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DETERMINATION OF PRIORITY FOR SERVICE IMPROVEMENT USING THE SERVQUAL DIMENSIONS, IMPORTANCE PERFORMANCE ANALYSIS AND ANALYTICAL HIERARCHY PROCESS TO IMPROVE THE SERVICE QUALITY IN TERMINAL 3 SOEKARNO-HATTA AIRPORT

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ABSTRACT

This study evaluates the service quality of Terminal 3 at Soekarno-Hatta International Airport, Jakarta, from both passenger and management perspectives. Terminal 3, the airport's newest and largest terminal, began operations in August 2016 and is designed to accommodate up to 25 million passengers annually. Data were collected through passenger questionnaires based on the five SERVQUAL dimensions and analyzed using the SERVQUAL gap model and Importance-Performance Analysis (IPA). Additionally, the Analytical Hierarchy Process (AHP) was applied to gather management perspectives, with criteria drawn from the SERVQUAL dimensions. Findings reveal a consistent negative gap between passenger expectations and perceptions across all 30 service attributes, with gaps ranging from 0.34 to 1.2, indicating dissatisfaction with service quality. IPA results highlight six attributes requiring urgent improvement, while AHP analysis from management ranks the tangible dimension as the top priority for enhancement. This study contributes to service quality measurement in airport management by integrating passenger and managerial viewpoints. The findings provide practical guidance for PT Angkasa Pura in identifying priority areas and developing strategies to enhance passenger satisfaction and overall service quality at Terminal 3.

Keywords: Service Quality; Airport; SERVQUAL; IPA; AHP

ABSTRAK

Penelitian ini mengevaluasi kualitas layanan Terminal 3 Bandara Internasional Soekarno-Hatta, Jakarta, dari perspektif penumpang maupun manajemen. Terminal 3, sebagai terminal terbaru dan terbesar, mulai beroperasi pada Agustus 2016 dan dirancang untuk menampung hingga 25 juta penumpang per tahun. Data dikumpulkan melalui kuesioner penumpang berdasarkan lima dimensi SERVQUAL) dan dianalisis menggunakan model kesenjangan SERVQUAL serta Importance-Performance Analysis (IPA). Selain itu, Analytical Hierarchy Process (AHP) digunakan untuk memperoleh perspektif manajemen dengan kriteria yang diambil dari dimensi SERVQUAL. Hasil penelitian menunjukkan adanya kesenjangan negatif secara konsisten antara harapan dan persepsi penumpang pada seluruh 30 atribut layanan, dengan rentang gap antara 0,34 hingga 1,2, yang mengindikasikan ketidakpuasan terhadap kualitas layanan. Hasil IPA menyoroti enam atribut yang membutuhkan perbaikan segera, sedangkan analisis AHP dari pihak manajemen menempatkan dimensi tangible sebagai prioritas utama untuk ditingkatkan. Penelitian ini berkontribusi pada pengukuran kualitas layanan dalam manajemen bandara dengan mengintegrasikan sudut pandang penumpang dan manajemen. Temuan penelitian ini memberikan panduan praktis bagi PT Angkasa Pura dalam mengidentifikasi area prioritas serta menyusun strategi peningkatan kepuasan penumpang dan kualitas layanan secara keseluruhan di Terminal 3.

Kata Kunci: Kualitas Layanan; Bandara; SERVQUAL; IPA; AHP

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INTRODUCTION

Indonesia, as an archipelagic country, experiences air transportation growth with increasing demand for airport services which then develops into the need to provide more effective and efficient airport terminal services (Manataki & Zografos, 2009). To accommodate this growth, Terminal 3 Ultimate at Soekarno-Hatta was planned to serve up to 25 million passengers annually (Pradana & Ahyudanari, 2017). Terminal 3 began operation on 9 August 2016. Since then, there have been several complaints from passengers and institutions regarding facilities, infrastructure, service speed, cleanliness, information availability, and staff responsiveness at Terminal 3. Recent empirical studies show that *personnel competence, facility reliability,* and *process speed* have a significant positive effect on customer satisfaction via service performance at Terminal 3. Other studies find that service quality, product quality, and facility factors (e.g., baggage handling, waiting room amenities) strongly influence passenger satisfaction, with gaps noted in information units and domestic passenger services especially.

