.	Likert 1–5	(Gefen, 2002; Mcknight et al., 2002)
		Integrity	TR3	I believe that the logistics service provider is honest in its business practices.	Likert 1–5	(Mayer et al., 1995; Morgan & Hunt, 1994)
		Integrity	TR4	I believe that the logistics service provider consistently fulfills its commitments to customers.	Likert 1–5	(Mayer et al., 1995; Morgan & Hunt, 1994)
		Benevolence	TR5	I believe that the logistics service provider genuinely cares about its customers' needs.	Likert 1–5	(Gefen, 2002; Mayer et al., 1995)
		Benevolence	TR6	I believe that the logistics service provider takes responsibility when problems occur during the shipping process.	Likert 1–5	(Gefen, 2002; Supli et al., 2025)

Table 3 presents the operationalization of the Trust construct used in this study. The measurement items were adapted from the Commitment-Trust Theory proposed by Morgan and Hunt (1994), the organizational trust framework developed by Mayer et al. (1995), and established trust measurement scales proposed by Gefen (2002), McKnight et al. (2002), and Supli et al. (2025). The construct was operationalized using three dimensions: ability, integrity, and benevolence, which collectively reflect customers' confidence in the competence, honesty, and goodwill of logistics service providers in fulfilling their service commitments. All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 4. Measurement of Customer Satisfaction (CS)

Variable	Operational Definition	Dimension	Code	Measurement Item	Scale	Source
Customer Satisfaction (CS)	Customers' overall evaluation of logistics service experiences compared with their prior expectations.	Overall Satisfaction	CS1	Overall, I am satisfied with the logistics service that I use.	Likert 1–5	(Oliver, 1997; Yin, 2024)
		Overall Satisfaction	CS2	The logistics service meets my expectations.	Likert 1–5	(Oliver, 1997)
		Confirmation	CS3	My experience using this logistics service has been satisfying.	Likert 1–5	(Oliver, 1997)
		Confirmation	CS4	Choosing this logistics service was the right decision.	Likert 1–5	(Oliver, 1997)

Table 4 presents the operationalization of the Customer Satisfaction (CS) construct used in this study. The measurement items were adapted from the Expectation-Confirmation Theory proposed by Oliver (1997) and recent logistics service research conducted by Yin (2024). The construct was operationalized using two dimensions: overall satisfaction and confirmation, which reflect customers' overall evaluation of logistics service experiences relative to their prior expectations. All items were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The questionnaire consisted of 23 measurement items representing four constructs: Logistics Service Quality (8 items), Marine Cargo Insurance (5 items), Trust (6 items), and Customer Satisfaction (4 items). The operational definitions, dimensions, measurement items, and sources for each construct are presented in Tables 1–4.

3.4 Data Collection Procedures

Prior to the main data collection, a pilot test was conducted involving 20 respondents who met the study criteria. The purpose of the pilot test was to evaluate the clarity, consistency, and comprehensibility of the questionnaire items. The pilot test results indicated that the measurement items were generally well understood by respondents. Several minor revisions were made to improve wording clarity and reduce potential ambiguity.

Data were collected using an online questionnaire administered through Google Forms. The survey was distributed through social media platforms, logistics service user communities, and relevant professional networks. Only respondents who met the established selection criteria were invited to participate in the study.

To minimize response bias and encourage honest responses, participation was voluntary and anonymous. Respondents were informed that there were no right or wrong answers and were encouraged to answer each question based on their actual experiences and perceptions regarding the logistics services they had used.

3.5 Data Analysis Technique

This study employed Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS software to analyze the proposed research model. PLS-SEM was selected because it is suitable for predictive research, supports mediation analysis, and does not require strict assumptions regarding data normality (Hair et al., 2019; Hair et al., 2021).

The data analysis was conducted in two stages. The first stage involved the assessment of the measurement model (outer model) to evaluate the validity and reliability of the constructs. Convergent validity was assessed using outer loadings and Average Variance Extracted (AVE), whereas construct reliability was evaluated using Cronbach's Alpha and Composite Reliability (CR). Discriminant validity was examined using the Heterotrait-Monotrait Ratio (HTMT) criterion (Hair et al., 2021).

The second stage involved the assessment of the structural model (inner model) to examine the relationships among the latent variables. The structural model was evaluated using path coefficients, coefficient of determination (R^2), and bootstrapping results for hypothesis testing. Furthermore, mediation analysis was conducted by examining the significance of indirect effects obtained through the bootstrapping procedure (Hair et al., 2021).

3.5.1 Measurement Model Assessment (Outer Model)

The measurement model assessment (outer model) was conducted to evaluate the validity and reliability of the latent constructs prior to testing the structural relationships among variables. Convergent validity was assessed using outer loading values and Average Variance Extracted (AVE). According to Hair et al. (2021), outer loading values should preferably exceed 0.70, while AVE values should be greater than 0.50 to demonstrate adequate convergent validity.

Discriminant validity was evaluated using the Heterotrait-Monotrait Ratio (HTMT). HTMT values below 0.90 indicate that the constructs are empirically distinct from one another and satisfy discriminant validity requirements (Hair et al., 2021). Construct reliability was assessed using Cronbach's Alpha and Composite Reliability (CR). Values above 0.70 indicate satisfactory internal consistency and reliability of the measurement instruments (Hair et al., 2021).

