Measurement of Service Quality Using Single Truck Identification Data (STID) on Service User Satisfaction at the Main Port of Tanjung Perak Surabaya

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Article Info
Article History
Received: 2025-05-13
Revised: 2025-06-23
Published: 2025-07-08

Keywords:
Service Quality;
Service User Satisfaction;
Single Truck Identification Data (STID);
Port.

Abstract
This study aims to measure how much the quality of service quality of the use of Single Truck Identification Data (STID) affects service users at Tanjung Perak Port. The research method used in this study is a quantitative research method, the population in this study is service users who use the Single Truck Identification Data (STID) card. The sampling technique used is the census technique, which is a sampling technique in which all members of the population are sampled. The results of the study showed that the quality of STID services had a significant influence on the level of satisfaction of service users, The results of the simple linear regression test showed a significance value of 0.000 (< 0.05) with a determination coefficient (R^2) of 0.872, which means that 87.2% of service user satisfaction can be explained by the quality of STID services, while the rest was influenced by other factors that were not studied in this study. From the results of the descriptive analysis, most of the service quality indicators received high ratings from respondents.

Artikel Info
Sejarah Artikel
Diterima: 2025-05-13
Direvisi: 2025-06-23
Dipublikasi: 2025-07-08

Kata kunci:
Kualitas Layanan;
Kepuasan Pengguna Layanan;
Data Identifikasi Truk Tunggal (STID);
Pelabuhan.

Abstrak
Penelitian ini bertujuan untuk mengukur seberapa besar kualitas s layanan penggunaan Data Identifikasi Truk Tunggal (STID) mempengaruhi pengguna layanan di Pelabuhan Tanjung Perak. Metode penelitian yang digunakan dalam penelitian ini adalah metode penelitian kuantitatif, populasi dalam penelitian ini adalah pengguna jasa yang menggunakan kartu Single Truck Identification Data (STID). Teknik pengambilan sampel yang digunakan adalah teknik sensus, yaitu teknik pengambilan sampel di mana semua anggota populasi diambil sampelnya. Hasil penelitian menunjukkan bahwa kualitas layanan STID memiliki pengaruh yang signifikan terhadap tingkat kepuasan pengguna layanan, Hasil uji regresi linier sederhana menunjukkan nilai signifikansi 0,000 (< 0,05) dengan koefisien penentuan (R^2) sebesar 0,872, yang berarti bahwa 87,2% kepuasan pengguna layanan dapat dijelaskan dengan kualitas layanan STID, sedangkan sisanya dipengaruhi oleh faktor lain yang tidak dikaji dalam penelitian ini. Dari hasil analisis deskriptif, sebagian besar indikator kualitas layanan mendapatkan peringkat tinggi dari responden.

I. INTRODUCTION

The Port of Tanjung Perak is one of the most important ports in Indonesia because of its strategic location as the gateway to the eastern region and supported by East Java's strong economic growth. This has led to a significant increase in the flow of domestic and international goods (Syarifuddin et al., 2016). Ports as centers of international and domestic trade need to improve their performance in terms of service, safety, and security. Adequate transportation facilities are very important to support the smooth flow of goods. Effective operation of trucks within the port is crucial to avoid congestion caused by truck congestion (Putri Dwilestari et al., 2024)

In an effort to improve service in the port area, PT Pelabuhan Indonesia in collaboration with the Municipal Affairs Office and the Tanjung Perak Main Port Authority launched the Single Truck Identification Data (STID) system on June 28, 2022. This step is part of the commitment to improve services in the port area and also as an implementation of the recommendations of the National Strategy for Corruption Prevention (Stranas PK) in the context of implementing the National Logistic Ecosystem (NLE) in 10 priority ports.

The implementation of the STID system is based on strong regulations, namely Presidential Instruction No. 5 of 2020 concerning the Arrangement of the National Logistics Ecosystem and the Joint Decision of the Leadership of the Corruption Eradication Commission. The implementation of port services electronically and online at the Main Port of Tanjung Perak Surabaya has had a significant impact on time efficiency, transparency, and ease of the goods

service process. With online services, the potential for fraud such as corruption, collusion, and nepotism can be minimized because all processes are carried out digitally without direct interaction between officers and service users (Scott, 2020).

The implementation of STIDs still faces several challenges, such as accessibility issues and data accuracy, which impact user satisfaction. Further evaluation is required to ensure that the system meets the expected quality standards and responds effectively to the needs of users.

Figure 1. Truck Registration Data at Tanjung Perak Port Surabaya as of May 31, 2024
Source : Data from the Tanjung Perak Main Port Authority and Kesyahbandaran Office (2024)

Data shows that of the 13,607 trucks registered at the Port of Tanjung Perak Surabaya, as many as 8,608 units are still in the status of "conditional approved" because they have not met some of the requirements, while 4,803 units have met all requirements and 118 units have not met all requirements. This indicates that there are obstacles in the implementation of the system, such as a lack of understanding of STID and inadequate preparation from trucking companies. To overcome this, technical guidance and socialization related to the use of the STID system are needed to truck drivers and freight transportation companies (Djari & Adilano, 2023)

The STID system, which uses RFID technology or electronic cards, has several important functions, namely as the identity of the truck at the port and the means of payment for the port pass. The system is also designed to provide an integrated database that makes it easier to identify entities at the port, monitor revenue from vehicle passes, and support the application of new technologies such as the Auto Gate System to manage truck entry and exit schedules more efficiently and flexibly. It also reduces bureaucracy and minimizes corruption, controls traffic at the terminal and maintains a smooth container loading and unloading process.

