JEMSI: Jurnal Ekonomi Manajemen Sistem Informasi
E-ISSN: 2686-5238
P-ISSN: 2686-4916
https://dinastirev.org/JEMSI dinasti.info@gmail.com +62 811 7404 455
DOI: https://doi.org/10.38035/jemsi.v7i5
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Received: 11 March 2026 | **Revised:** 1 May 2026 | **Accepted:** 7 May 2026

Model of The Effect of Facilities, Service Quality Through Passenger Trust on Customer Satisfaction at Terminal 3 Soekarno–Hatta Airport in 2025

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Abstract*:* This study aims to analyze the effects of facilities and service quality on customer satisfaction, with customer trust as a mediating variable, at Terminal 3 of Soekarno–Hatta International Airport in 2025. A quantitative approach with a survey method was employed. Data were collected through questionnaires distributed to 280 passengers using Terminal 3. The data were analyzed using Structural Equation Modeling based on Partial Least Squares (SEM-PLS). The results show that facilities and service quality have a positive and significant effect on customer satisfaction and customer trust. Customer trust also has a positive and significant effect on customer satisfaction. Furthermore, customer trust significantly mediates the relationship between facilities, service quality, and customer satisfaction. These findings indicate that improving passenger satisfaction requires not only better facilities and service performance but also the ability of airport management to build and maintain passenger trust.

Keywords: Facilities, Service Quality, Satisfaction, Trust, Airport.

INTRODUCTION

Air transportation has become one of the most important modes of transportation due to its speed, efficiency, and ability to connect regions across long distances. These advantages make air travel a preferred choice for many passengers despite its relatively higher cost compared with other transportation modes. Consequently, airports as the main infrastructure supporting air transportation must ensure high service standards to meet passenger expectations and maintain service competitiveness.

Service quality is one of the key factors influencing passenger satisfaction. Service quality reflects the ability of service providers to meet customer needs and expectations through reliable and responsive services (Idrus, 2019). According to Kotler, service quality is a critical determinant of customer satisfaction and organizational performance. The SERVQUAL framework explains that service quality can be assessed through five dimensions: tangibles, reliability, responsiveness, assurance, and empathy (Rangkuti cited in Angraini & Angraini, 2022). In airport operations, these dimensions are reflected in efficient passenger handling, professional staff performance, and the availability of comfortable facilities.

In addition to service quality, the availability of facilities also plays an essential role in shaping passenger experiences at airports. Based on Undang-Undang Republik Indonesia Nomor 1 Tahun 2009, airports must provide operational infrastructure, safety facilities, and supporting services to ensure smooth passenger mobility. Adequate facilities not only support operational efficiency but also contribute to passenger comfort and satisfaction (Firmansyah et al., 2023).

Soekarno–Hatta International Airport, as the largest airport in Indonesia, serves millions of passengers each year. Data from the Central Bureau of Statistics (BPS, 2025), shows that passenger traffic reached over 47 million in 2018 before the COVID-19 pandemic, followed by a sharp decline during the pandemic and a significant recovery afterward. The rapid growth of passenger numbers increases the importance of maintaining high service standards in airport terminals.

Despite these developments, several service issues have been reported at Terminal 3 of Soekarno–Hatta Airport. Complaint data from the Customer Satisfaction Index (CSI) in 2024 indicates that problems related to waiting room air conditioning and passenger facilities remain among the most frequently reported complaints. Previous studies also identified operational challenges such as long walking distances between check-in areas and boarding gates, long queues, and insufficient information services (Anggelina & Naipospos, 2023). These issues indicate that improvements in facilities and service quality are still required to enhance passenger satisfaction.

Another important factor influencing passenger satisfaction is passenger trust. Trust refers to the belief that service providers will deliver consistent, reliable, and responsible services (Mawarti, 2019). When passengers trust the service provider, they are more likely to perceive the service experience positively and express higher levels of satisfaction. Several studies have shown that service quality and facilities significantly influence customer satisfaction through trust (Nazlia, 2017). However, other studies report inconsistent findings, indicating the need for further investigation in specific service contexts such as airport terminals (Natasya & Yudhira, 2023).

Based on these considerations, this study aims to analyze the effect of facilities and service quality on passenger satisfaction through passenger trust at Terminal 3 of Soekarno–Hatta International Airport in 2025. This research is expected to contribute to the literature on airport service management and provide practical insights for improving passenger experience and service performance at major airport terminals.