3.5.2 Structural Model Assessment (Inner Model)

The structural model assessment was conducted to examine the relationships among the latent variables in the proposed research model. The analysis included the estimation of path coefficients and hypothesis testing using the bootstrapping procedure with 5,000 resamples. A relationship was considered statistically significant when the t-statistic exceeded 1.96 and the p-value was below 0.05 (Hair et al., 2021).

The explanatory power of the model was evaluated using the coefficient of determination (R^2), which indicates the proportion of variance in the endogenous constructs explained by the predictor variables. In addition, mediation analysis was performed to examine whether Trust mediates the relationships between Logistics Service Quality and Customer Satisfaction as well as between Marine Cargo Insurance and Customer Satisfaction (Hair et al., 2021).

4. Results and Discussion

4.1 Respondent Profile

This study involved 100 respondents who met the research criteria, namely individuals who had experience using logistics services and were aware of or had been offered Marine Cargo Insurance (MCI). The respondents consisted of logistics service users for both personal and business purposes. Their demographic characteristics were analyzed to provide an overview of the study sample and to support the interpretation of the research findings.

The profile of respondents is presented in Table 5.

Table 5. Respondent Profile (n = 100)

Characteristic	Category	Frequency	Percentage
Age	< 20 years	6	6.0%

	21–30 years	59	59.0%
	31–40 years	11	11.0%
	41–50 years	18	18.0%
	> 50 years	6	6.0%
Gender	Male	35	35.0%
	Female	65	65.0%
Shipping Frequency per Month	1–2 times	45	45.0%
	3–5 times	39	39.0%
	6–10 times	10	10.0%
	11–20 times	3	3.0%
	> 20 times	3	3.0%
Purpose of Shipment	Business	23	23.0%
	Personal	77	77.0%

Table 5 presents the demographic characteristics of the respondents. Based on age distribution, the majority of respondents were between 21 and 30 years old, accounting for 59% of the total sample. This indicates that younger adults constituted the largest respondent group in the study sample. Respondents aged 41–50 years represented 18% of the sample, followed by those aged 31–40 years (11%), while respondents below 20 years and above 50 years each accounted for 6%.

In terms of gender, female respondents dominated the sample, representing 65% of the respondents, whereas male respondents accounted for 35%. Regarding shipping frequency, most respondents reported using logistics services one to two times per month (45%), followed by three to five times per month (39%). This suggests that the majority of respondents were occasional to moderate users of logistics services.

Based on shipping purpose, 77% of respondents used logistics services for personal purposes, while 23% used them for business activities. This finding indicates that the sample was predominantly composed of individual consumers rather than commercial logistics users.

Overall, the respondent profile indicates that the sample was dominated by active logistics service users within the productive age group who primarily utilized shipping services for personal purposes. These characteristics suggest that the respondents possessed sufficient experience to evaluate logistics service quality, insurance protection, trust, and customer satisfaction.

4.2 Measurement Model Assessment (Outer Model)

The measurement model assessment was conducted to evaluate the validity and reliability of the constructs included in the research model. The assessment included convergent validity, discriminant validity, and construct reliability tests to ensure that the measurement indicators accurately and consistently represented their respective latent constructs (Hair et al., 2021).

Convergent validity was assessed using outer loading values and Average Variance Extracted (AVE), while discriminant validity was evaluated using the Heterotrait-Monotrait Ratio (HTMT). Construct reliability was examined through Cronbach's Alpha and Composite Reliability (CR) (Hair et al., 2021). The results of the convergent validity, discriminant validity, and construct reliability assessments are presented in the following sections.

4.2.1 Convergent Validity

Convergent validity was assessed using outer loading values and Average Variance Extracted (AVE). According to Hair et al. (2021), outer loading values should ideally exceed 0.70, while AVE values should be greater than 0.50. Convergent validity is achieved when the indicators adequately represent and explain the variance of their respective latent constructs.

The results of the convergent validity assessment are presented in Table 6. Indicators with outer loading values above the recommended threshold were considered valid and retained for further analysis. Indicators with loading values below the recommended threshold were evaluated based on their contribution to construct validity and reliability.

During the convergent validity assessment, one indicator of the Logistics Service Quality construct (LSQ4) was removed because its outer loading value (0.497) was below the minimum acceptable threshold recommended by Hair et al. (2021). After removing LSQ4, the remaining indicators were re-estimated and assessed for convergent validity.

Table 6. Convergent Validity Assessment

Construct	Indicator	Outer Loading	Assessment
Logistics Service Quality (LSQ)	LSQ1	0.722	Valid
	LSQ2	0.771	Valid
	LSQ3	0.582	Acceptable
	LSQ5	0.741	Valid
	LSQ6	0.780	Valid
	LSQ7	0.698	Acceptable
	LSQ8	0.729	Valid
	LSQ4	0.497	Removed
Marine Cargo Insurance (MCI)	MCI1	0.737	Valid
	MCI2	0.786	Valid
	MCI3	0.785	Valid
	MCI4	0.761	Valid
	MCI5	0.797	Valid
Trust	TR1	0.805	Valid
	TR2	0.750	Valid
	TR3	0.758	Valid
	TR4	0.725	Valid
	TR5	0.735	Valid
	TR6	0.758	Valid
Customer Satisfaction (CS)	CS1	0.835	Valid
	CS2	0.784	Valid

CS3	0.785	Valid
CS4	0.870	Valid

As shown in Table 6, most indicators exhibited outer loading values above the recommended threshold of 0.70, indicating satisfactory convergent validity. Two indicators, namely LSQ3 (0.582) and LSQ7 (0.698), showed loading values slightly below the recommended threshold but were retained because they remained above the minimum acceptable level and were retained because their removal did not improve the construct's convergent validity or reliability (Hair et al., 2021).

