

Analysis of Cargo Handling Service Quality on Customer Satisfaction in Logistics Companies Using the SERVQUAL Method

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Abstract— This study aims to analyze the quality of cargo handling services and their influence on customer satisfaction in a logistics company using the SERVQUAL method. A quantitative approach was employed to evaluate the gap between customer expectations and perceived service performance. Data were collected through questionnaires distributed to 145 customers selected from a population of 500 customers using the Slovin formula. The research instrument was developed based on the five SERVQUAL dimensions, namely tangibles, reliability, responsiveness, assurance, and empathy. The collected data were analyzed using SERVQUAL gap analysis and Importance–Performance Analysis (IPA). The results revealed that the overall SERVQUAL gap score was -0.58, indicating that the cargo handling services provided by the company had not fully met customer expectations. Among the five dimensions, reliability showed the largest negative gap (-0.09), followed by empathy (-0.07), assurance (-0.06), tangibles (-0.06), and responsiveness (-0.02). Furthermore, the IPA results identified cargo status information during the shipping process as the highest priority attribute for improvement. These findings suggest that the company should focus on enhancing service reliability, information transparency, and cargo monitoring systems to improve customer satisfaction and strengthen competitiveness in the logistics industry.

Keywords— Cargo Handling, Customer Satisfaction, Logistics Service Quality, SERVQUAL, Importance–Performance Analysis

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I. INTRODUCTION

The logistics industry plays a crucial role in supporting economic growth and facilitating the movement of goods within increasingly complex supply chains. As global trade continues to expand, logistics service providers are required not only to ensure operational efficiency but also to deliver high-quality services that meet customer expectations. Within logistics operations, cargo handling activities represent one of the most critical service processes because they directly influence cargo safety, timeliness, accuracy, and operational reliability. Therefore, the quality of cargo handling services has become an important factor affecting customer satisfaction and organizational competitiveness [1].

Customer satisfaction has become a key performance indicator for logistics companies. Satisfied customers are more likely to maintain long-term business relationships, demonstrate loyalty, and recommend logistics services to other potential customers. Conversely, poor service quality may result in dissatisfaction, reduced trust, and customer switching behavior. Previous studies have demonstrated that logistics service quality significantly influences customer satisfaction and customer retention. [3] found that high logistics service quality positively

affects customer satisfaction and customer retention, while [4] reported that logistics service quality acts as an important mechanism linking logistics capabilities with customer satisfaction.

Cargo handling is one of the core operational activities in logistics services because it directly affects cargo safety, service reliability, and customer satisfaction. These activities require high levels of reliability, responsiveness, assurance, empathy, and tangible service support. As customer expectations continue to increase, logistics companies must provide accurate information, secure cargo handling, timely delivery, and effective complaint management. Studies conducted in container ports have shown that service quality dimensions significantly affect customer satisfaction, particularly reliability and responsiveness, which are considered critical determinants of service performance [5], [6].

One of the most widely adopted methods for evaluating service quality is the SERVQUAL model. The SERVQUAL framework measures the gap between customer expectations and perceived service performance through five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Due to its comprehensive approach in identifying service quality gaps and improvement priorities, the SERVQUAL method has been widely applied in logistics, warehousing, transportation, and port service studies [7].

Recent developments in logistics operations indicate that service quality extends beyond operational efficiency. Customers increasingly expect transparency, cargo visibility, rapid response to complaints, and consistent service performance throughout the logistics process. Research conducted in South Korea demonstrated that improvements in port service quality

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significantly enhance customer satisfaction, customer loyalty, and referral intention [8]. Similarly, [2] emphasized that service quality and security excellence are important factors in strengthening port competitiveness and maintaining customer trust.

