

## **Analysis of Ferry Services on the KMP Lohoraung and KMP Tarusi at Likupang Port**

**Surnata<sup>1</sup>, Pierre Marcello Lopulalan<sup>2</sup>, Eko Nugroho Widjatkoko<sup>3</sup>,  
Rahmat Santoso<sup>4</sup>, Annisa Rahmah<sup>5</sup>**

<sup>1</sup> Program Studi Manajemen Transportasi Perairan Daratan, Politeknik Transportasi Sungai, Danau dan Penyeberangan Palembang, Sumatera Selatan,

<sup>2</sup> Program Studi Permesinan Kapal, Politeknik Pelayaran Banten,

<sup>3</sup> Program Studi Permesinan Kapal, Politeknik Transportasi Sungai, Danau dan Penyeberangan Palembang,

<sup>4</sup> Program Studi Permesinan Kapal, Politeknik Pelayaran Banten,

<sup>5</sup> Program Studi Ketatalaksanaan Angkutan Laut dan Kepelabuhanan, Politeknik Ilmu Pelayaran Makassar, Indonesia

### **ABSTRACT**

This study aims to evaluate the quality of ferry transportation services at Likupang Ferry Port based on Minimum Service Standards (SPM) using the Importance Performance Analysis (IPA) method. Likupang Ferry Port plays an important role in supporting community mobility, goods distribution, as well as economic and tourism activities in North Sulawesi. However, several service problems are still encountered, such as inadequate safety, health, and passenger comfort facilities, which may affect customer satisfaction levels. This study employed a quantitative approach by collecting primary data through observations, interviews, and questionnaires distributed to 338 ferry service users of KMP. Lohoraung and KMP. Tarusi. The data were analyzed using the Importance Performance Analysis (IPA) method, while validity and reliability tests were conducted using SPSS. The results showed that the passenger service conformity level on KMP. Lohoraung was 48.38% and KMP. Tarusi was 51.61%, indicating that both vessels have not yet met the Minimum Service Standards (SPM). Meanwhile, vehicle services were categorized as good, with conformity levels of 85.18% on KMP. Lohoraung and 81.48% on KMP. Tarusi. The ship operational aspect achieved a conformity level of 100% in operational schedules, berthing time, loading and unloading processes, and sailing speed indicators. The IPA analysis revealed that the main service attributes requiring improvement include lifeboat conditions, medical rooms, passenger toilets, prayer rooms, lighting facilities, and nursing rooms, as these attributes have high importance but low performance levels. The validity and reliability test results indicated that all research instruments were valid and reliable, making them suitable for use in this study. This research is expected to serve as an evaluation reference for port management and ferry operators in improving ferry transportation services at Likupang Ferry Port.

**Keywords:** Ferry Services, Importance Performance Analysis, Minimum Service Standards, Passenger Satisfaction, Likupang Port.

### **ABSTRAK**

Penelitian ini bertujuan untuk mengevaluasi kualitas pelayanan angkutan penyeberangan di Pelabuhan Likupang berdasarkan Standar Pelayanan Minimal (SPM) menggunakan metode Importance Performance Analysis (IPA). Pelabuhan Likupang memiliki peran penting dalam mendukung mobilitas masyarakat, distribusi barang, serta aktivitas ekonomi dan pariwisata di wilayah Sulawesi Utara. Namun, masih ditemukan berbagai permasalahan pelayanan seperti keterbatasan fasilitas keselamatan, kesehatan, dan kenyamanan penumpang yang dapat memengaruhi tingkat kepuasan pengguna jasa.