Furthermore, one indicator within the Logistics Service Quality construct (LSQ4) was removed from the measurement model during the validation process because its outer loading value (0.497) was below the minimum acceptable threshold. Following the removal of LSQ4, all remaining indicators demonstrated acceptable loading values ranging from 0.582 to 0.870 and were retained for subsequent analysis.

Table 7. Average Variance Extracted (AVE)

Construct	AVE	Assessment
Logistics Service Quality (LSQ)	0.519	Valid
Marine Cargo Insurance (MCI)	0.598	Valid
Trust	0.571	Valid
Customer Satisfaction (CS)	0.671	Valid

In addition to outer loading values, convergent validity was also assessed using Average Variance Extracted (AVE). As presented in Table 7, all constructs achieved AVE values above the recommended threshold of 0.50. Logistics Service Quality recorded an AVE value of 0.519, Marine Cargo Insurance 0.598, Trust 0.571, and Customer Satisfaction 0.671. These results indicate that each construct explained more than 50% of the variance of its respective indicators. Therefore, all constructs satisfied the convergent validity criterion recommended by Hair et al. (2021).

4.2.2 Discriminant Validity

Discriminant validity was assessed using the Heterotrait-Monotrait Ratio (HTMT). According to Hair et al. (2021), HTMT values below 0.90 indicate adequate discriminant validity among constructs.

Table 8. Heterotrait-Monotrait Ratio (HTMT)

Construct	CS	LSQ	MCI	Trust
Customer Satisfaction (CS)	—			
Logistics Service Quality (LSQ)	0.988	—		
Marine Cargo Insurance (MCI)	0.661	0.648	—	
Trust	1.036	1.023	0.608	—

Table 8 shows that the HTMT values involving Marine Cargo Insurance ranged from 0.608 to 0.661, indicating satisfactory discriminant validity. However, the HTMT values between Logistics Service Quality and Trust (1.023), Logistics Service Quality and Customer Satisfaction (0.988), and Trust and Customer Satisfaction (1.036) exceeded the recommended threshold of 0.90 (Hair et al., 2021), suggesting potential discriminant validity concerns among these constructs.

The relatively high HTMT values reflect the strong conceptual and empirical relationships among Logistics Service Quality, Trust, and Customer Satisfaction within logistics service contexts. Previous studies have suggested that service quality contributes to trust development, while trust subsequently influences

customer satisfaction, resulting in strong associations among these constructs (Gefen, 2002; Morgan & Hunt, 1994).

Therefore, although the constructs were retained based on their distinct theoretical foundations and satisfactory convergent validity, cross-loading results, and construct reliability, the relationships among Logistics Service Quality, Trust, and Customer Satisfaction should be interpreted with caution due to the high degree of association observed among these constructs.

4.2.3 Construct Reliability

Construct reliability was assessed using Cronbach's Alpha and Composite Reliability (CR). According to Hair et al. (2021), a construct is considered reliable when both Cronbach's Alpha and Composite Reliability values exceed the recommended threshold of 0.70.

Table 9. Construct Reliability Assessment

Construct	Cronbach's Alpha	Composite Reliability	Assessment
Logistics Service Quality (LSQ)	0.844	0.882	Reliable
Marine Cargo Insurance (MCI)	0.833	0.881	Reliable
Trust	0.849	0.889	Reliable
Customer Satisfaction (CS)	0.836	0.891	Reliable

As presented in Table 9, all constructs achieved Cronbach's Alpha and Composite Reliability values above the recommended threshold of 0.70. Cronbach's Alpha values ranged from 0.833 to 0.849, while Composite Reliability values ranged from 0.881 to 0.891.

These results indicate that Logistics Service Quality, Marine Cargo Insurance, Trust, and Customer Satisfaction demonstrated satisfactory internal consistency and construct reliability. Therefore, all constructs were considered reliable and suitable for further analysis in the structural model Hair et al. (2021).

4.3 Structural Model Assessment (Inner Model)

The structural model assessment was conducted to examine the relationships among the constructs included in the proposed research model and to evaluate the model's explanatory power. According to Hair et al. (2021), the assessment of the structural model involves evaluating the coefficient of determination (R^2), path coefficients, and the significance of direct and indirect effects.

The coefficient of determination (R^2) was used to assess the proportion of variance explained by the predictor variables in each endogenous construct. Furthermore, path coefficient analysis and bootstrapping procedures were employed to test the proposed hypotheses and determine the significance of the direct effects among Logistics Service Quality, Marine Cargo Insurance, Trust, and Customer Satisfaction, as well as the indirect effects involving Trust as a mediating variable. The results of the coefficient of determination, hypothesis testing, and mediation analysis are presented in the following sections.

4.3.1 Coefficient of Determination (R^2)

The coefficient of determination (R^2) was used to assess the explanatory power of the research model. Higher R^2 values indicate a greater ability of the predictor variables to explain the variance of the endogenous constructs (Hair et al., 2021).

Table 10. Coefficient of Determination (R^2)

Endogenous Construct	R^2	Interpretation
Trust	0.767	Substantial
Customer Satisfaction	0.765	Substantial

As presented in Table 10, the R^2 value for Trust was 0.767, indicating that Logistics Service Quality (LSQ) and Marine Cargo Insurance (MCI) jointly explained 76.7% of the variance in Trust. The remaining 23.3% was explained by factors not included in the research model.