METHOD

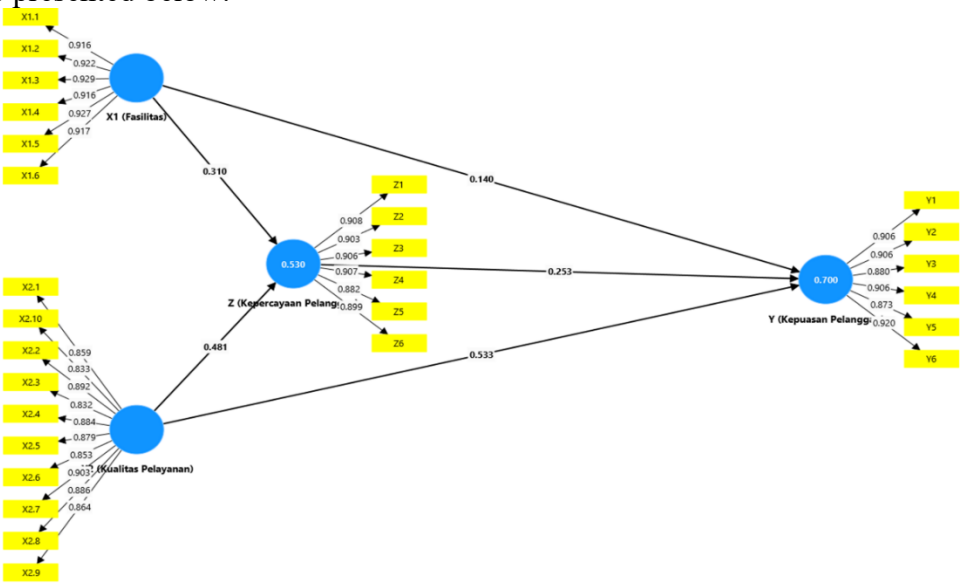
This study employs a quantitative research method with a descriptive approach to examine the relationships between facilities, service quality, passenger trust, and passenger satisfaction at Terminal 3 of Soekarno–Hatta International Airport. The research was conducted from May to July 2025. The population consists of all passengers using Terminal 3, including both domestic and international travelers. Based on passenger traffic data from January to August 2025, the airport served approximately 39.4 million domestic passengers and 13.5 million international passengers. The sampling technique used in this study is probability sampling with a simple random sampling approach. Referring to Hair et al. (2017) the minimum sample size for research using PLS-SEM follows the “10 times rule,” which states that the sample should be at least ten times the number of indicators in the model. Based on 28 indicators used in this study, the minimum sample size required is 280 respondents.

The data analysis technique used in this research is Structural Equation Modeling (SEM) with the Partial Least Squares (PLS) approach, processed using SmartPLS version 4. SEM is a multivariate statistical method that integrates factor analysis and regression analysis to analyze relationships among latent variables (Ginting, 2009). The analysis procedure consists of three stages: evaluation of the measurement model (outer model) to assess validity and reliability,

evaluation of the structural model (inner model) to examine relationships between variables, and hypothesis testing using bootstrapping to determine the significance of the proposed relationships. Through this method, the study aims to identify the influence of facilities and service quality on passenger satisfaction through passenger trust.

RESULTS AND DISCUSSION

The assessment of convergent validity constitutes an important stage in exploratory or confirmatory factor analysis within multivariate statistical procedures. The purpose of this assessment is to determine the extent to which each indicator or construct accurately represents the concept it is designed to measure. In other words, convergent validity evaluates whether a set of observed variables consistently reflects the same underlying latent factor. A widely accepted criterion in this evaluation is that an indicator is considered valid when its loading factor is greater than 0.70, indicating a strong association between the indicator and the latent construct it represents. The results of the PLS model estimation used to evaluate these validity values are presented below:



Source: Research Results
Figure 1. Outer Model

Based on the findings of the validity analysis, the loading factor values illustrating the relationship between each variable and its corresponding indicators are presented as follows:

Table 1. Outer Loading

Variable	Indicator	Outer Loading	Indication
Facility	X1.1	0.916	VALID
	X1.2	0.922	
	X1.3	0.929	
	X1.4	0.916	
	X1.5	0.927	
	X1.6	0.917	
Service Quality	X2.1	0.833	VALID
	X2.2	0.892	
	X2.3	0.832	
	X2.4	0.884	
	X2.5	0.879	
	X2.6	0.853	
	X2.7	0.903	