Penelitian ini menggunakan pendekatan kuantitatif dengan pengumpulan data primer melalui observasi, wawancara, dan penyebaran kuesioner kepada 338 responden pengguna jasa penyeberangan pada KMP. Lohoraung dan KMP. Tarusi. Data dianalisis menggunakan metode Importance Performance Analysis (IPA) serta dilakukan uji validitas dan reliabilitas instrumen penelitian menggunakan SPSS. Hasil penelitian menunjukkan bahwa tingkat kesesuaian pelayanan penumpang pada KMP. Lohoraung sebesar 48,38% dan KMP. Tarusi sebesar 51,61% sehingga keduanya masih belum memenuhi Standar Pelayanan Minimal (SPM). Sementara itu, pelayanan kendaraan tergolong baik dengan tingkat kesesuaian sebesar 85,18% pada KMP. Lohoraung dan 81,48% pada KMP. Tarusi. Aspek pengoperasian kapal memperoleh tingkat kesesuaian sebesar 100% pada indikator jadwal operasi, waktu sandar, bongkar muat, dan kecepatan pelayaran. Hasil analisis IPA menunjukkan bahwa atribut pelayanan yang menjadi prioritas utama perbaikan meliputi kondisi sekoci, ruang medis, toilet penumpang, musholla, lampu penerangan, dan ruang menyusui karena memiliki tingkat kepentingan tinggi namun tingkat kinerja masih rendah. Hasil uji validitas dan reliabilitas menunjukkan seluruh instrumen penelitian valid dan reliabel sehingga layak digunakan dalam penelitian. Penelitian ini diharapkan dapat menjadi bahan evaluasi bagi pengelola pelabuhan dan operator kapal dalam meningkatkan kualitas pelayanan penyeberangan di Pelabuhan Likupang.

**Kata Kunci:** Pelayanan Penyeberangan, Importance Performance Analysis, Standar Pelayanan Minimal, Kepuasan Penumpang, Pelabuhan Likupang.

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#### \* Corresponding Author:

Surnata

Diploma III Program in Land Water Transportation Management

Jl. Sabar Jaya No.116 Prajin Mariana Kec. Banyuasin I Sumatera Selatan

Email: [surnatasur66@gmail.com](mailto:surnatasur66@gmail.com)

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## 1. INTRODUCTION

Likupang Ferry Port is one of the maritime transportation facilities that plays an important role in supporting community mobility and the distribution of goods in the North Sulawesi region. Researchers have argued that maritime transportation infrastructure contributes significantly to regional connectivity and economic development (Wisata et al., 2020). This port serves as a link between coastal and island regions, thereby supporting the economic, social, and tourism activities of local communities. As public demand for safe, comfortable, and punctual transportation continues to increase, the quality of ferry transportation services is also expected to improve.

However, several service-related issues are still encountered in its operation, including delays in vessel departures, limited passenger facilities, inadequate safety and health facilities, and suboptimal service information systems. These conditions may affect user satisfaction and the operational efficiency of the port.

The quality of ferry transportation services is strongly influenced by aspects such as safety, comfort, punctuality, and supporting facilities, all of which are directly related to customer satisfaction (Abdu et al., 2023). Furthermore, service evaluation using the Importance Performance Analysis (IPA) method is considered effective in identifying service attributes that should be prioritized for improvement within the transportation sector (Sinha et al., 2020).

Previous studies on ferry transportation services have shown that passenger safety and comfort facilities remain the dominant factors influencing perceptions of service quality in maritime transportation (Žani, 2024). Nevertheless, studies evaluating ferry transportation services in island regions, particularly at Likupang Ferry Port, remain limited, highlighting the need for further research.

The novelty of this study lies in the evaluation of ferry transportation services at Likupang Ferry Port (Mutmainah et al., 2022) using the Importance Performance Analysis (IPA) approach based on the Minimum Service Standards stipulated in the Regulation of the Minister of Transportation of the Republic of Indonesia Number 66 of 2019. The study focuses on two active vessels, namely KMP Lohoraung and KMP Tarusi (Perhubungan & Indonesia, 2019).

## 2. METHOD

This study employed a quantitative approach using both primary and secondary data sources (Abdu et al., 2023). Primary data were obtained directly through field observations, interviews, and questionnaire distribution to ferry transportation service users (Ali, 2020). Meanwhile, secondary data were collected from relevant institutional documents, scientific journals (Lavalle et al., 2021), and regulations supporting the study.