Furthermore, the R^2 value for Customer Satisfaction was 0.765, indicating that the predictor variables included in the model explained 76.5% of the variance in Customer Satisfaction through Trust as the mediating construct. The remaining 23.5% was attributable to factors outside the scope of this study.

According to Hair et al. (2021), R^2 values of 0.75, 0.50, and 0.25 can be interpreted as substantial, moderate, and weak, respectively. Therefore, the R^2 values obtained for both Trust and Customer Satisfaction indicate that the proposed research model possesses substantial explanatory power.

4.3.2 Path Coefficient Analysis

Path coefficient analysis was conducted to examine the direction and strength of the relationships among the constructs in the research model. The significance of the relationships was assessed using the bootstrapping procedure with 5,000 resamples. Following Hair et al. (2021), a relationship was considered statistically significant when the p-value was below 0.05, corresponding to a t-statistic greater than 1.96.

The results of the path coefficient analysis are presented in Table 11.

Table 11. Path Coefficient Results

Hypothesis	Relationship	β	t-statistic	p-value	Decision
H1	LSQ $\rightarrow$ Trust	0.840	18.136	< 0.001	Supported
H2	MCI $\rightarrow$ Trust	0.063	0.966	0.334	Not Supported
H3	Trust $\rightarrow$ Customer Satisfaction	0.875	37.082	< 0.001	Supported

Based on the path coefficient analysis, Logistics Service Quality was found to have a positive and significant effect on Trust ($\beta = 0.840$; $t = 18.136$; $p < 0.001$). Therefore, H1 was supported. This finding indicates that customers tend to develop stronger trust when logistics service providers consistently deliver reliable and satisfactory service performance. This finding supports relationship marketing theory, which suggests that customers are more likely to trust service providers that consistently demonstrate competence, reliability, and service performance (Morgan & Hunt, 1994).

In contrast, Marine Cargo Insurance did not have a significant effect on Trust ($\beta = 0.063$; $t = 0.966$; $p = 0.334$). Therefore, H2 was not supported. This result suggests that Marine Cargo Insurance did not significantly influence customers' trust in the context of this study. Customers may place greater emphasis on logistics service quality than on insurance protection when evaluating logistics service providers.

The results further reveal that Trust had a positive and significant effect on Customer Satisfaction ($\beta = 0.875$; $t = 37.082$; $p < 0.001$). Therefore, H3 was supported. This finding indicates that higher levels of customer trust lead to higher levels of customer satisfaction within logistics service relationships, consistent with previous studies emphasizing the importance of trust in shaping customer evaluations and satisfaction outcomes (Gefen, 2002; Widyantara et al., 2026).

Overall, the results indicate that Logistics Service Quality plays a substantially greater role than Marine Cargo Insurance in shaping customer trust. In addition, Trust emerged as a strong predictor of Customer Satisfaction, highlighting its importance as a central mechanism in logistics service relationships. These findings provide initial support for examining the mediating role of Trust in the relationships between Logistics Service Quality, Marine Cargo Insurance, and Customer Satisfaction.

4.3.3 Mediation Analysis

Mediation analysis was conducted to examine whether Trust mediated the relationships between Logistics Service Quality and Customer Satisfaction, as well as between Marine Cargo Insurance and Customer Satisfaction. The significance of the indirect effects was assessed using the bootstrapping procedure with 5,000 resamples. Following Hair et al. (2021), an indirect effect was considered significant when the p-value was below 0.05.

Table 12. Indirect Effect Results

Hypothesis	Indirect Relationship	β	t-statistic	p-value	Decision
H4	LSQ $\rightarrow$ Trust $\rightarrow$ Customer Satisfaction	0.735	14.580	< 0.001	Supported

H5	MCI → Trust → Customer Satisfaction	0.055	0.964	0.335	Not Supported
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The mediation analysis revealed that the indirect effect of Logistics Service Quality on Customer Satisfaction through Trust was positive and statistically significant ($\beta = 0.735$; $t = 14.580$; $p < 0.001$). Therefore, H4 was supported. This finding indicates that Trust serves as a key mediating mechanism through which Logistics Service Quality influences Customer Satisfaction. In other words, improvements in logistics service quality enhance customer trust, which subsequently contributes to higher levels of customer satisfaction.

In contrast, the indirect effect of Marine Cargo Insurance on Customer Satisfaction through Trust was not significant ($\beta = 0.055$; $t = 0.964$; $p = 0.335$). Therefore, H5 was not supported. This result suggests that Trust does not mediate the relationship between Marine Cargo Insurance and Customer Satisfaction. The finding is consistent with the non-significant effect of Marine Cargo Insurance on Trust, indicating that insurance protection was not a major factor shaping customers' trust perceptions in the context of this study.

Overall, the mediation analysis demonstrates that Trust plays a significant role in transmitting the effect of Logistics Service Quality on Customer Satisfaction. However, Trust did not mediate the relationship between Marine Cargo Insurance and Customer Satisfaction. These findings highlight the importance of service quality in fostering customer trust and satisfaction, while suggesting that insurance protection may not be a primary driver of customer evaluations through trust in the context of this study.

4.4 Discussion

The findings of this study provide important insights into the relationships among Logistics Service Quality (LSQ), Marine Cargo Insurance (MCI), Trust, and Customer Satisfaction within the logistics service context. Overall, the results highlight the importance of Logistics Service Quality and Trust in shaping customer satisfaction, while Marine Cargo Insurance was not found to significantly influence Trust or Customer Satisfaction through Trust.