Recent empirical studies confirm these complaints: Wardhani, Simarmata, & Abdurachman (2023) shown that personnel competence, facility reliability, and process speed significantly affect service performance and customer satisfaction. Harahap, Simarmata, & Noor (2024) found service quality gaps, especially in terminal facilities and service speed. Karyono & Simarmata (2024) highlight dissatisfaction around waiting room facilities, check-in speed, and complaint handling. Khoiriyyah & Subiyantoro (2024) show layout issues: long walking distances between check-in and gates, limited travelators, affecting comfort especially for those with reduced mobility. Sentiment analysis by Khairunnaziri et al. (2025) reveals that terminal facilities and environmental aspects are the most frequently mentioned in passenger reviews, pointing to these as priority areas for improvement. The studies of operations and services provided by airports are currently being carried out from a very diverse perspective. Fodness & Murray (2007) conducted an empirical survey of passenger expectations regarding airport services. Lubbe, Douglas & Zambellis (2011) claim that the primary measure of airport operation assessment is the opinion of passengers; therefore it is very important to analyze passenger expectations regarding the quality of airport services. Passengers must define and evaluate services.

RESEARCH METHODOLOGY

The study used the perception of passengers to analyze the service quality of Terminal 3 in Soekarno-Hatta Airport using the SERVQUAL method and both perception of passengers using the Importance Performance Analysis and the perception of the airport management staff using the Analytical Hierarchy Process to determine the priority of SERVQUAL dimensions for service improvement. The questionnaires for the passengers are distributed to 204 passengers with a 7% research error being considered (Israel, 2019), while from the airport management staff, 30 votes are obtained from the questionnaire distribution, However based on AHP data processing, only 10 votes

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from the airport management staff met the consistency ratio of 0.01 and were eligible for use in this study.

Data Collection Methods

Data were obtained by distributing questionnaires to passengers using Terminal 3 airport. The questionnaire uses a service quality measurement model (SERVQUAL) from Parasuraman et., al (1988) which has five dimensions namely:

Tabel 1. Identification of questionnaire attributes

Dimensions	Service Quality Attributes
Responsiveness	1. Smooth queue on passenger admission (check-in, immigration, boarding)
	2. Information to passengers conveyed accurately through visuals and audio (flight schedule information, flight delays, flight changes / cancellations and other information)
	3. Willingness and quick responses of airport staff to assist passengers
Reliability	1. Consistency of airport staff in providing services to passengers
	2. Passengers get good public transportation options to and from the airport (airport buses and trains)
	3. Efficient and safe passenger's baggage services
Assurance	1. Officers maintain security and order at the airport
	2. Airport staff have knowledge in answering questions
	3. There are appeals to passengers in safeguarding luggage and information in emergency / danger situations.
	4. The availability of information service facilities for passengers who need information about airports / flights
	5. Passengers feel safe from any form of crime in the terminal area by the availability of security officers and facilities (Guard at the x-ray entrance of the departure terminal entrance, x-ray door after immigration, body scanner, x-ray door at the exit of the arrival terminal)
Empathy	1. Facilities and services for the convenience of passengers with special needs
	2. Availability of passenger complaints service/procedure regarding airport services
	3. Airport staff is compassionate in handling passenger problems
	4. Airport cleanliness (terminals, floors, seating, toilets and public areas)
Tangible	1. Signs / information about rescue in emergency / danger situations and supporting equipment
	2. Health care and worship facilities
	3. Facilities provided for passengers during the transit process to continue flights to the destination airport
	4. Aviobridge and passenger bus
	5. Availability of trolley for passenger luggage
	6. Waiting room facilities before boarding (seating and television / entertainment facilities as well as children's play areas).

P ISSN: 2528-0821
E ISSN: 2580-5479

Dimensions	Service Quality Attributes
	7. Parking area facilities to provide parking services for vehicles either 4-wheeled or 2-wheeled
	8. Suitable source of airport lighting
	9. Free drinking water facilities
	10. Smoking room facility
	11. Cleanliness of toilet or shower facilities
	12. Internet and Wi-Fi facilities
	13. Availability of ATMs and money changers
	14. Availability of passenger mobility facilities in the terminal area to the boarding gate (lifts, escalators, golf carts).
	15. Availability of restaurants and shopping facilities (duty free, minimarket, souvenir shop, bookstore).

