



Analysis of Service user Satisfaction on the Performance of Ferizy Application Services at Ketapang Crossing Port, East Java Province

Erli Pujiyanto¹, M. Sigit Ramadhani², Sri Kelana³, Muhamad Fahmi Amrillah^{4*}, Tito Akbar Nugroho⁵

^{1,2,3,4,5} Politeknik Transpostasi Sungai, Danau dan Penyeberangan, Palembang, Indonesia

Email: muhamadfahmiamrillah@gmail.com

Abstract : Ketapang Crossing Port is one of the strategic commercial crossing ports, connecting the islands of Java and the island of Bali. As a crossing transportation service provider, as an operator of crossing transportation services, PT ASDP Indonesia Ferry (Persero) Ketapang Branch continues to strive to improve the quality of service through system digitalization, one of which is by implementing online ticket booking through the Ferizy application. This digitalization aims to provide convenience, reduce queues at the port, and increase service transparency and shipping safety. This study aims to analyze the level of satisfaction of service users with the performance of Ferizy application services at the Ketapang Crossing Port using the Customer Satisfaction Index (CSI) method. This study used a quantitative approach by distributing questionnaires with Likert scale instruments 1–5 to 100 respondents. In addition, the researcher also conducted field observations and qualitative analysis of respondents' suggestions to identify obstacles faced, such as difficulties for elderly and child users in operating the application. The results of the CSI calculation show that the user satisfaction rate reached 84.51%, which is included in the category of "Very Satisfied" (81–100%). However, there are still gaps in the accessibility of the application for certain groups of users as well as manifest accuracy problems due to the practice of purchasing tickets outside the official system, support is needed in the form of the presence of digital escort officers in the port area to help users who have difficulties in operating the Ferizy application, especially the elderly and people who are less familiar with technology.

Keywords : Customer Satisfaction Index (CSI), Ferizy, Digitization of Services.

1. INTRODUCTION

Crossing transportation functions as a link between a network of roads or railway lines separated by water, with the aim of transporting passengers, vehicles, and their cargo (Ministry of Transportation of the Republic of Indonesia, 2017)[1]. Ketapang Crossing Port, located in Banyuwangi Regency, East Java, is a strategic transportation node that connects Java Island with the island of Bali[2]. This port is managed by PT ASDP Indonesia Ferry (Persero) and plays an important role in

© The Author(s) 2026

A. Yulianto et al. (eds.), *Proceedings of the International Conference of Inland Water and Ferries Transport Polytechnic of Palembang on Technology and Environment (IWOSPA-TE 2025)*, Advances in Engineering Research 302,

https://doi.org/10.2991/978-94-6239-731-6_20

supporting the mobility of passengers, goods, and vehicles between islands (Ministry of Transportation, 2020)[3].

As an effort to improve service quality, PT ASDP Indonesia Ferry (Persero) implements an e-ticketing system through the Ferizy application[4]. This system aims to facilitate the ticket booking process, reduce queues at the port, improve the accuracy of manifest data, and strengthen shipping transparency and safety (ASDP Indonesia Ferry, 2023)[5]. However, the implementation of this digital system still faces challenges. Elderly and children, for example, often have difficulty operating applications due to limited digital literacy, visual impairments, complex ordering flows, and small text sizes (OECD, 2020; Kompas, 2023)[6]. In addition, ticket purchases through outlets or brokers still occur, which can affect the accuracy of manifest data and have implications for shipping safety aspects[7].

According to Pranata, et al. (2019), the Customer Satisfaction Index (CSI) is an effective method to measure the level of customer satisfaction as a whole, although it cannot determine the priority of improving service attributes[8]. With this method, companies can get a quantitative picture of customer satisfaction and identify aspects that need improvement[9]. Previous research has also shown that the quality of digital services in the public transportation sector has a significant effect on user satisfaction and loyalty (Kusumadewi & Rachmawati, 2021)[10].