These findings support the central role of Trust within the relationship marketing framework proposed by Morgan & Hunt (1994), which emphasizes trust as a key mechanism through which organizations establish and maintain long-term relationships with customers. The findings are also consistent with trust literature emphasizing competence, reliability, and integrity as important antecedents of customer trust (Gefen, 2002; Mayer et al., 1995). Furthermore, the results suggest that, within the context of this study, customers place greater emphasis on actual service performance than on risk protection mechanisms when evaluating logistics service providers. This finding is consistent with previous logistics studies that highlight the importance of logistics service quality in enhancing customer satisfaction and other customer-related outcomes (Minh et al., 2024; Pertiwi & Sofia, 2025; Pramudita & Guslan, 2025).

The following sections discuss each hypothesis in greater detail by relating the findings to relevant theories and prior empirical studies.

4.4.1 The Effect of Logistics Service Quality on Trust

The results indicate that Logistics Service Quality has a positive and significant effect on Trust ($\beta = 0.840$; $p < 0.001$). This finding suggests that higher levels of perceived logistics service quality lead to greater customer trust in logistics service providers. The magnitude of the path coefficient further indicates that Logistics Service Quality is the most influential factor in shaping Trust within the logistics service context.

From a theoretical perspective, this finding is consistent with the SERVQUAL framework proposed by Parasuraman et al. (1988), which emphasizes that service quality is reflected through dimensions such as reliability, responsiveness, assurance, empathy, and tangibles. In logistics services, these dimensions are manifested through timely deliveries, accurate information, responsive customer support, and consistent service performance. When customers receive reliable and satisfactory services, they are more likely to perceive the service provider as capable of fulfilling its obligations effectively. Such positive perceptions contribute to the development of trust because customers become more confident in the provider's competence, reliability, and ability to consistently meet service expectations.

The finding also supports the Commitment-Trust Theory developed by Morgan & Hunt (1994), which identifies trust as a fundamental element in establishing and maintaining long-term relationships between companies and customers. According to this theory, trust develops when customers believe that a service provider is dependable and capable of consistently fulfilling its commitments. In the logistics industry,

service quality serves as tangible evidence of a provider's operational capability and commitment to customer needs. Therefore, trust is not formed independently but develops through customers' evaluations of their actual service experiences and perceptions of provider performance.

Furthermore, the results are consistent with previous studies that emphasize the importance of logistics service quality in shaping favorable customer outcomes, including trust and customer satisfaction. Minh et al. (2024) reported that superior logistics service quality contributes positively to customer evaluations and retention, while Pramudita & Guslan (2025) found that logistics service quality significantly enhances customer satisfaction. Similarly, Widyantara et al. (2026) demonstrated that service quality and trust play important roles in influencing customer satisfaction within logistics service settings. Therefore, the present study reinforces existing empirical evidence that logistics service quality represents a key determinant of positive customer perceptions and relationship outcomes in the logistics sector.

The substantial magnitude of the relationship between Logistics Service Quality and Trust indicates that customers primarily develop trust based on their actual service experiences rather than on supplementary service features. This finding suggests that customers evaluate logistics providers largely through observable service performance, including reliability, responsiveness, and consistency in service delivery. As a result, service quality emerges as a critical foundation for trust development within logistics service relationships.

From a managerial perspective, the findings suggest that logistics companies should prioritize improvements in service reliability, responsiveness, shipment security, and information accuracy. Investments in these areas are likely to strengthen customer trust by enhancing perceptions of provider competence and dependability. Over time, increased trust may contribute to higher customer satisfaction, stronger customer loyalty, and more sustainable long-term relationships.

4.4.2 The Effect of Marine Cargo Insurance on Trust

The results indicate that Marine Cargo Insurance does not have a significant effect on Trust ($\beta = 0.063$; $p = 0.334$). Therefore, the hypothesis proposing a positive relationship between Marine Cargo Insurance and Trust was not supported. This finding suggests that the presence of Marine Cargo Insurance is not a primary factor influencing customers' trust in logistics service providers within the context of this study.

From a theoretical perspective, Marine Cargo Insurance functions as a risk mitigation mechanism that provides protection against potential losses, damages, or delays during the transportation process (Mokhtari & Ren, 2014). Within the perceived risk framework, insurance is expected to reduce uncertainty and enhance customers' sense of security when using logistics services (Featherman & Pavlou, 2003). However, the present findings indicate that these perceived benefits are not directly translated into trust toward logistics service providers.

One possible explanation is that customers place greater emphasis on service experiences that can be directly observed and evaluated. Factors such as delivery timeliness, shipment security, tracking accuracy, and service responsiveness are experienced throughout the logistics process and therefore play a more prominent role in shaping customer perceptions. In contrast, the benefits of Marine Cargo Insurance are typically realized only when a loss event or shipping incident occurs. As a result, insurance may be viewed as a supplementary protection mechanism rather than a determinant of trust.

The respondent profile provides additional support for this explanation. Most respondents used logistics services primarily for personal purposes (77%) and reported relatively low shipping frequencies, with 84% using logistics services between one and five times per month. These characteristics may suggest that the majority of respondents were not exposed to shipping risks at a level that would make insurance a central consideration when evaluating logistics service providers. Consequently, customers were more likely to focus on core service performance than on additional risk protection features.