The questionnaire for passengers consists of a total 30 attributes in the form of statements. It requires the 204 respondents to fill in the expectation score in each service quality attribute of Terminal 3 and the perception score on how satisfied the passengers of the actual service quality performance in Terminal 3 . The assessment uses a Likerts scale, in which for expectation assessment scores, the scale consists of 1 = Not Important At All, 2 = Not Important, 3 = Fairly Important, 4 = Important, and 5 = Very Important. For the assessment of perception scores, the scale consists 1 = Very Dissatisfied, 2 = Dissatisfied, 3 = Quite Satisfied, 4 = Satisfied, 5 = Very Satisfied. Furthermore, the respondents referred to are individuals who just used the services of Terminal 3 in Soekarno Hatta airport.

Using the gap model, Parasuraman (1985) identified how differences exist between service quality expectation and the perception on actual performance to determine the service quality level. The service attributes in this study was developed by referring to the five SERVQUAL dimensions from Parasuraman (1985) and the the national regulation from the Ministry of Transportation Regulation No. 38 of 2015.

Next, a questionnaire was also distributed to Terminal 3 airport management namely PT Angkasa Pura II management. The airport management made a decision in choosing and determining the priority order of services from the five SERVQUAL dimensions using the AHP method in an effort to improve the service quality of Terminal 3. The airport management who are considered experts are asked to evaluate each combination with a rating scale, scale 1 = Equal, 3 = Moderate, 5 = Strong, 7 = Very Strong and 9 = Extreme.

Data Analysis

The following data analysis was performed: (a) the validity test of this study used Pearson Correlation for each attribute's expectation and perception scores. The entire results on the questionnaire was valid because it had a validity score of more than 0.3 (b) The attributes consisting of 30 statements on the questionnaire are considered reliable because they have a reliability score of more

P ISSN: 2528-0821
E ISSN: 2580-5479

than or equal to Alpha> 0.60 (Priyatno: 2008). (c) Calculation of gap analysis between the expectation and the perception of actual service from the passengers. Parasuraman suggests that service quality can be defined as a gap between expectations and perceptions of passengers on the performance of the quality of service they accepted.

In addition to measuring the service quality model using the SERVQUAL dimensions, this study use Importance Performance Analysis (IPA), an evaluation tool used to determine prioritizing areas for improvement. The diagram is divided into four quadrants. From the expectation score and the perception score of each attribute, it can then be seen whether an attribute is in: Quadrant I (High Importance/ Low Performance) labeled Concentrate Here. The attributes included in this quadrant represent the main areas that need to be improved with top priority. Quadrant II (High Importance / High Performance) is labeled Keep Up the Good Work. Quadrant III (Low Importance/ Low Performance) is labeled Low Priority. Quadrant IV (Low Importance/ High Performance) is labeled as Possible Overskill. This shows the attributes where the management of the airport put too much focus on; therefore, instead of continuing to focus in this quadrant, they must allocate more resources to deal with the attributes in quadrant I.

This study also uses the AHP method involving airport management, hereinafter referred to as experts. The method of data collection by conducting interviews and distributing questionnaires (questionnaires) to determine the perceptions of airport management to determine the priority order of services to passengers so that service improvement is optimal.

This study uses the AHP method which consists of only one level (layer) hierarchy without alternatives or sub criteria. In this research hierarchy, the criteria used are the five dimensions of SERVQUAL. Both of the SERVQUAL IPA and AHP methods are using the same SERVQUAL dimensions so that we can compare the difference on the priorities of service quality from the perception of passengers and the airport management. The following is the AHP model for this study.