Research on the quality of STID services at Tanjung Perak Port is still limited, so there is a knowledge gap on how customers rate these services and the extent to which these systems meet their expectations. Therefore, this study aims to measure the relationship between STID service quality and customer satisfaction at Tanjung Perak Port. The results of this study are expected to provide strategic recommendations to improve service quality, support the development of STID systems, and improve port operational efficiency. Based on the above background description, the author will research about "Measuring the Quality of Service for Making *Single Truck Identification Data* (STID) on Service User Satisfaction.

II. METHOD

This study uses a quantitative method, which involves collecting and analyzing data systematically to test the hypothesis that has been determined. Based on Sugiyono (2015), the quantitative method is based on the philosophy of positivism and is used to research a specific sample with statistical data analysis. Quantitative research allows for generalization of results to a wider population because samples are usually taken at random.

In this study, the independent variable used was Quality of Service (X), which was measured through a questionnaire given to respondents. Service quality is defined as the customer's perception of the performance of the services provided. Meanwhile, the bound variable is Service User Satisfaction, which is interpreted as a comparison between the perceived quality of service and customer expectations.

III. RESULT AND DISCUSSION

A. Result

1. Validity Test

To determine the validity of the variables of service quality and service user satisfaction, a significance level criterion of 5% (α = 0.05) was used. With a sample of 30, the table r value of 0.361 was obtained. A variable is considered valid if the value r of the calculation is greater than the r of the table (r-calculated > r-table). The following are the results of the validity test for the variables of Service Quality (X) and Service User Satisfaction (Y):

Table 1. Validity Test Results

Variable	Items	r-calculated	r Table	Conclusion
Quality of Service (X)	X1	.701**	0,361	Valid
	X2	.767**	0,361	Valid
	X3	.521**	0,361	Valid
	X4	.604**	0,361	Valid

	X5	.713**	0,361	Valid
	X6	.733**	0,361	Valid
	X7	.487**	0,361	Valid
	X8	.694**	0,361	Valid
	X9	.675**	0,361	Valid
	X10	.817**	0,361	Valid
	X11	.591**	0,361	Valid
	X12	.693**	0,361	Valid
	X13	.723**	0,361	Valid
	X14	.775**	0,361	Valid
	X15	.891**	0,361	Valid
	X16	.619**	0,361	Valid
	X17	.877**	0,361	Valid
	X18	.658**	0,361	Valid
Service User Satisfaction (Y)	Y1	.653**	0,361	Valid
	Y2	.674**	0,361	Valid
	Y3	.559**	0,361	Valid
	Y4	.713**	0,361	Valid
	Y5	.640**	0,361	Valid
	Y6	.827**	0,361	Valid
	Y7	.576**	0,361	Valid
	Y8	.665**	0,361	Valid
	Y9	.821**	0,361	Valid
	Y10	.766**	0,361	Valid

Source: Data Processed by Researchers

Based on the results of the validity test in Table 1, all items in the variables Quality of Service (X) and User Satisfaction (Y) have a value of r-count > r-table (0.361), **so** that all statements are declared valid and suitable for further analysis.

2. Reliability Test

The reliability of a variable is determined by comparing Cronbach's Alpha value with a threshold value of 0.6. If Cronbach's Alpha value exceeds 0.6, then the variable is considered reliable for further analysis.

Table 2. Reliability Test Results

Variable	Cronbach's Alpha	Conclusion
Quality of Service (X)	0,938	Reliable (Sangat Baik)
Service User Satisfaction (Y)	0,874	Reliable (Sangat Baik)

Source : Data Processed by Researchers

Cronbach's Alpha values for variables X and Y are 0.938 and 0.874, respectively, which are above the threshold of 0.6. This shows that the research instrument has a high level of reliability and can be trusted as a measuring tool

3. Normality Test

The normality test aims to find out whether the data is distributed normally. Good data is data that has a pattern like normal distribution. In this study, the normality test analyzes the significance value with the test criterion if the significance value > 0.05, then the regression model meets the normality assumption.

Table 3. Normality Test Results

One-Sample Kolmogorov-Smirnov Test	
N	30
Kolmogorov-Smirnov Z	.414
Asymp. Sig. (2-tailed)	.995

Source : Data Processed by Researchers

The results of normality analysis using the Kolmogrov-Smirnov Test showed a significance value of 0.995 which was greater than the alpha of 0.05. With the above significance values, it can be concluded that the regression model is normally distributed.