Taken together, the findings of H1 and H2 suggest that customers place considerably greater emphasis on observable service performance than on insurance-based protection mechanisms when forming trust evaluations. This pattern helps explain why Logistics Service Quality emerged as a strong predictor of Trust, whereas Marine Cargo Insurance did not demonstrate a significant effect.

Although this finding differs from the perspective advanced by Pius & Sekar (2025), who emphasized the importance of insurance protection in enhancing customer confidence, it provides an important contribution to the logistics and insurance literature by highlighting the limited role of insurance protection in shaping trust among individual logistics service users. The results suggest that, among individual logistics service users, Marine Cargo Insurance does not automatically translate into higher levels of trust. Instead,

trust appears to be shaped primarily by customers' direct experiences with service performance rather than by supplementary risk management mechanisms.

From a managerial perspective, the findings imply that logistics companies should not rely solely on insurance offerings to build customer trust. While Marine Cargo Insurance remains important as a risk management tool, greater attention should be directed toward improving service reliability, responsiveness, transparency, and operational performance, as these factors are more influential in shaping customer trust.

4.4.3 The Effect of Trust on Customer Satisfaction

The results indicate that Trust has a positive and significant effect on Customer Satisfaction ($\beta = 0.875$; $p < 0.001$). Therefore, the hypothesis proposing a positive relationship between Trust and Customer Satisfaction was supported. The substantial path coefficient suggests that Trust is one of the most influential determinants of customer satisfaction within the logistics service context.

From a theoretical perspective, this finding is consistent with the Commitment-Trust Theory proposed by Morgan & Hunt (1994), which identifies trust as a fundamental element in establishing and maintaining long-term relationships between companies and customers. When customers believe that a service provider possesses the competence, integrity, and reliability necessary to fulfill its service promises, they are more likely to evaluate their service experiences positively.

The finding is also supported by the trust model developed by Mayer et al. (1995), which conceptualizes trust through perceptions of ability, integrity, and benevolence. In the logistics context, customers who believe that service providers can deliver shipments safely, on time, and responsibly are more likely to experience higher levels of satisfaction than customers with lower levels of trust.

The substantial magnitude of the relationship suggests that customer satisfaction in logistics services is strongly dependent on customers' confidence in the provider's ability to deliver services reliably and fulfill its commitments.

Furthermore, the results are consistent with previous studies conducted by Gefen (2002), Salim et al. (2023), Supli et al. (2025), and Widyantara et al. (2026), which emphasize the importance of trust in shaping favorable customer evaluations, perceived value, and satisfaction-related outcomes. Trust reduces perceived risk and uncertainty in service transactions, thereby increasing customers' confidence in their service usage decisions. Trust reduces perceived risk and uncertainty in service transactions, thereby increasing customers' confidence in their service usage decisions.

The logistics service environment inherently involves uncertainty because customers are unable to directly monitor the transportation and distribution processes. Consequently, trust functions as an important psychological mechanism that helps customers reduce concerns regarding potential delays, damages, or losses during shipment. As trust increases, customers are more likely to develop favorable perceptions of their overall service experience.

Therefore, the findings reinforce existing empirical evidence that Trust is a key determinant of Customer Satisfaction in logistics services. From a managerial perspective, logistics companies seeking to improve customer satisfaction should focus not only on operational performance but also on developing and maintaining customer trust through consistent service delivery, transparent communication, and reliable service execution.

4.4.4 The Mediating Role of Trust

The results indicate that Trust serves as a significant mediator in the relationship between Logistics Service Quality and Customer Satisfaction. In contrast, Trust was not found to mediate the relationship between Marine Cargo Insurance and Customer Satisfaction. These findings suggest that the mediating role of Trust depends on the ability of the antecedent variable to effectively foster customer trust.

Regarding the relationship between Logistics Service Quality and Customer Satisfaction, the indirect effect through Trust was found to be positive and significant ($\beta = 0.735$; $p < 0.001$). This finding indicates that high-quality logistics services enhance customer satisfaction by strengthening customer trust in logistics service providers. In other words, customers do not merely evaluate service quality directly; they also develop trust based on their service experiences, which subsequently contributes to higher levels of satisfaction.

This finding supports the Commitment-Trust Theory proposed by Morgan & Hunt (1994), which identifies trust as a central mechanism in establishing and maintaining long-term customer relationships. Within the logistics context, service quality reflected through delivery reliability, shipment security, responsiveness, and information accuracy strengthens customer trust, which in turn becomes an important basis for customer satisfaction.

The results are also broadly consistent with previous studies by Minh et al. (2024), Firdaus et al. (2023), Pertiwi & Sofia (2025), and Widyantara et al. (2026), which emphasize the importance of service quality, trust, and customer satisfaction in shaping positive customer outcomes. Therefore, Trust can be viewed as an important psychological mechanism linking Logistics Service Quality to Customer Satisfaction.

In contrast, Trust did not mediate the relationship between Marine Cargo Insurance and Customer Satisfaction ($\beta = 0.055$; $p = 0.335$). This result indicates that Marine Cargo Insurance was unable to significantly strengthen customer trust and therefore did not generate a significant indirect effect on customer satisfaction. The finding is consistent with the direct-effect analysis, which showed that Marine Cargo Insurance did not significantly influence Trust.

