

Improving Sea Transportation Quality Service : A Case Study Of Passenger Ship SABUK NUSANTARA 68, Padang- Mentawai Route

Abstract. *Sea transportation is a component of the transportation system. The Passenger Ships SABUK NUSANTARA 68 serves as a maritime transport vehicle under the ownership of the Indonesian National Shipping Limited Liability Company (PT) (PELNI). Functioning as a passenger ship, it operates between Padang City and Mentawai Island. Despite this, complaints regarding the quality of sea transportation services have been voiced by passengers. Consequently, this research was conducted to investigate the quality levels and satisfaction of ship service users, particularly those utilizing the Passenger Ship SABUK NUSANTARA 68 route between Padang and Mentawai. The study aimed to identify priority factors for enhancing service performance and passenger satisfaction. Employing a quantitative approach, researchers utilized questionnaires as research instruments. Data analysis involved the application of the Likert scale using the Important and Performance Analysis (IPA) methodology. The study's outcomes were evaluated across various dimensions, including: 1. Safety; 2. Security and Convenience; 3. Affordability; and 4. Equality. Findings from the data analysis indicated that service quality was satisfactory, with passenger satisfaction levels reaching 89.12%. This suggests that passengers are content with the services rendered; however, further improvements are necessary. Notably, cleanliness onboard the ship emerged as a critical aspect requiring immediate enhancement.*

Keywords: improving, sea, transportation, service quality

INTRODUCTION

Maritime transportation plays a pivotal role within the comprehensive transportation network, serving to connect distinct regions and facilitate the conveyance of commodities and individuals. The vessel SABUK NUSANTARA 68, under the ownership of the Indonesian National Shipping Limited Liability Company (PT. PELNI), assumes a significant function in maritime transportation by establishing a link between Padang City and Mentawai Island. Ships function as maritime transportation modes, allowing for inter-island travel for diverse purposes. The Nusantara Sabuk Ship 68, a vessel within PT. PELNI's fleet, falls within the category of pioneering vessels or maritime highway vessels. Its primary operations are situated in the western expanse of Indonesia, particularly within the maritime domain of the Mentawai Islands in West Sumatra, positioned in the Indian Ocean. The route of PASSENGER SHIP SABUK NUSANTARA from Padang to Mentawai is outfitted with facilities adhering to international standards, fabricated from iron and engineered to endure waves measuring up to three meters in height. Furthermore, PASSENGER SHIP SABUK NUSANTARA 68 incorporates a variety of safety measures and insurance provisions to safeguard the passengers' well-being and ensure secure transportation of goods. PT. PELNI (Persero) plays a vital role in maritime transportation, serving the community in the Mentawai Islands through vessels like KM SABUK NUSANTARA 68. The company ensures safe and efficient transportation services for passengers and goods, contributing to the connectivity and accessibility of remote regions like the Mentawai Islands

Numerous prior studies have delved into the importance and operations of maritime transportation within the broader transportation network. These studies have

acknowledged the vital role of maritime transportation in linking diverse regions and enabling the transportation of commodities and individuals. Research findings have indicated that passenger satisfaction emerges as the most influential factor on customer loyalty [1]. Similarly, the vessel SABUK NUSANTARA 68, operated by the Indonesian National Shipping Limited Liability Company (PT. PELNI), assumes a pivotal function as a maritime transport conduit, notably linking Padang City and Mentawai Island.

However, in addition to this research, there is extensive research on the quality of high-speed ferry services between Mainland China and Taiwan. [2] This study utilized Quality Function Deployment (QFD) to prioritize quality enhancements based on passenger feedback. An empirical investigation was carried out to assess the service quality of undisclosed entities in Taiwan. By utilizing the House of Quality (HoQ) tool, significant technical measures such as "training of professional crew and staff in etiquette," "frequency of seminars and internal meetings for customer service," and "attainment of ISO certification and quality manual" were highlighted as crucial factors for enhancing the service quality of high-speed ferries. The implications of these findings are pertinent for industry practitioners, policymakers, and other stakeholders in the high-speed ferry sector. Furthermore, particular emphasis is placed on evaluating service quality and passenger satisfaction levels on the PASSENGER SHIP SABUK NUSANTARA 68 operating on the Padang-Mentawai route, an area that has not been extensively analyzed. Consequently, service loyalty is deemed a fundamental component in service marketing. By leveraging the existing knowledge base and tailoring it to the specific context of the Nusantara 68 ship serving the Padang-Mentawai routes.