Based on these problems, this study aims to analyze the level of satisfaction of service users with the performance of Ferizy application services at the Ketapang Crossing Port using the Customer Satisfaction Index (CSI) method, identify obstacles faced by users, and provide strategic recommendations that can be applied by operators[11]

2. METHODOLOGY

This study The research was carried out at the Ketapang Crossing Port, Banyuwangi Regency, East Java, which is managed by PT ASDP Indonesia Ferry (Persero) Ketapang Branch. Data collection was carried out in the January-May 2025 period, The research population is all users of crossing services at Ketapang Port. Based on data on the production of pedestrian passengers for the March-May 2025 period, the total population is 32,197 people. The number of samples was determined using **the Slovin formula** with an error rate of 10%, so that a minimum of 100 respondents were obtained. The sampling technique used is *simple random sampling*.

This study uses a quantitative approach with a survey method to measure the level of satisfaction of service users with the performance of Ferizy application services at the Ketapang Crossing Port. Data were obtained through the distribution of Likert scale questionnaires (1–5) to respondents, complemented by field observation and semi-structured interviews. Data analysis was carried out using the Customer Satisfaction Index (CSI) method to obtain a quantitative satisfaction level value (Kotler & Keller, 2016)

Table 1. Customer Satisfaction Index (CSI)

No	Statement	Score
1	Strongly agree (SS)	1

2	Agree (S)	2
3	Disagree (KS)	3
4	Disagree (TS)	4
5	Strongly Disagree (STS)	5

The main instrument of the study is a questionnaire that contains indicators of user satisfaction with *the Ferizy* application, including perceived *ease of use*, perceived *usefulness*, and behavioral interest to continue using the service (*behavioral intention to use*). The validity of the instrument was tested using *product moment* correlation, while the reliability was tested with **Cronbach's Alpha coefficient** with a minimum limit of 0.70 (Ghozali, 2020).

The data used includes:

1. **Primary data** was obtained through questionnaires, observations, and interviews with the management of PT ASDP Indonesia Ferry (Persero) Ketapang Branch.
2. **Secondary data**, derived from performance reports, port production data, literature, laws and regulations, and relevant previous research.

This study uses questionnaire guidelines in the form of google forms that are distributed through QR-codes to service users. The determination of the sample in this study is by using the Slovin formula as follows.

Formula:

$$n = \frac{N}{1+N(E)} \quad (1)$$

Information:

n = Sample size

N = Population size

E = Percent of uncertainty due to sampling that is still tolerated (max. 10%)

Based on the size of the formula mentioned above, the minimum sample size in this study is as follows:

$$n = \frac{32197}{1+32197(0,1^2)}$$

$$n = \frac{32.197}{1+321,97}$$

$$n = \frac{32.197}{322,97}$$

$$n = 99.69 \approx 100$$

So, the total sample of service users needed in this study is 100 samples. The sample was randomly selected from a total population of 32,197 people (service users).

1. Validity Test, Reliability Test and *Customer Satisfaction Index* (CSI) Analysis

a. Validity Test

Validity test is a test that is carried out to measure the level of validity of a research instrument. A research instrument is considered valid if it is able to accurately measure and reveal the data needed[6]. The technique used in the validity test of this study is the *Pearson Product Moment Correlation technique*, which is by correlating the score of each attribute with the total score of the attribute. If r is calculated $\geq r$ table, then the instrument or question items are significantly correlated to the total score or declared valid.

b. Reliability Test

A reliability test is a test carried out on the answers of respondents to measure whether they can reveal reliable data and are in accordance with reality or not. The reliability test uses *Cronbach's Alpha* (α), where an attribute can be declared reliable if it has a value of $\alpha > 0.7$

c. *Customer Satisfaction Index* (CSI)

The *Customer Satisfaction Index* (CSI) is an analysis method used to measure the level of performance and importance of the attributes being studied[9]. The CSI method uses the importance level to show how important the service is provided. This level of importance will be in line with the level of a person's expectations for the services provided. Meanwhile, the level of satisfaction shows how satisfied the user is with the performance of the services provided.

The stages of CSI measurement are as follows

- 1) Calculate *Mean Importance Scores*, which is the average attribute of the level of importance.
- 2) Calculate *Mean Satisfaction Scores*, which are the average attributes of satisfaction levels.