These findings suggest that customers place greater emphasis on core service performance than on supplementary risk protection mechanisms when evaluating logistics services. For most customers, the benefits of Marine Cargo Insurance are not directly experienced during routine service interactions, limiting its contribution to the development of both trust and satisfaction. Consequently, the study provides empirical evidence that Trust is an effective mediator between Logistics Service Quality and Customer Satisfaction, but not between Marine Cargo Insurance and Customer Satisfaction. These findings further highlight the central role of Trust in transforming positive service experiences into customer satisfaction within logistics service relationships.

4.5 Theoretical Implications

The findings of this study provide several theoretical implications for the development of relationship marketing, service quality, customer behavior, and logistics service literature.

First, the study reinforces the SERVQUAL framework proposed by Parasuraman et al. (1988) and the Commitment-Trust Theory developed by Morgan & Hunt (1994). The significant positive effect of Logistics Service Quality on Trust demonstrates that service quality remains a fundamental antecedent of customer trust in logistics services. This finding confirms that customers develop trust when service providers consistently deliver reliable, responsive, secure, and accurate services. Second, the study strengthens the theoretical role of Trust as a key determinant of Customer Satisfaction. The results suggest that trust functions not only as an outcome of positive service experiences but also as an important psychological mechanism through which customers evaluate service performance. The strong relationship between Trust and Customer Satisfaction highlights the central position of trust in explaining customer evaluations within logistics service settings. Third, the study contributes to the literature on risk management and logistics services by providing empirical evidence regarding the role of Marine Cargo Insurance. Contrary to the assumption that risk protection mechanisms automatically enhance customer trust, the findings indicate that Marine Cargo Insurance does not significantly influence Trust. This result suggests that the existence of risk protection alone may not be sufficient to shape customer trust unless customers perceive direct value and relevance from the protection mechanism. Fourth, the findings extend existing knowledge regarding the mediating role of Trust. The results demonstrate that Trust successfully mediates the relationship between Logistics Service Quality and Customer Satisfaction but fails to mediate the relationship between Marine Cargo Insurance and Customer Satisfaction. This finding suggests that the effectiveness of Trust as a mediating mechanism depends on the ability of antecedent variables to meaningfully influence customer trust.

Finally, the study contributes to the emerging literature on Marine Cargo Insurance from a customer behavior perspective. Previous studies have predominantly examined Marine Cargo Insurance from operational, underwriting, and risk management perspectives. In contrast, this study investigates Marine Cargo Insurance as a customer-perceived risk protection mechanism within the logistics service experience. The findings indicate that customers may place greater emphasis on actual service performance than on supplementary protection features when forming trust and evaluating satisfaction. This perspective provides a new understanding of how insurance-related features are perceived by customers within logistics service environments.

Overall, the findings suggest that, within the logistics service context, service quality plays a more dominant role than risk protection mechanisms in shaping Trust and indirectly influencing Customer Satisfaction.

4.6 Practical Implications

The findings of this study provide several practical implications for logistics service providers, the insurance industry, and Marine Cargo Insurance providers.

First, for logistics service providers, the results indicate that Logistics Service Quality is the primary factor influencing Trust and indirectly contributing to Customer Satisfaction. Therefore, companies should prioritize continuous improvements in service quality, particularly in terms of delivery reliability, shipment security, tracking accuracy, information accessibility, and customer service responsiveness. Enhancing these service dimensions not only improves customer satisfaction but also strengthens customer trust toward logistics service providers. Second, for the insurance industry, the findings suggest that the existence of risk protection mechanisms alone does not automatically generate customer trust. Insurance companies should therefore focus not only on providing protection products but also on ensuring that customers understand, appreciate, and trust the value offered by those products. Customer education, transparent communication, efficient claims handling, and positive customer experiences are essential elements in strengthening trust toward insurance products and services. Third, for Marine Cargo Insurance providers, the findings reveal that shipping insurance is not yet considered a primary factor in customers' trust formation toward logistics services. This suggests that Marine Cargo Insurance is still perceived more as an additional feature than as a core value proposition within the logistics service experience. Consequently, providers should strengthen customer awareness and understanding of the role of Marine Cargo Insurance in protecting against potential losses, damages, and delays during transportation.

In addition, Marine Cargo Insurance providers should develop more effective communication strategies to demonstrate the tangible value of insurance protection. Clear information regarding coverage scope, claim procedures, claim settlement processes, and real-life examples of successful claims may help improve customers' perceptions of insurance value. By increasing customer understanding and perceived relevance, Marine Cargo Insurance may become a more influential factor in shaping customer trust and long-term customer relationships.

Overall, the findings suggest that logistics customers place greater emphasis on directly experienced service performance than on supplementary risk protection mechanisms when evaluating logistics services. Therefore, logistics companies and insurance providers should develop stronger synergies between operational service excellence and risk protection communication in order to create superior customer experiences, strengthen trust, and enhance customer satisfaction in a sustainable manner.

4.7 Research Limitations

This study has several limitations that should be considered when interpreting the findings.

First, the study involved 100 respondents who were users of logistics services in Indonesia. Although the sample size met the requirements for PLS-SEM analysis, the sample coverage remains relatively limited in representing the broader population of logistics service users in Indonesia. Therefore, the findings may not fully represent the perceptions of logistics service users with more diverse demographic and behavioral characteristics.

Second, the majority of respondents used logistics services primarily for personal purposes (77%) and reported relatively low shipping frequencies. This condition may have influenced respondents' perceptions of Marine Cargo Insurance, as most respondents were unlikely to face transportation risks at a level that would make insurance a major consideration when evaluating logistics service providers.