In Indonesia, customer satisfaction in logistics services is influenced by several operational factors, including service quality, delivery timeliness, complaint handling, logistics cost, and customs clearance processes.[9] found that service quality, delivery timeliness, and complaint handling significantly affect customer satisfaction in cargo delivery services. Likewise, [10] reported that logistics service quality has a significant positive influence on customer satisfaction and customer loyalty among logistics service users. Furthermore, [11] highlighted the importance of logistics service quality, logistics cost, and customs clearance efficiency in enhancing customer perceptions of logistics services.

Although previous studies have extensively investigated logistics service quality and customer satisfaction in logistics services, container ports, e-commerce logistics, and freight forwarding industries, research specifically focusing on cargo handling service quality remains limited. Most studies evaluate logistics services at a general level without specifically examining cargo handling activities as a core operational process. In addition, empirical evidence regarding cargo handling service quality in Indonesian logistics companies remains relatively scarce compared to studies conducted in Vietnam, Oman, and South Korea. Therefore, a research gap exists concerning the evaluation of cargo handling service quality and its impact on customer satisfaction within the Indonesian logistics industry.

Based on the identified research gap, this study aims to analyze the quality of cargo handling services and their influence on customer satisfaction in logistics companies using the SERVQUAL method. By identifying service quality gaps across the five SERVQUAL dimensions, this study is expected to provide practical recommendations for improving cargo handling services and enhancing customer satisfaction.

II. METHOD

This study employed a quantitative research approach to evaluate cargo handling service quality and customer satisfaction in a logistics company. The research focused on measuring the gap between customer expectations and perceived service performance using the SERVQUAL method. Additionally, Importance Performance Analysis (IPA) was applied to identify service attributes requiring priority improvement.

The population of this study consisted of 500 customers who had utilized cargo handling services provided by the logistics company. The sample size was determined using the Slovin formula with a 5% margin of error, resulting in 145 respondents. Respondents were selected from customers who had experience using the company's cargo handling services.

Data were collected through a structured questionnaire consisting of two assessment components: customer expectations and perceived service

performance. The questionnaire was developed based on the five SERVQUAL dimensions proposed by Parasuraman et al., namely tangibles, reliability, responsiveness, assurance, and empathy. Each indicator was measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The SERVQUAL method was employed to evaluate service quality by comparing customers' expectations with their perceptions of the actual service received. The service quality gap (Gap Score) was calculated using the following formula:

$$\text{Gap} = P - E$$

where:

- P = Perceived Service Performance
- E = Customer Expectations

A positive gap score indicates that service performance exceeds customer expectations, while a negative gap score indicates that service performance falls below customer expectations.

To determine service improvement priorities, Importance Performance Analysis (IPA) was conducted by mapping service attributes into four quadrants of the Cartesian diagram based on the mean values of customer expectations and perceptions. The four quadrants consist of: (1) Concentrate Here, (2) Keep Up the Good Work, (3) Low Priority, and (4) Possible Overkill. This analysis enables management to identify service attributes requiring immediate attention and improvement.

The results of the SERVQUAL and IPA analyses were subsequently used to evaluate the overall quality of cargo handling services and to formulate recommendations for improving customer satisfaction.

III. RESULTS AND DISCUSSION

1. Respondent Characteristics

A total of 145 valid responses were obtained from customers who had utilized cargo handling services. The majority of respondents were male (69.66%), while female respondents accounted for 29.66%. Based on age, most respondents were under 30 years old (88.28%), indicating that the customer base was dominated by younger users. Regarding educational background, the majority of respondents had completed senior high school education (42.76%), followed by diploma holders (31.72%) and bachelor's degree holders (23.45%).

2. SERVQUAL Analysis

The SERVQUAL analysis was conducted by comparing customer expectations and perceived service performance across five dimensions: reliability, responsiveness, assurance, tangibles, and empathy. The overall average expectation score was 3.68, while the average perceived performance score was 3.62. Consequently, the overall SERVQUAL gap was -0.58, indicating that the cargo handling services provided by the logistics company had not fully met customer expectations.