Variable	Indicator	Outer Loading	Indication
	X2.8	0.886	
	X2.9	0.833	
Customer Trust	Z1	0.908	VALID
	Z2	0.903	
	Z3	0.906	
	Z4	0.907	
	Z5	0.882	
	Z6	0.899	
Customer Satisfaction	Y1	0.906	VALID
	Y2	0.906	
	Y3	0.880	
	Y4	0.906	
	Y5	0.873	
	Y6	0.920	

Source: Research data

The table above illustrates the factor loading values for each indicator across the constructs, which vary in magnitude among the variables. Since all loading factor values are greater than 0.70, the indicators are considered to have satisfactory validity. Besides loading factors, convergent validity is also evaluated using the Average Variance Extracted (AVE) as an additional criterion. AVE indicates the proportion of variance captured by a construct relative to the variance caused by measurement error. A construct is considered to meet the validity requirement when its AVE value exceeds 0.50. The AVE results for each variable are presented as follows:

Table 2. AVE (Average Variance Extracted)

Research Variable	Average variance extracted (AVE)	Indication
FCLT (X1)	0.769	VALID
SERQ (X2)	0.799	VALID
CSAT (Y)	0.757	VALID
CTRS (Z)	0.776	VALID

Source: Research data

According to Ghozali & Latan (2014), the Average Variance Extracted (AVE) is used to assess the convergent validity of constructs measured with reflective indicators. An AVE value of 0.50 or higher indicates that the construct is able to account for at least 50% of the variance in its indicators. In addition, the reliability of each construct is examined using Cronbach's Alpha and Composite Reliability (CR). A construct is considered to demonstrate adequate internal consistency when both Cronbach's Alpha and Composite Reliability values are greater than 0.70, indicating that the indicators consistently represent the same latent concept.

Tabel 3. Result Cronbach Alpha dan Composite Reliability

	Cronbach's alpha	Composite reliability (rho_c)	Indication
FCLT (X1)	0.964	0.971	Reliable
SERQ (X2)	0.964	0.969	
CSAT (Y)	0.952	0.962	
CTRS (Z)	0.954	0.963	

Source: Research data

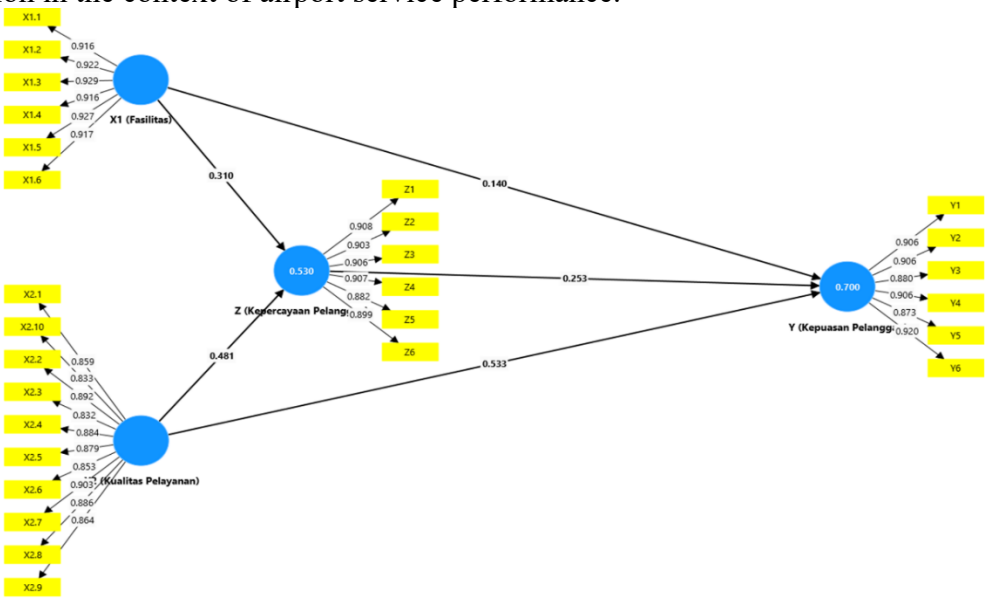
Based on the reliability test results, all constructs show Cronbach's Alpha values exceeding the minimum acceptable threshold (≥0.6 for exploratory studies and ≥0.7 for confirmatory research), while the Composite Reliability values are also greater than 0.70. These findings indicate that the measurement instruments used in this study exhibit strong internal consistency and reliability. Therefore, the instruments are considered appropriate for use, and the collected data can be regarded as consistent and reliable for further analysis.