Third, the study examined only four main constructs, namely Logistics Service Quality, Marine Cargo Insurance, Trust, and Customer Satisfaction. Other variables that may influence trust and customer satisfaction in logistics services, such as perceived value, customer loyalty, price fairness, customer experience, and perceived risk, were not included in the research model.

Fourth, the study employed a cross-sectional design, meaning that the data reflect respondents' perceptions at a single point in time. Consequently, the study is unable to capture potential changes in customer perceptions resulting from long-term service experiences or insurance-related experiences.

Fifth, this study investigated Marine Cargo Insurance from the perspective of customer perception rather than actual insurance utilization or claims experience. As a result, the findings primarily reflect customers' awareness and perceptions of insurance protection rather than their direct experiences with insurance services. Future studies involving respondents with actual claim experience may provide a deeper understanding of the role of Marine Cargo Insurance in shaping customer trust and satisfaction.

Finally, the discriminant validity assessment indicated relatively high HTMT values among Logistics Service Quality, Trust, and Customer Satisfaction, reflecting the strong theoretical and empirical associations among these constructs. Although the constructs were retained based on their distinct theoretical foundations

and satisfactory reliability and convergent validity, future studies may further refine construct operationalization to improve discriminant validity.

4.8 Future Research Directions

Based on the findings and limitations of this study, several recommendations can be proposed for future research.

First, future studies are encouraged to employ larger sample sizes and broader geographical coverage to improve the generalizability of the findings. Researchers may also consider involving various logistics customer segments, including corporate customers, exporters, importers, freight forwarders, and business-to-business (B2B) logistics users, to obtain a more comprehensive understanding of customer behavior within the logistics industry.

Second, future research may extend the proposed model by incorporating additional variables that potentially influence Trust and Customer Satisfaction, such as perceived value, perceived risk, customer experience, insurance literacy, price fairness, and customer loyalty. The inclusion of these variables may provide a deeper understanding of customer decision-making processes in logistics and insurance-related services.

Third, future studies should further investigate the factors influencing the acceptance and utilization of Marine Cargo Insurance. Given that Marine Cargo Insurance did not significantly influence Trust in the present study, additional research is needed to examine variables such as insurance awareness, insurance literacy, perceived insurance value, transportation risk perception, claim experience, and the effectiveness of insurance communication strategies. These factors may help explain how customers evaluate insurance protection and under what conditions insurance contributes to trust formation. Future studies may also examine moderating variables that could strengthen the relationship between Marine Cargo Insurance and Trust, such as shipping value, transportation risk exposure, business dependency on logistics services, or previous claim experience.

Fourth, future research may focus on more specific logistics contexts, such as e-commerce logistics, freight forwarding, export-import activities, and international logistics services. Such contexts may involve higher transportation risks and greater insurance relevance, potentially leading to different customer perceptions regarding Marine Cargo Insurance.

Fifth, future studies are encouraged to adopt longitudinal research designs to examine changes in customer perceptions over time. Longitudinal approaches may provide a more comprehensive understanding of how Trust and Customer Satisfaction develop through accumulated service experiences and how the role of Marine Cargo Insurance evolves as customers gain greater exposure to transportation risks and insurance-related experiences.

Finally, future studies may specifically investigate customers who have previously experienced cargo loss, damage, or insurance claims. Such research would provide valuable insights into whether actual claim experiences alter customers' perceptions of insurance protection and influence the relationships among Marine Cargo Insurance, Trust, and Customer Satisfaction differently from customers who have never utilized insurance protection.

5. Conclusion

This study aimed to examine the effects of Logistics Service Quality (LSQ) and Marine Cargo Insurance (MCI) on Customer Satisfaction through Trust among logistics service users. Based on the results of the Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis, several conclusions can be drawn.

First, Logistics Service Quality was found to have a positive and significant effect on Trust, indicating that service quality is a primary factor in building customer trust toward logistics service providers. Customers who perceive logistics services as reliable, responsive, secure, and accurate are more likely to develop trust in the service provider. Second, Marine Cargo Insurance did not have a significant effect on Trust. This finding suggests that the availability of shipping insurance is not a primary consideration in customers' trust formation. Instead, customers tend to rely more on their direct service experiences than on supplementary protection mechanisms. Third, Trust was found to have a positive and significant effect on Customer Satisfaction, highlighting its critical role in shaping customers' evaluations of logistics services. Higher levels of trust lead to higher levels of customer satisfaction. Fourth, Trust significantly mediated the relationship between Logistics Service Quality and Customer Satisfaction. This result demonstrates that high-

quality logistics services enhance customer satisfaction indirectly through the development of customer trust. Fifth, Trust did not mediate the relationship between Marine Cargo Insurance and Customer Satisfaction. Since Marine Cargo Insurance did not significantly influence Trust, it was unable to generate a significant indirect effect on customer satisfaction.

Overall, the findings indicate that Logistics Service Quality plays a more dominant role than Marine Cargo Insurance in shaping Trust and indirectly influencing Customer Satisfaction. The study highlights Trust as the key mechanism linking service quality to customer satisfaction within logistics services. Furthermore, the findings suggest that customers place greater emphasis on actual service performance than on supplementary risk protection mechanisms when evaluating logistics service providers. This study therefore contributes to the relationship marketing and logistics service literature by demonstrating that the effectiveness of Trust as a mediating variable depends on the ability of antecedent factors to meaningfully influence customer trust.

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