Weighted *Factor* (WF) measurement, which is converting the average value of the level of importance to a percentage of the total average value of the level of importance for all attributes tested, so that a *Weighted Factor* of 100% is obtained.

$$WF = \frac{Y_i}{\sum y_i} \times 100\% \tag{2}$$

Information:

WF = *Weighted Factor*

Y_i = Average level of importance for the i -I attribute

$\sum y_i$ = the average number of importance levels for the i attribute

Weighted *Score* (WS) measurement, which is the value of the multiplication between the average value of the performance level of each attribute and *the Weighted Factor* of each attribute.

$$WS = \frac{WF \times x_i}{100\%} \tag{3}$$

Information:

WS = *Weighted Score* (WS)

X_i = Average satisfaction rate for the i-i attribute

Calculating *the Weighted Total* (WT), which is the sum of *the Weighted Factor* (WF) of all satisfaction level attributes.

$$WT = \sum \frac{WF \times xi}{100\%} \quad (4)$$

X_i = Satisfaction level for the i-i attribute

Calculating user satisfaction as a whole using *the Satisfaction Index* (SI), which *is the Weighted Total* divided by the maximum scale used in this study then multiplied by 100%.

$$SI = \frac{WT}{n} \times 100\% \quad (5)$$

n = Maximum scale used in the study

Table 2. Satisfaction Level Criteria

No	CSI value (%)	Information
1.	81% - 100%	Very satisfied
2.	66% - 80,99%	Satisfied
3.	51% - 65,99%	Quite satisfied
4.	35% - 50,99%	Dissatisfied
5.	0% - 34,99%	Dissatisfied

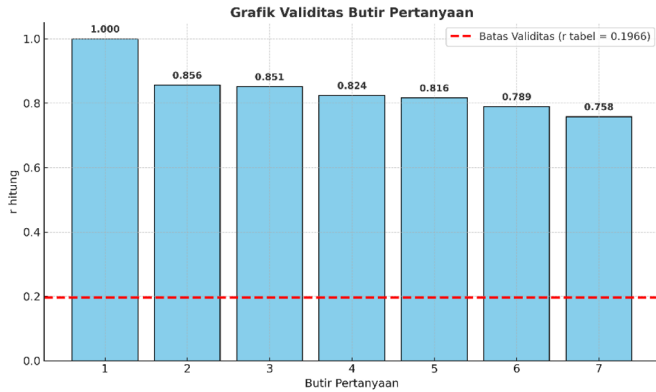
3. DISCUSSION

The Based on the results of analysis and data collection in the field in this study, the following research results were obtained:

- a. Analysis of the level of satisfaction of service users in the implementation of ticket booking through the Ferizy application at the Ketapang crossing port.

- 1) Validity Test

Data processing in this study was carried out using the help of IBM SPSS *Statistic software version 27*, using the *Pearson Product Moment Correlation method*. By using a significance level of 0.05 and the number of respondents as many as 100, the table r value of 0.1966 was obtained. The r-value of the table used is 0.1966. The r-value of the table used is 0.1966. The results of the calculation of r count of all questionnaire items are above the r value of the table (r calculated > 0.1966), the test results are shown in the following graph:



Based on the results of Pearson's correlation calculation for the validity test of the user satisfaction instrument, the calculated r value ranges from 0.758 to 1.000. Meanwhile, the r-value of the table used as a reference is 0.1966.

2) Reliability Test

The reliability test in this study was carried out using the help of SPSS software version 27, through the calculation of *Cronbach's Alpha* coefficient. An instrument is declared to have good reliability if the *Cronbach's Alpha* value obtained is equal to or greater than 0.70, indicating that the items in the questionnaire have adequate internal consistency. Based on the results of the reliability test, a *Cronbach's Alpha* value of 0.974 was obtained.

Table 3. Reliability test

<i>Cronbach's Alpha</i>	Number of Instruments	Criterion
0,974	7	Very Powerful

3) *Customer Satisfaction Index (CSI)*

Based on the questionnaire that has been given to service users, the calculation is carried out *Customer Satisfaction Index (CSI)* based on the steps described earlier, Calculation *Customer Satisfaction Index (CSI)* in this study was carried out after the specified number of respondents, namely 100 people, was successfully met.