Figure1. Passenger Ship SABUK NUSANTARA 68 (Survey, 2022)

However, the PASSENGER SHIP SABUK NUSANTARA 68 still has some limitations. One of these is its incapacity to endure waves exceeding three meters, which may lead to discomfort among passengers. Moreover, the duration of the Padang - Mentawai route is considerably lengthy. The investigation concerning the concept of Port Service Quality (PSQ) explores its influence on customer satisfaction within the port industry [3]. It has been identified that there exists a significant positive correlation between PSQ and customer satisfaction. This study also adds to theory development by introducing and validating the respective models of PSQ and customer satisfaction, particularly within the port domain. Considering that inter-island transit services should prioritize maximizing passenger contentment, it is imperative for

passenger vessels to adhere to predetermined service benchmarks. These benchmarks are delineated in the Regulation of the Minister of Transportation (PM) Number 62 of 2019 [4]. The PM outlines five indicators of passenger ship service, encompassing safety, security, comfort, affordability, and fairness. Consumer Loyalty, as indicated by Richard L. Oliver [5], encompasses four dimensions: 1) cognitive loyalty or loyalty based on brand trust; 2) affective loyalty or emotional attachment to the brand based on cumulative satisfaction; 3) conative loyalty, representing loyalty terms indicating a profound commitment to make a purchase; and 4) action loyalty, where intention translates into action. Customer satisfaction is a psychological response stemming from prior experiences with anticipated and accepted intermediate support [6]. In their research, they elaborate on five dimensions of service quality using the IPA and CSI analysis techniques [7]. According to [8], the outcomes of the IPA quadrant analysis highlight that service attributes demanding priority for performance enhancement are the cleanliness of the ship's bathroom/toilet, punctuality of arrival at the destination port, punctuality of travel duration, air circulation conditions on the ship, and the demonstration of safety equipment usage on the ship. Based on the aforementioned details, it can be deduced that service quality encompasses any activity undertaken by service providers to fulfill consumers' expectations regarding the services rendered [9]. Considering these factors, they provide a robust basis for researchers to explore enhancing service quality and passenger satisfaction, with a specific focus on the PASSENGER SHIP SABUK NUSANTARA 68 operating on the Padang - Mentawai route.

METHODOLOGY

This study was carried out on board Passenger Ship SABUK NUSANTARA 68 along the Padang-Mentawai Crossing route from April to August 2022. The research comprised several stages, namely sample selection, data collection, data processing, and data analysis [10].

The sample size for this study was determined according to the population of passengers aboard SABUK NUSANTARA 68 on the Padang-Mentawai route during June-July 2022, encompassing a total of 360 passengers over 8 voyages. Approximately 25% of the population was selected through the sampling procedure, leading to a final sample size of 90 individuals. Data was gathered via a written questionnaire employing the Likert scale to evaluate attitudes [11].

The survey comprises 18 inquiries concerning service attributes within the vessel. Secondary data were gathered from the population census and the respondent sample, which was drawn from the passenger numbers aboard the SABUK NUSANTARA 68 vessel. A comprehensive literature review [12] was performed by consulting academic journals, theses, dissertations, and pertinent documents pertaining to the research subject, encompassing online sources and preceding research outcomes.

The data processing included validity testing to guarantee the appropriateness of the research instrument. Content validity was employed to evaluate the instrument's adequacy in measuring the variables under study. Subsequently, data analysis was conducted using the Importance and Performance Analysis (IPA) technique to ascertain the satisfaction level and pinpoint areas necessitating enhancement [13]. The IPA analysis method functioned as a mechanism for juxtaposing service performance against the perceived level of importance by service users. The findings of the analysis are depicted in a Cartesian diagram that categorizes service components into four quadrants.