Table 4. The Coefficient of Determination (R^2)

	R-square	R-square adjusted
CSAT (Y)	0.700	0.696
CTRS (Z)	0.530	0.526

Source: Research data

The coefficient of determination (R^2) results indicate that customer satisfaction (CSAT) has an R-square value of 0.700 (adjusted R^2 = 0.696), which means that 70% of the variation in customer satisfaction can be explained by the independent variables included in the model. Meanwhile, customer trust (CTRS) shows an R-square value of 0.530 (adjusted R^2 = 0.526), indicating that 53% of the variance in customer trust is explained by the predictors in the model. According to Hair et al. (2017), R^2 values of 0.75, 0.50, and 0.25 can be categorized as substantial, moderate, and weak respectively. Therefore, the results suggest that the structural model has moderate to strong explanatory power in explaining customer trust and customer satisfaction in the context of airport service performance.



Source: Research Results
Figure 2. Bootstraping Model

This stage involves hypothesis testing to evaluate the significance of the relationships among variables within the research model, including the independent variables (Facilities and Service Quality), the mediating variable (Customer Trust), and the dependent variable (Customer Satisfaction). The hypothesis testing was conducted using the bootstrapping procedure in the Partial Least Squares (PLS) method with SmartPLS version 4. The evaluation of the structural relationships is based on the original sample values, T-statistics, and P-values obtained from the bootstrapping results. A hypothesis is considered supported when the T-statistic exceeds the critical threshold and the P-value is less than 0.05, indicating a statistically significant relationship between the variables; otherwise, the hypothesis is rejected.

Table 5. Bootstrapping Result

Hypothesis	Path	Original sample (O)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values

H1	The effect of Facilities (X1) on Customer Satisfaction (Y) (H1)	0.140	0.049	2.848	0.004
H2	The effect of Facilities (X1) on Customer Trust (Z) (H2)	0.310	0.067	4.599	0.000
H3	The effect of Service Quality (X2) on Customer Satisfaction (Y) (H3)	0.533	0.057	9.385	0.000
H4	The effect of Service Quality (X2) on Customer Trust (Z) (H4)	0.481	0.062	7.715	0.000
H5	The effect of Customer Trust (Z) on Customer Satisfaction (Y) (H5)	0.253	0.054	4.687	0.000
H6	The effect of Facilities (X1) on Customer Satisfaction (Y) through Customer Trust (Z) (H6)	0.078	0.025	3.160	0.002
H7	The effect of Service Quality (X2) on Customer Satisfaction (Y) through Customer Trust (Z) (H7)	0.122	0.032	3.828	0.000

Source: Research data

Hypothesis 1

Based on the hypothesis testing results presented in Table 5, the coefficient value for perceived facilities is 0.14 with a p-value of 0.004 (< 0.05). These results indicate that perceived facilities have a positive and significant effect on customer satisfaction; therefore, the first hypothesis (H1) in this study is accepted. The findings of this study are consistent with the results reported by Nazlia (2017), which demonstrate that facilities have a positive and significant influence on consumer satisfaction. The study emphasizes that the availability of adequate facilities that meet the needs of service users can enhance comfort and create a positive experience, thereby contributing to higher levels of customer satisfaction. This indicates that facilities do not merely function as complementary service elements but serve as a key component in creating value for service customers.

Hypothesis 2

Based on the hypothesis testing results presented in Table 5, the coefficient value for perceived facilities is 0.310 with a p-value of 0.000 (< 0.05). These findings indicate that perceived facilities have a positive and significant effect on customer trust; therefore, the second hypothesis (H2) in this study is accepted. The results of this research are consistent with the findings of Mawarti (2019), which state that service facilities have a positive influence on customer trust. The study emphasizes that adequate facilities that meet customer expectations can strengthen customers' confidence that the service provider possesses the capability and commitment to deliver consistent service. In other words, facilities serve as an important indicator used by customers to evaluate whether an organization is reliable and worthy of trust.

Hypothesis 3

Based on the hypothesis testing results presented in Table 5, the coefficient value for perceived service quality is 0.533 with a p-value of 0.000 (< 0.05). These results indicate that service quality has a positive and significant effect on customer satisfaction; therefore, the third hypothesis (H3) in this study is accepted. The findings are consistent with the international study conducted by Bezerra & Gomes (2015), which reported that airport service quality has a positive and significant influence on passenger satisfaction. The study emphasizes that service quality dimensions—such as tangibles, reliability, responsiveness, assurance, and empathy directly affect the satisfaction level of airport service users. The better the performance across these service quality dimensions, the higher the level of satisfaction experienced by passengers.