Prior to the distribution of the questionnaires, the research instrument was tested for validity and reliability to ensure that each research indicator could measure service variables consistently and accurately (Prososial, 2021; Putra & Said, 2024). The Importance Performance Analysis (IPA) method was employed to

assess the level of importance and service performance, thereby identifying service attributes that should be prioritized for improvement (Prasetyo et al., 2023).

Slovin Formula

$$n = \frac{N}{1 + Ne^2}$$

Where:

n = Sample size

N = Population size

e = Margin of error (error tolerance level)

### 3. RESULTS AND DISCUSSION

#### 3.1 Respondent Characteristics

Table 1. Respondent Characteristics Based on Gender

| Gender       | Number     | Percentage  |
|--------------|------------|-------------|
| Male         | 198        | 58%         |
| Female       | 140        | 42%         |
| <b>Total</b> | <b>338</b> | <b>100%</b> |

Source: Researcher's Analysis Results, 2025

Table 2. Respondent Characteristics Based on Age

| Age          | Number     | Percentage  |
|--------------|------------|-------------|
| < 20 Years   | 42         | 12%         |
| 21–30 Years  | 110        | 33%         |
| 31–40 Years  | 96         | 28%         |
| > 40 Years   | 90         | 27%         |
| <b>Total</b> | <b>338</b> | <b>100%</b> |

Source: Researcher's Analysis Results, 2025

#### 3.2 Service Conformity Level Analysis

The results of the study indicate that passenger services on KMP Lohoraung achieved a conformity level of 48.38%, while KMP Tarusi achieved 51.61%. These values indicate that passenger services on both vessels have not yet met the Minimum Service Standards (MSS) (Sulistyo et al., 2022).

Table 3. Passenger Service Conformity Level

| Vessel        | Conformity Level | Category          |
|---------------|------------------|-------------------|
| KMP Lohoraung | 48.38%           | Does Not Meet MSS |
| KMP Tarusi    | 51.61%           | Does Not Meet MSS |

Source: Researcher's Analysis Results, 2025

Several facilities that do not yet meet the required standards include health facilities, medical rooms, wheelchairs, oxygen cylinders, nursing rooms, prayer rooms, gender-separated toilets, as well as security facilities such as CCTV and security personnel.

Table 4. Vehicle Service Conformity Level

| Vessel        | Conformity Level | Category |
|---------------|------------------|----------|
| KMP Lohoraung | 85.18%           | Good     |
| KMP Tarusi    | 81.48%           | Good     |

Source: Researcher's Analysis Results, 2025

Meanwhile, the vessel operational aspects achieved a conformity level of **100%** for both vessels.

Table 5. Vessel Operational Conformity Level

| Operational Aspect               | Conformity Level |
|----------------------------------|------------------|
| Operating Schedule               | 100%             |
| Berthing Time                    | 100%             |
| Loading and Unloading Activities | 100%             |
| Sailing Speed                    | 100%             |

Source: Researcher's Analysis Results, 2025

### 3.3 Importance Performance Analysis (IPA)

IPA analysis was conducted to identify service attributes that should be prioritized for improvement (Nikolaou et al., 2021; Chatterjee & Kumar, 2022).

Table 6. Importance Performance Analysis (IPA) Results

| Service Attribute   | Performance Level | Importance Level | Quadrant |
|---------------------|-------------------|------------------|----------|
| Lifeboat Condition  | Low               | High             | I        |
| Medical Room        | Low               | High             | I        |
| Passenger Toilets   | Low               | High             | I        |
| Prayer Room         | Low               | High             | I        |
| CCTV                | High              | High             | II       |
| Service Information | High              | High             | II       |
| Lighting Facilities | Moderate          | High             | I        |
| Nursing Room        | Low               | High             | I        |

Source: Researcher's Analysis Results, 2025.