4. Simple Linear Regression Analysis

To test the research hypothesis, a simple linear regression model is used. This is because in this study the researcher wanted to examine the influence of one independent variable on one bound variable. The following are the results of a simple linear regression analysis:

Table 4. Results of Simple Linear Regression Analysis

Coefficient						
Type		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.281	2.448		2.157	.040
	Quality of Service	.484	.035	.934	13.809	.000

Source : Data Processed by Researchers

Based on the table of results of the simple linear regression test above, a linear regression equation can be made as follows:

The resulting linear regression equation is:

$$Y = 5.281 + 0.484\ X$$

This means that if there is no improvement in the quality of service (X = 0), then the user satisfaction value (Y) is estimated to be 5.281. Each one unit improvement in service quality will increase user satisfaction by 0.484

From the above statement, it can be concluded that there is a positive

relationship between the quality of STID use services and User Satisfaction. In other words, the better the implementation and service of the STID system, the higher the level of satisfaction felt by service users at Tanjung Perak Port.

5. T Test

The purpose of the T test is to find out whether the independent variable (X) partially affects the dependent variable (Y), provided that the significance level is < α (0.05). The following is a table of the results of the t-test:

Table 5. T Test Results

Coefficient						
Type		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.281	2.448		2.157	.040
	Quality of Service	.484	.035	.934	13.809	.000

Source : Data Processed by Researchers

Based on the results of the T Test above, The results of the t-test showed a significance value of 0.000 (< 0.05), so the alternative hypothesis (Ha) was accepted. Thus, there is a significant influence between service quality and user satisfaction.

6. Coefficient Determination Test

The determinant coefficient (R) is a coefficient that indicates how large the percentage of independent variables is. The results of this Coefficient of Determination test can be seen in the Adjusted R Square section of the Summary model table. The following are the results of the Coefficient of Determination in this study:

Table 6. Determination Coefficient Test Results

Model Summary				
Type	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.934a	.872	.867	2.178

Source : Data Processed by Researchers

Based on table 6 above, it can be seen that the correlation coefficient (R) is 0.934 which means that there is a significant relationship between the independent variable and the dependent variable because the value of R is close to 1. This shows that the greater the value of X, the greater the value of Y. The value of R^2 is 0.872 which means that 87.2% of customer satisfaction is influenced by service quality variables. The remaining 12.8% was influenced by other variables that had not been studied in this study.

B. Discussion

Based on the results of research conducted on service users at the Tanjung Perak Main Port, it was found that the quality of service *Single Truck Identification Data* (STID) has a significant effect on the level of satisfaction of service users. The results of the linear regression show a significance value of 0.000 (< 0.05), so Ha is accepted. This means that STID service quality has a positive and significant influence on user satisfaction. The regression coefficient of 0.484 shows that every one unit increase in STID service quality will increase user satisfaction by 0.484 units. The constant value of 5.281 indicates that without any improvement in service quality, the level of user satisfaction remains at a relatively high initial score, which may reflect the basic expectations or minimum satisfaction felt by users. This reinforces that the service quality factor plays an important role in influencing satisfaction.

The value of the determination coefficient (R^2) of 0.872 shows that 87.2% of the service user satisfaction variable can be explained by the service quality variable, while the remaining 12.8% is influenced by other factors that have not been studied, such as service prices, external logistics systems, or other external factors. The results of the descriptive analysis of the respondents' answers stated that, where most of the service quality indicators received a mean score above 3.5 with the highest statement being that communication with STID officers ran clearly and smoothly, this was shown by an average score of 4.26. And the level of accuracy of the STID system in identifying satisfactory and well-integrated trucks is shown with a mean score of 4.43. This shows that service users assess the quality of STID services quite high, especially in terms of communication clarity and system accuracy.

However, there are also several aspects that need further attention, such as the STID identification process completed within a reasonable time which obtained a mean score of 3.37 which shows that some respondents feel that the STID identification process is still

not optimal. In addition, technical obstacles and understanding of the use of STID systems are still obstacles that need to be fixed. Overall, this study proves that the implementation of STID at Tanjung Perak Port has had a positive impact on service user satisfaction, but improvements in terms of process time and user education are still needed to achieve optimal service quality.

IV. CONCLUSION AND SUGGESTION

A. Conclusions

Based on the results of the research conducted on the effect of service quality using Single Truck Identification Data (STID) on the satisfaction of service users at the Main Port of Tanjung Perak Surabaya, an important conclusion was obtained, namely that the quality of STID services has a significant influence on the level of satisfaction of service users. The results of the simple linear regression test showed a significance value of 0.000 (< 0.05) with a determination coefficient (R^2) of 0.872, which means that 87.2% of service user satisfaction can be influenced by the quality of STID services, while the rest is influenced by other factors that were not studied in this study. This can be aimed at the aspect of communication between officers and service users obtaining the highest scores, which shows that users really appreciate the openness and clarity of the information provided. In addition, the accuracy level of the STID system shows that the system is quite reliable in detecting vehicle identity.

B. Suggestion

Based on the conclusions presented above, the researcher made the following suggestions that Although the implementation of STID is considered good, there is still room for improvement, especially in terms of speed of service and education to users. Overall, it can be concluded that the STID system has made a positive contribution to the smooth running of services at the port and the satisfaction of service users.

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