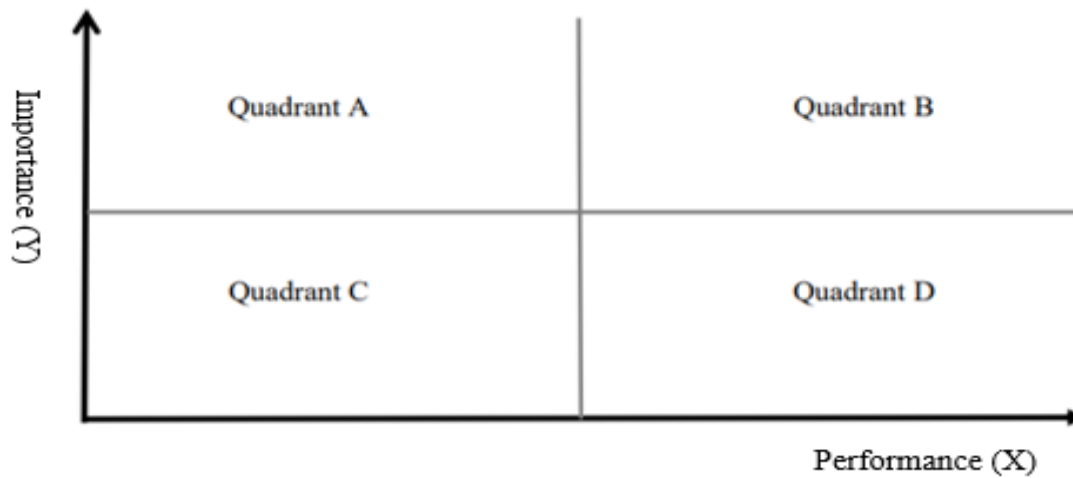


Figure 2. Cartesian Diagrams

Quadrant A depicts factors of significance with low performance, quadrant B exemplifies crucial factors with high performance, quadrant C denotes insignificant factors with low performance, and quadrant D illustrates insignificant factors with high performance. The questionnaire instrument's design and the benchmark for passenger service standards on the SABUK NUSANTARA 68 ship are informed by the minimum service standards for ferry transportation established by the Ministry of Transportation of the Republic of Indonesia in Regulation Number PM 62 of 2019.

The study aims to examine passenger satisfaction regarding the performance of the ferry transportation service provider on the SABUK NUSANTARA 68. It was carried out between April and August 2022, involving 90 passengers across 8 journeys on the Padang-Mentawai route. The research methodology entailed determining the sample size based on the passenger population aboard the SABUK NUSANTARA 68 ship on the Padang-Mentawai route during June-July 2022, which consisted of 360 passengers across 8 trips. Approximately 25% of the population was selected, resulting in a sample size of 90 individuals. Data collection was done through a written questionnaire utilizing the Likert scale to evaluate attitudes, comprising 18 questions on service attributes within the ship. The data processing included validity testing to ensure the suitability of the research instrument. Content validity was employed to evaluate the instrument's appropriateness in measuring the variables under study. Data analysis was conducted using the Importance and Performance Analysis (IPA) method to ascertain the satisfaction level and pinpoint areas for enhancement. The IPA analysis method functioned as a tool to compare service performance against the perceived importance level by service users. The analysis outcomes were illustrated in a Cartesian diagram that categorized service elements into four quadrants. [14]

The findings of this study are anticipated to offer insights and suggestions for enhancing service quality on the SABUK NUSANTARA 68 ship. The research methodology, encompassing sample size determination, data collection, and analysis, conforms to established practices in social science research. The application of the Likert scale for data collection and the IPA method for data analysis is customary in studies concentrating on

evaluating attitudes and service quality. The literature review further signifies a comprehensive approach to accumulating pertinent information on the research subject [15].

RESULTS & DISCUSSION:

In the Results and Discussion section, several crucial aspects regarding the satisfaction levels with the services offered by the SABUK NUSANTARA 68 ship are presented. These points shed light on the following:

A. General Description of the respondents

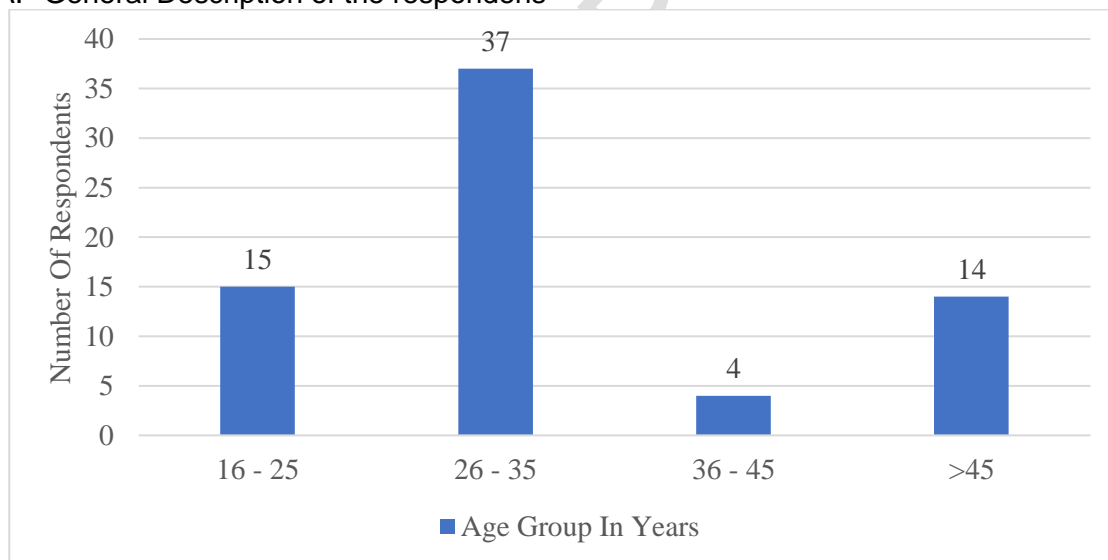


Figure 3 Respondents

The age of the respondents significantly impacts their attitudes and satisfaction levels concerning the provided services. Notably, a considerable proportion of passengers fall within the 26-35 age bracket, a demographic factor deemed influential in determining service quality. This underscores the importance of tailoring services to meet the specific preferences and expectations of this age group, which could ultimately enhance overall satisfaction levels among passengers.

Apart from that, gender also appears as a determining factor in satisfaction with the services provided [16]. Even though the majority of passengers are male, the facilities available are deliberately designed to meet the needs of female passengers as well. This inclusive

approach to service provision ensures that the diverse needs and preferences of all passengers, regardless of gender, can be adequately addressed. research [17] Limitations/implications of research: Other demographic variables such as age, culture, education level, and income should also be considered in future studies and when developing marketing strategy.

In summary, these findings emphasize the important role of understanding passenger demographics, including age and gender, in tailoring service offerings to increase customer satisfaction. By recognizing and accommodating the unique preferences and needs of different demographic groups, service providers can make informed decisions to improve service quality and ultimately foster greater satisfaction and loyalty among passengers [18].

B. Analysis of Performance Level and Importance Level:

Calculation of Service Quality, Importance Level, and Service Standardization: The calculation was conducted utilizing assigned weights for each service attribute. These weights are categorized as follows: Very Good/Very Important, Good/Important, Fair/Poorly Important, and Not Good/Not Important.



Figure 4. Rating Scale

Based on the presented analysis findings, it is found that the majority of service attributes exhibit satisfactory performance levels (X). Out of the total 18 service attributes assessed, 13 are rated as "very good" in terms of performance, indicating a high level of effectiveness in meeting user expectations. Additionally, 4 service attributes are rated as "good," contributing positively to the overall assessment of service quality. However, one

service attribute is identified to have less good performance, highlighting areas that require further improvement and attention. Meanwhile, in the analysis of importance levels (Y), it is emphasized that the majority of service attributes are considered highly important. This underscores the significant role these attributes play in shaping user satisfaction and experience. It suggests that focusing on enhancing the performance of attributes deemed important by users can lead to overall improvements in service quality and user satisfaction. The weights assigned to the performance level (X) and importance level (Y) are computed based on the measurement scale assigned to each service attribute, ensuring a comprehensive evaluation of key aspects of user experience. This analytical approach facilitates a deeper understanding of service quality and user preferences, enabling informed decision-making to optimize service delivery and enhance user satisfaction. [19]

C. Analysis of Service Satisfaction:

The analysis of customer satisfaction is conducted through the method of Importance-Performance Analysis (IPA). The correlation between performance level (X) and importance level (Y) is quantified into percentages to determine the degree of customer satisfaction.