In this analysis, the results of the CSI score are classified into five categories, ranging from Very Satisfied to Dissatisfied Here are the steps to calculate the *Customer Satisfaction Index (CSI)* are: determining the *Mean Importance Score (MIS)*, *Mean Satisfaction Score (MSS)*, *Weighted Factor (WF)*, *Weighted Score (WS)*, and finally determining the *Customer Satisfaction Index (CSI)*. The CSI score in this study is divided into five criteria from Very Dissatisfied to Very Satisfied.

Table 4. Customer Satisfaction Index (CSI)

Butir Variable	PUT	MSS	WF	WS
1	4,12	4,23	14,173	59,95
2	4,19	4,26	14,437	61,50
3	4,15	4,26	14,276	60,82
4	4,09	4,19	14,092	59,05
5	4,17	4,18	14,356	60,01
6	4,14	4,23	14,253	60,29
7	4,19	4,23	14,414	60,97
TOTAL	29,05	TOTAL (WT)	422,58	

Based on table 4, the results of the calculation of the *Customer Satisfaction Index*, which is 422.58, are obtained and then the results are reprocessed using the CSI formula as follows:

$$CSI \frac{422,58}{5} \times 100\% \\ = 84,51\%$$

It can be seen that the User Satisfaction Index (CSI) was obtained at 84.51%. This value shows that users are very satisfied with the service provided in ordering *online* tickets at the Ketapang Crossing Port through the Ferizy Application. This assessment refers to the satisfaction level criterion which shows that the CSI score with a value range between 81 – 100 % has a description of VERY SATISFIED.

4. CONCLUSION

Based on the data that has been collected in order to analyze the level of satisfaction of service users with the implementation of booking crossing tickets through the Ferizy application at the Ketapang Crossing Port, based on the analysis that has been described, conclusions can be drawn, namely:

Based on the data that has been collected and processed using the Customer Satisfaction Index (CSI) method, the results were obtained that the value of the service user satisfaction index for online ticket booking services through the Ferizy application at the Ketapang Crossing Port reached 84.51%. This score falls into the "Very Satisfied" category, according to the CSI interpretation criteria where a score range of 81–100% indicates the highest level of satisfaction.

Subsequent research can use a similar method by taking different locations to compare similarities and differences in levels of interest and satisfaction on each attribute. In addition, the researcher is further advised to add research variables to improve the accuracy in assessing the quality of service from the implementation of the Online ticket booking system at crossing ports. Future research can also discuss

more deeply the problems related to the practice of purchasing tickets through unofficial outlets and brokers that affect the accuracy of manifest data and its implications for shipping safety, as raised in the formulation of the three problems of this study

References

- [1] Kompas.com. (2023, May 12). The elderly have difficulty accessing online tickets, this is the government's response. Retrieved April 20, 2025, from <https://www.kompas.com>.
- [2] Kusumadewi, R., & Rachmawati, R. (2021). Analysis of user satisfaction with transportation digital application services. *Journal of Transportation & Technology*. DOI: 10.31604/nusantara
- [3] Minister of Transportation of the Republic of Indonesia. (2017). Regulation of the Minister of Transportation of the Republic of Indonesia Number PM 104 of 2017 concerning the Implementation of Crossing Transportation. Jakarta: Ministry of Transportation.
- [4] Minister of Transportation of the Republic of Indonesia. (2020). Regulation of the Minister of Transportation of the Republic of Indonesia Number PM 19 of 2020 concerning the Implementation of Electronic Crossing Transportation Tickets. Jakarta: Ministry of Transportation.
- [5] M. Febliana, A. D. Lestari, and J. Meirany, "Shipping Flow at the Mouth of the Pinyuh River, Mempawah Regency, West Kalimantan," *JeLAST J. Tek. Marine, PWK, Civil, and Mining*, vol. 8, no. 3, 2021.
- [6] Regulation of the Director General of Land Transportation Number: SK.1272/AP.005/DRJD/2018. (2018). about the Implementation of Electronic Crossing Transportation Tickets. Jakarta: Director General of Land Transportation
- [7] M. Z. Fasya, "Standardization of Existing Conditions and Needs of River and Lake Signs in the Ir. H. Djuanda Reservoir, Purwakarta Regency, West Java Province," Palembang River, Lake, and Crossing Transportation Polytechnic, 2021.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