The largest negative gap was found in the attribute related to compensation for damaged or lost cargo during cargo handling and storage activities (-0.11), followed by the availability of cargo status information (-0.09) and individualized customer attention (-0.08). These findings

indicate that customers place high importance on cargo security, transparency of shipment information, and personalized service.

TABLE 1.
PRESENTS THE SERVQUAL GAP FOR EACH SERVICE ATTRIBUTE

Dimension	Service Attribute	Customer Satisfaction		Gap
		Expectation	Satisfaction	
Reliability	Compensation provided in the event of cargo damage during loading and unloading operations or cargo loss while stored in the warehouse	3,68	3,57	-0,11
	Cargo handling activities are conducted in accordance with established operational procedures	3,74	3,67	-0,07
Responsiveness	Courtesy and promptness in handling customer complaints and claims	3,64	3,62	-0,02
	Speed and readiness in responding to customer requests	3,68	3,65	-0,03
Assurance	Employees' friendliness, attentiveness, and professionalism in serving customers	3,71	3,66	-0,05
	Customer satisfaction with complaint handling when cargo is damaged or delayed during shipment	3,69	3,63	-0,06
Tangibles	Ease of obtaining cargo status information during shipping, transit, loading and unloading operations, and final delivery	3,70	3,61	-0,09
	Cleanliness, organization, and security of warehouse facilities	3,68	3,63	-0,04
Empathy	Individual attention provided by employees through careful listening to customer complaints and suggestions to better understand customer expectations	3,65	3,57	-0,08
	Ease of processing cargo-related documentation	3,65	3,61	-0,03
Total		36,81	36,23	-0,58

3. Gap Analysis by SERVQUAL Dimension

The average SERVQUAL gap for each dimension is presented in Tabel 2.

TABLE 2.
GAP ANALYSIS BY SERVQUAL DIMENSION

Dimension	Gap Score
Reliability	-0,09
Empathy	-0,07
Assurance	-0,06
Tangibles	-0,06
Responsiveness	-0,02

The reliability dimension exhibited the largest negative gap (-0.09), indicating that customers perceived deficiencies in service consistency, cargo security, and the company's ability to fulfill service commitments. Meanwhile, responsiveness showed the smallest gap (-0.02), suggesting that customers were relatively satisfied with the speed of response and complaint handling provided by the company.

These findings are consistent with the study by[5], which reported that reliability is one of the most influential dimensions affecting customer satisfaction in port service operations. Similarly, [6] found that logistics service quality dimensions, particularly reliability, significantly influence customer satisfaction in logistics

services.

Furthermore, the results support the findings of [7], who emphasized that SERVQUAL is effective in identifying service gaps and determining improvement priorities within logistics organizations.

4. Importance-Performance Analysis (IPA)

The Importance-Performance Analysis was conducted to identify service attributes requiring immediate managerial attention. Based on the Cartesian diagram, service attributes were classified into four quadrants.

Quadrant A (Concentrate Here)

This quadrant contains attributes with high importance but relatively lower performance.

- Information regarding cargo status during shipping, transit, loading/unloading, and delivery (Attribute 7)
- This attribute should become the company's primary improvement priority because customers consider shipment information highly important, yet current performance remains below expectations.

Quadrant B (Keep Up the Good Work)

- Cargo handling follows operational procedures (Attribute 2)
- Employee friendliness and attention (Attribute 5)
- Complaint resolution for damaged or delayed cargo (Attribute 6)

These attributes have high importance and high performance, indicating that the company should maintain its current service standards.

Quadrant C (Low Priority)

- Compensation for damaged or lost cargo (Attribute 1)
- Complaint handling responsiveness (Attribute 3)
- Individual attention to customers (Attribute 9)

- Ease of document processing (Attribute 10)

These attributes are perceived as relatively less important by customers and demonstrate moderate performance levels.