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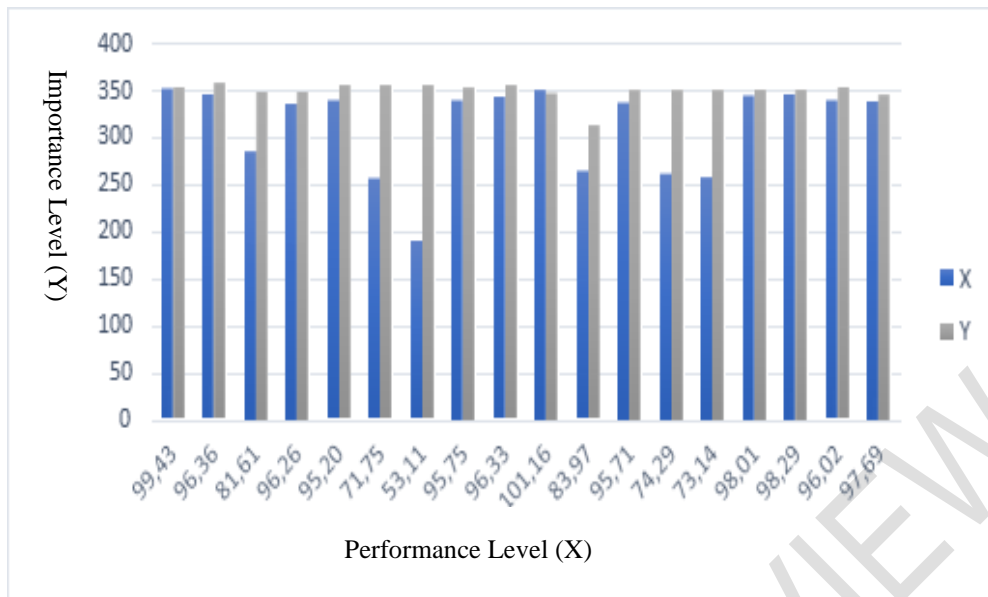


Figure 5. conformity rate in percent

Based on the IPA analysis, findings reveal that the cleanliness facility service on the ship exhibits a low level of alignment (53.11%), suggesting an unsatisfactory experience for passengers. Conversely, other service attributes demonstrate higher levels of alignment. In aggregate, the average alignment level for all service attributes is 89.12%. This overall analysis suggests that the services rendered by the SABUK NUSANTARA 68 vessel are largely deemed satisfactory by passengers.