#### 3.3.1 Validity and Reliability Test Results

Table 7. Validity Test Results

| Variable          | Calculated r-value | r-table | Description |
|-------------------|--------------------|---------|-------------|
| Passenger Service | 0.712              | 0.300   | Valid       |

|                   |       |       |       |
|-------------------|-------|-------|-------|
| Vehicle Service   | 0.685 | 0.300 | Valid |
| Vessel Operation  | 0.754 | 0.300 | Valid |
| Safety Facilities | 0.801 | 0.300 | Valid |

**Source:** Data processed using SPSS (2026).

Table 8. Reliability Test Results

| Variable          | Cronbach's Alpha | Description |
|-------------------|------------------|-------------|
| Passenger Service | 0.812            | Reliable    |
| Vehicle Service   | 0.798            | Reliable    |
| Vessel Operation  | 0.835            | Reliable    |
| Safety Facilities | 0.847            | Reliable    |

**Source:** Data processed using SPSS (2026).

Based on the test results, all questionnaire items have calculated r-values greater than the r-table value; therefore, all research instruments are considered valid. Furthermore, the Cronbach's Alpha values for all variables are greater than 0.70, indicating that the research instruments are reliable and suitable for use in this study (Prososial, 2021; Yudhana, 2022).

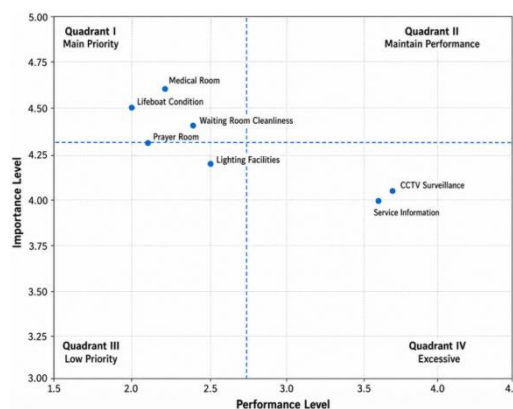


Figure 1. Importance–Performance Analysis (IPA) Cartesian Diagram

## Description

### Quadrant I – Main Priority

Quadrant I represents service attributes that have a high level of importance but a low level of performance. Attributes in this quadrant should be given the highest priority for improvement because they have a significant impact on customer satisfaction.

### Explanation:

Service users consider safety, health, and comfort facilities to be very important aspects of ferry transportation services. However, the current condition of

these facilities is still not optimal; therefore, immediate improvements and enhancements

#### Quadrant II – Maintain Performance

Quadrant II indicates service attributes that have a high level of importance and a high level of performance. The attributes in this quadrant are considered satisfactory and their service quality should be maintained.

##### **Explanation:**

Safety facilities and service information are perceived to perform well and meet users' expectations. Therefore, port management and vessel operators should maintain the quality of these services to continue providing satisfaction to passengers.

#### Quadrant III – Low Priority

Quadrant III indicates service attributes that have a low level of importance and a low level of performance. The attributes in this quadrant are not the main priority for improvement because their influence on user satisfaction is relatively small.

##### **Explanation:**

Most service attributes in this study are considered important by service users; therefore, no attribute is categorized as having a truly low level of importance.

#### Quadrant IV – Possible Overkill

Quadrant IV indicates service attributes that have a high level of performance but a relatively low level of importance. This condition suggests that the services provided are already very good but are not considered a primary priority by service users.

### **3.4 Discussion**

The results of this study indicate that the quality of ferry transportation services at Likupang Ferry Port has not yet fully met the Minimum Service Standards (MSS) stipulated in the Regulation of the Minister of Transportation Number 66 of 2019 (Perhubungan & Indonesia, 2019). Based on the results of the passenger service conformity analysis, KMP *Lohoraung* obtained a score of 48.38%, while KMP *Tarusi* achieved 51.61%. These values indicate that passenger services on both vessels are still categorized as not meeting the service standards expected by users.

The low level of passenger service conformity is influenced by the inadequate availability of safety, health, and comfort facilities on board. Several facilities that are not yet optimally available include medical rooms, wheelchairs, oxygen cylinders, nursing rooms, prayer rooms, gender-separated toilets, and security facilities such as CCTV and security personnel. This condition indicates that passengers' basic needs related to safety and comfort have not been fully met. These findings are consistent with previous studies, which state that safety and comfort facilities are dominant factors influencing perceptions of maritime transportation service quality.