Quadrant D (Possible Overkill)

- Response readiness to customer requests (Attribute 4)
- Warehouse cleanliness, tidiness, and security (Attribute 8)

These attributes exhibit high performance but relatively lower perceived importance, suggesting that resources allocated to these areas may exceed customer expectations.

Based on the results of the Importance–Performance Analysis (IPA), all service attributes were mapped into a Cartesian diagram according to their importance and performance levels as perceived by customers. The average importance score of 3.68 and the average performance score of 3.62 were used as the intersection points of the vertical and horizontal axes in the Cartesian diagram.

As illustrated in Figure 1, the service attributes are distributed across four quadrants, each representing different managerial priorities and service improvement strategies.

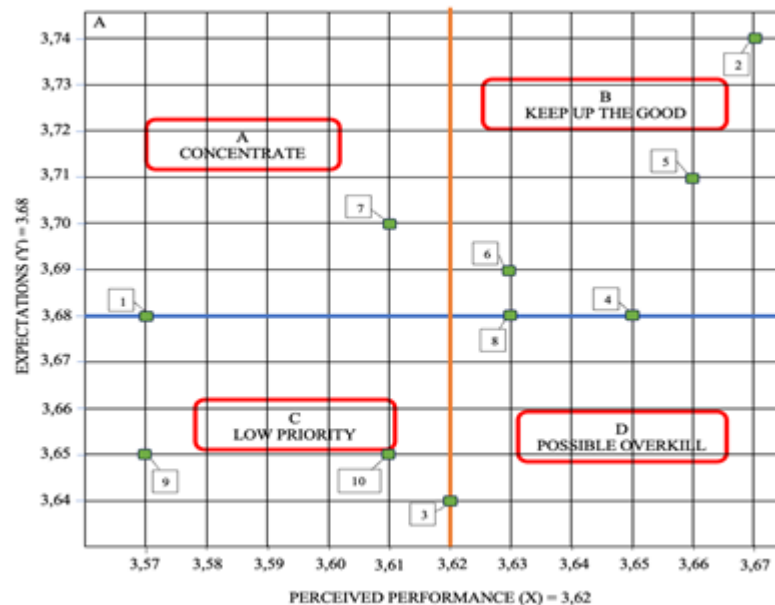


Figure 1. Diagram Kartesius Importance Performance Analysis (IPA)

Quadrant A (Concentrate Here) contains the attribute related to the ease of obtaining cargo status information during shipping, transit, loading and unloading operations, and final delivery. This attribute is considered highly important by customers; however, its performance level remains below customer expectations. Therefore, it should be prioritized for immediate improvement to enhance customer satisfaction.

Quadrant B (Keep Up the Good Work) includes attributes such as compliance with cargo handling procedures, employee friendliness and attentiveness, and the effectiveness of handling complaints related to damaged or delayed cargo. These attributes demonstrate both high importance and high performance, indicating that the company has successfully met customer expectations in these areas and should maintain its current service standards.

Quadrant C (Low Priority) consists of attributes related to compensation for damaged or lost cargo, responsiveness in claim settlement, individualized customer attention, and the ease of cargo documentation processing. These attributes are perceived as less important by customers and exhibit relatively moderate performance levels. Consequently, they are not considered immediate priorities for service improvement compared to the attributes located in Quadrant A.

Quadrant D (Possible Overkill) includes attributes concerning responsiveness to customer requests as well

as warehouse cleanliness, organization, and security. These attributes exhibit relatively high performance despite being perceived as less important by customers. This finding suggests that the company may be allocating resources beyond customer expectations in these areas, and therefore additional improvement efforts may not be necessary at this stage.

Overall, the IPA results indicate that the company should focus its improvement efforts on enhancing the accessibility, accuracy, and timeliness of cargo status information, as this attribute represents the most critical service aspect that has not yet met customer expectations. Improving information transparency throughout the cargo handling process is expected to reduce service quality gaps and increase overall customer satisfaction.