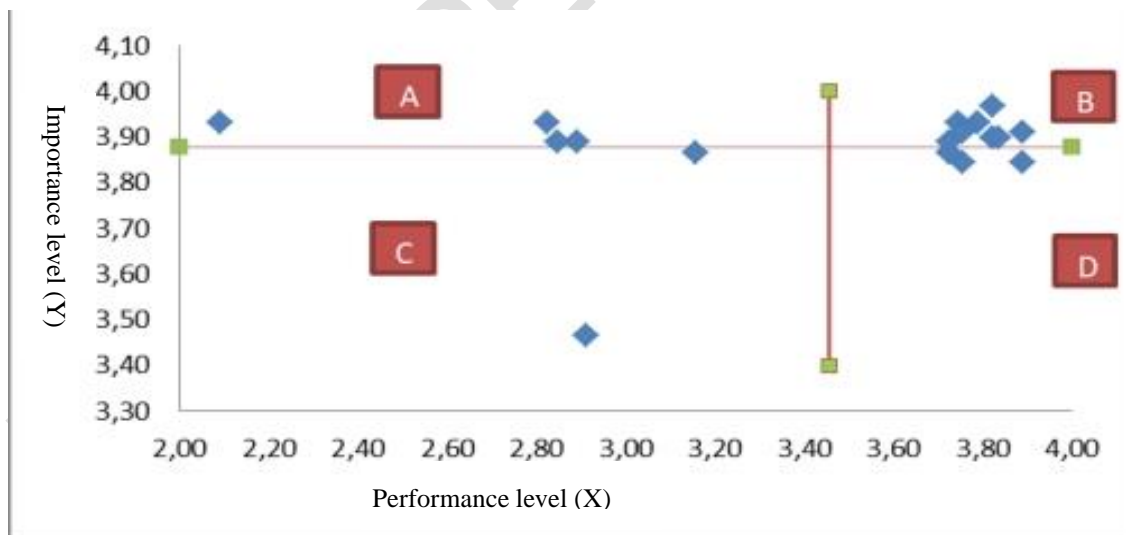


Figure 6 Cartesian Diagram

Based on the analysis of the four quadrants representing the combination of importance level and performance level of various variables related to the service of PASSENGER SHIP SABUK NUSANTARA 68, the following conclusions can be drawn. Quadrant A: Variables 7, 6, 13, and 14 exhibit a high importance level but a low performance level. These variables are identified as the top priority for the service provider to enhance the quality of their service. The service provider must concentrate on elevating the performance of these variables to align with the high importance level expected by passengers. Quadrant B: Variables 1, 2, 5, 8, 9, 12, 15, 16, and 17 demonstrate both high performance and high importance levels. Services associated with these variables should sustain their current level of service quality/performance. These variables have effectively met passengers' expectations and importance, emphasizing the significance of upholding a superior service standard for these aspects. Quadrant C: Variables 3 and 11 show low performance and low importance levels. Despite their relatively lower priority compared to other variables, the service provider should enhance the performance of these variables to improve overall passenger satisfaction, notwithstanding their perceived lower relevance by passengers. Quadrant D: Variables 4, 10, and 18 present a low importance level for passengers but a high performance/service level from the service provider. Passengers perceive that the service provided surpasses their expectations. Hence, no enhancements are necessary for these variables as the current service level is deemed satisfactory by passengers. With the results of the analysis of variables in these four quadrants, the service provider can determine priorities and necessary improvement efforts to enhance the quality of their service.

The search results seem to focus on the measurement and evaluation of service quality, particularly in understanding the analysis of variables in the four quadrants representing the combination of import level and performance level across different service attributes [20]. This likely involves utilizing various methodologies and tools to assess how well a service meets customer expectations and requirements. By categorizing service attributes into quadrants based on their level of importance and performance, organizations can prioritize areas for improvement and allocate resources effectively.

Analyzing variables in these quadrants helps identify strengths and weaknesses in service delivery, guiding decision-making processes to enhance overall service quality. This approach can be valuable for businesses aiming to optimize customer satisfaction and loyalty while staying competitive in the market..

The first link discusses the utilization of Data Envelopment Analysis (DEA) in evaluating service quality. It delves into the appraisal of service quality through the application of the SERVQUAL scale and various methodologies for assessing service quality, such as statistical analysis, multi-criteria decision making, fuzzy set theory, and DEA. The article sheds light on the constraints of current methods and suggests an approach to generate a singular measure of service quality, which can be pertinent to the analysis of service attributes. The second link presents a case study on the evaluation of service quality utilizing the weighted SERVPERF approach. The survey employed in the research is grounded on the five dimensions of service quality aligned with the SERVQUAL concept developed by Parasuraman et al. (1988) [21]. This approach can provide a pragmatic technique for appraising service quality and can be applied to scrutinize service attributes. The third link offers an outline of how to gauge service quality, endorsing the SERVQUAL model as a widely

recognized metric premised on a collection of five dimensions: tangibility, reliability, responsiveness, assurance, and empathy. This model is acknowledged as an industry benchmark for gauging service quality and can furnish a structure for the analysis of service attributes. The fourth link explores the five dimensions of service quality: tangibility, reliability, responsiveness, assurance, and empathy. It underscores the significance of dispensing high-quality service and offers insights into evaluating service performance, which can be advantageous for the analysis of service attributes. The fifth link introduces a service quality measurement model that integrates an extended SERVQUAL model and a hybrid decision support system [22]. This model is acknowledged as a valid and dependable tool grounded on statistical modeling and validation techniques, which can be pertinent to the analysis of service attributes. Collectively, these resources proffer valuable perspectives and methodologies for quantifying and evaluating service quality [23], which can be employed in the analysis of variables in the four quadrants illustrating the integration of import level and performance level across various service attributes [24].

CONCLUSION

The analysis of PASSANGER SHIP SABUK NUSANTARA demographics and service performance of PASSENGER SHIP SABUK NUSANTARA 68 has unveiled several noteworthy findings. Primarily, a prevailing age group of 26-35 years implies that the attitudes of most passengers in this age bracket significantly influence the overall service quality. Furthermore, despite a predominantly male passenger demographic, the public amenities aboard are designed to meet the needs of both male and female passengers. Service performance indicators have largely garnered high ratings, suggesting a satisfactory level of service provided to passengers. Concerning the importance of services, passengers consistently deem most attributes as highly significant, indicating their elevated expectations. Through the utilization of the Importance-Performance Analysis (IPA) technique, the congruence level between service performance and importance is computed at 89.12%, underscoring an overall contentment among passengers with scope for enhancement, particularly in terms of ship cleanliness. Consequently, it is recommended that the service provider of PASSENGER SHIP SABUK NUSANTARA 68 concentrates on enhancing cleanliness on board to boost passenger contentment. Additionally, given passengers' heightened expectations across diverse service dimensions, continuous assessment and enhancement measures are suggested to ensure a consistently gratifying service experience for all passengers.

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