Hypothesis 4

Based on the hypothesis testing results presented in Table 5, the coefficient value for perceived service quality is 0.481 with a p-value of 0.000 (< 0.05). These findings indicate that service quality has a positive and significant effect on customer trust; therefore, the fourth hypothesis (H4) in this study is accepted. The results are consistent with the findings of Umaena & Dyahjatmayanti (2025), which demonstrate that service quality has a positive and significant influence on customer trust. The study highlights that consistent service delivery that meets customer expectations can strengthen customers' confidence in the credibility and reliability of service providers. Thus, customer trust is not formed instantly but develops through repeated and consistent service experiences perceived by customers.

Hypothesis 5

Based on the hypothesis testing results presented in Table 5, the coefficient value for perceived customer trust is 0.253 with a p-value of 0.000 (< 0.05). These findings indicate that customer trust has a positive and significant effect on customer satisfaction; therefore, the fifth hypothesis (H5) in this study is accepted. Furthermore, these results are supported by the national study conducted by Mawarti (2019), which found that customer trust significantly influences customer satisfaction in the service sector. The study explains that customers who believe in the honesty, responsibility, and consistency of service providers tend to experience higher levels of satisfaction because their expectations are fulfilled continuously. This suggests that trust not only directly affects customer satisfaction but also strengthens the long-term relationship between customers and service providers.

Hypothesis 6

Based on the results of the indirect effect testing presented in Table 5, the path coefficient from facilities to customer satisfaction through customer trust is 0.078 with a p-value of 0.002 (< 0.05). These findings indicate that facilities have a positive and significant effect on customer satisfaction through customer trust; therefore, the sixth hypothesis (H6) in this study is accepted. The results of this research are consistent with the international study conducted by Chen & Chang (2005), which found that trust plays an important mediating role in the relationship between service attributes and customer satisfaction. The study explains that service attributes perceived positively by customers are more effective in enhancing satisfaction when they first succeed in building customer trust. Thus, trust functions as a bridging mechanism that strengthens the influence of service-related factors on customer satisfaction.

Hypothesis 7

Based on the results of the indirect effect testing presented in Table 5, the path coefficient from service quality to customer satisfaction through customer trust is 0.122 with a p-value of 0.000 (< 0.05). These findings indicate that service quality has a positive and significant effect on customer satisfaction through customer trust; therefore, the seventh hypothesis (H7) in this study is accepted. These results are also supported by the national study conducted by Umaena & Dyahjatmayanti (2025), which found that service quality influences customer satisfaction both directly and indirectly through trust. The study demonstrates that consistent service delivery oriented toward customer needs can build customer trust, which ultimately enhances customer satisfaction. This finding reinforces the view that trust serves as a key element in explaining how service quality contributes to sustainable customer satisfaction.

CONCLUSIONS

The results of this study demonstrate that facilities and service quality play a significant role in shaping customer satisfaction at Terminal 3 of Soekarno–Hatta International Airport. Facilities were found to have a positive and significant effect on both customer satisfaction and customer trust, indicating that the availability and adequacy of airport facilities contribute to improving passengers' perceptions and experiences. Likewise, service quality shows a strong positive influence on customer satisfaction and customer trust, suggesting that reliable,

responsive, and professional service delivery is essential in enhancing customer perceptions toward airport services.

Furthermore, customer trust was proven to have a significant positive effect on customer satisfaction and also acts as a mediating variable in the relationship between facilities, service quality, and customer satisfaction. This finding indicates that improvements in facilities and service performance can increase customer satisfaction more effectively when they also strengthen customer trust. Therefore, airport management should focus not only on improving physical infrastructure and service performance but also on building customer trust as a strategic factor in creating sustainable customer satisfaction.

From a practical perspective, airport operators should prioritize continuous improvements in both physical facilities and service management systems to enhance the overall customer experience. This can include improving waiting area comfort, optimizing passenger flow between gates and service areas, enhancing information services, and strengthening staff professionalism through training and service standardization. In addition, the integration of digital technologies and real-time service monitoring systems can support operational transparency and responsiveness, which are important factors in building long-term customer trust and maintaining high levels of customer satisfaction.

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