5. Discussion

The findings of the SERVQUAL and IPA analyses provide valuable insights into the service attributes that influence customer satisfaction. The following discussion compares the results of this study with previous research findings in the logistics and port service sectors.

The results indicate that the overall SERVQUAL gap score was -0.58, suggesting that the cargo handling services provided by the company have not fully met customer expectations. This finding is consistent with the

study conducted by [1], which reported that logistics service quality significantly affects customer satisfaction in port logistics services. Similarly, [3] found that improvements in logistics service quality contribute positively to customer satisfaction and customer retention. The negative gap identified in this study indicates that although customers generally perceive the service positively, there are still several service attributes that require improvement to meet customer expectations.

Furthermore, the reliability dimension exhibited the largest negative gap (-0.09), indicating that customers perceive deficiencies in service consistency, cargo security, and the company's ability to fulfill service commitments. This finding supports the results of [5], who identified reliability as one of the most influential dimensions affecting customer satisfaction in container port services. Likewise, [6] reported that reliability plays a significant role in shaping customer satisfaction in logistics operations. The result suggests that customers place considerable importance on dependable and accurate cargo handling processes, particularly regarding the safety and timely delivery of cargo.

At the attribute level, the largest negative gap was observed in compensation for damaged or lost cargo (-0.11). This finding indicates that customers expect stronger accountability and protection mechanisms when cargo damage or loss occurs during handling and storage activities. In logistics services, cargo security is one of the most critical factors affecting customer trust and satisfaction. Therefore, the company should establish clearer compensation procedures and strengthen cargo monitoring systems to minimize service failures and enhance customer confidence.

The IPA results revealed that the provision of cargo status information during shipping, transit, loading and unloading operations, and final delivery was positioned in Quadrant A (Concentrate Here). This indicates that customers consider shipment information highly important, yet current performance remains below expectations. In today's logistics environment, customers increasingly demand transparency, real-time tracking, and accurate information regarding cargo movement. Consequently, improving information accessibility and communication systems should become a strategic priority for the company.

From a managerial perspective, the findings suggest that service improvement efforts should focus primarily on reliability-related attributes and information transparency. Enhancing cargo tracking systems, strengthening compensation mechanisms, and improving communication with customers may help reduce service quality gaps and improve customer satisfaction. These improvements are expected to contribute not only to higher customer satisfaction but also to greater customer loyalty and long-term competitiveness in the logistics industry.

IV. CONCLUSION

This study aimed to analyze the quality of cargo handling services and their impact on customer satisfaction in a logistics company using the SERVQUAL method and Importance-Performance

Analysis (IPA). The results revealed that the overall service quality gap was negative (-0.58), indicating that the cargo handling services provided by the company have not yet fully met customer expectations. Among the five SERVQUAL dimensions, reliability exhibited the largest negative gap (-0.09), suggesting that customers perceive shortcomings in service consistency, cargo security, and the fulfillment of service commitments.

The analysis also identified several service attributes requiring improvement. The largest negative gap was found in the compensation mechanism for damaged or lost cargo (-0.11), indicating the need for stronger accountability and cargo protection measures. Furthermore, the IPA results showed that the provision of cargo status information during the shipping process was located in Quadrant A (Concentrate Here), highlighting it as the highest priority for service improvement. Customers consider shipment information highly important; however, the current level of service performance remains below expectations.

Based on these findings, the company should prioritize improvements in reliability-related service attributes, particularly cargo tracking and information transparency systems, as well as compensation procedures for damaged or lost cargo. Enhancing these aspects is expected to reduce service quality gaps, improve customer satisfaction, and strengthen the company's competitiveness in the logistics industry.

This study was limited to customers of a single logistics company and focused on the SERVQUAL dimensions of service quality. Future studies may involve a larger sample size, include multiple logistics companies, and incorporate additional variables such as customer loyalty, customer trust, and service innovation to provide a more comprehensive understanding of customer satisfaction in cargo handling services.

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