In terms of vehicle services, the study results show a relatively good level of conformity, reaching 85.18% on KMP *Lohoraung* and 81.48% on KMP *Tarusi*. This indicates that vehicle-related services, such as loading and unloading operations, vehicle arrangement, and vehicle security during the voyage, have been implemented effectively. Furthermore, the vessel operation aspect achieved a conformity score of 100% for indicators including operational schedules, berthing time, loading and unloading activities, and sailing speed. This condition demonstrates that vessel operations have been carried out in accordance with applicable standards and are capable of supporting smooth ferry transportation services.

Based on the results of the Importance Performance Analysis (IPA), several service attributes were identified in Quadrant I, which represents the highest priority for improvement. These attributes include lifeboat condition, medical room facilities, passenger toilets, prayer rooms, lighting facilities, and nursing rooms. These attributes have a high level of importance but a low level of performance, requiring serious attention from port authorities and vessel operators. Service users consider these facilities essential for ensuring safety, comfort, and security during their journey.

Meanwhile, CCTV and service information attributes are positioned in Quadrant II, indicating that both their importance and performance levels are high. This finding suggests that information services and security measures have been implemented effectively and that their quality should be maintained to continue providing satisfaction to service users.

The validity test results show that all variables have calculated correlation coefficients (*r*-values) greater than the corresponding *r*-table values, indicating that

all questionnaire items are valid. In addition, the reliability test results show that the Cronbach's Alpha values for all variables exceed 0.70, confirming that the research instrument is reliable. Therefore, the research data can be used to accurately and consistently describe the condition of ferry transportation services at Likupang Ferry Port.

#### 4. CONCLUSION

Based on the results of the study on the evaluation of ferry transportation services at Likupang Ferry Port using the Importance Performance Analysis (IPA) method, it was found that the passenger service conformity level on KMP. Lohoraung was 48.38% and on KMP. Tarusi was 51.61%, indicating that both vessels have not yet met the Minimum Service Standards (MSS). The low quality of passenger services is influenced by the inadequate provision of safety, health, and comfort facilities, such as medical rooms, passenger toilets, prayer rooms, nursing rooms, lighting facilities, and other safety-related facilities. Nevertheless, vehicle services on both vessels were categorized as satisfactory, with conformity levels of 85.18% on KMP. Lohoraung and 81.48% on KMP. Tarusi. Furthermore, vessel operational aspects, including sailing schedules, berthing time, loading and unloading processes, and sailing speed, have been implemented effectively, achieving a conformity level of 100%.

The IPA results indicate that the service attributes requiring the highest priority for improvement are located in Quadrant I, namely the condition of lifeboats, medical rooms, passenger toilets, prayer rooms, lighting facilities, and nursing rooms, as these attributes have high importance levels but low performance levels. Meanwhile, the validity and reliability test results demonstrate that all research instruments are valid and reliable, making them appropriate for use in ferry service evaluation studies. These findings suggest that improvements in passenger service quality are still necessary to ensure that ferry services comply with the established standards and enhance user satisfaction with ferry transportation services.

Based on these findings, port management and vessel operators need to improve passenger safety, health, and comfort facilities through the provision of medical rooms, separate toilets, prayer rooms, nursing rooms, wheelchairs, oxygen cylinders, as well as improvements to lifeboat conditions and lighting facilities. In addition, routine monitoring and evaluation of compliance with the Minimum Service

Standards (MSS) are required to continuously improve the quality of ferry services in accordance with user needs. Service aspects that are already performing well, such as the service information system and security facilities, should be maintained and continuously enhanced to sustain customer satisfaction. The government and vessel operators are also expected to strengthen coordination in providing supporting infrastructure and facilities for ferry transportation services at Likupang Ferry Port. For future research, it is recommended to employ other analytical methods, such as SERVQUAL or the Customer Satisfaction Index (CSI), to obtain a more comprehensive evaluation of service quality.

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