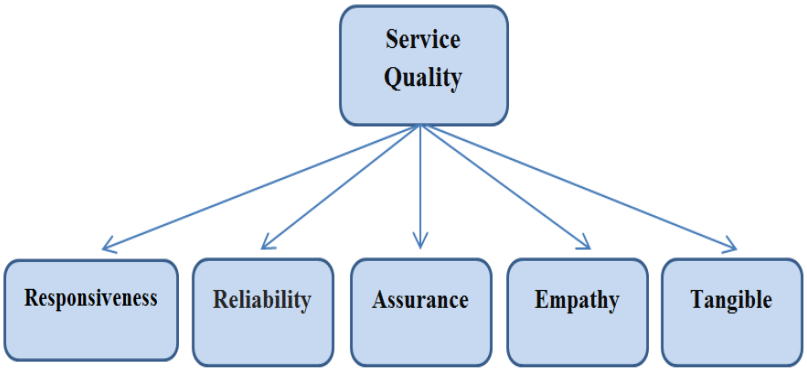

Figure 1. AHP model

P ISSN: 2528-0821
E ISSN: 2580-5479

Servqual

Gap score is the difference from the perception score minus the expetation score, the following table shows the values of the expectation score, perception score, and the gap for each service quality attribute. Based on the results of the SERVQUAL score calculation, the average score of satisfaction from customers is 3.57 (out of 5) while the average expectation score is 4.30 (out of 5). That is, there is a gap of -0.73. This gap occurs due to the passenger's expectations that are not met. In an effort to improve the service quality of Terminal 3, mapping is needed to determine priority of attributes for improvement. This mapping is using a Cartesian diagram, where the X axis is performance and the Y axis is Expectations. The following is the atrribute mapping in the respective quadrant:

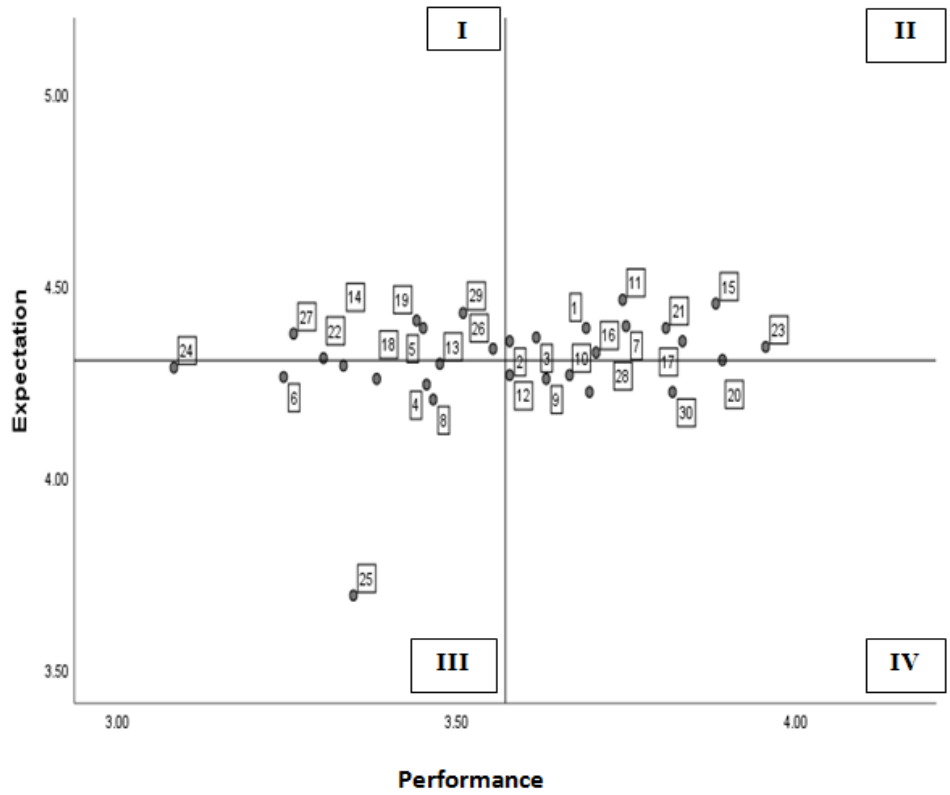

Figure 2. Cartesian-quadrant diagram

It can be seen that there are about six attributes in quadrant I, consist of: 5. Passengers get good options of public transportation to and from the airport (airport buses and trains), Attributes 19. Aviobridge and passenger buses facilities, Attributes 22. Parking area facilities to provide vehicle parking services both 4-wheeled or 2-wheeled, Attributes 26. Toilet or shower facilities that are kept clean, Attributes 27. Internet and Wi-Fi facilities, Attributes 29. Availability of passenger mobility facilities in the terminal area leading to the boarding gate (lifts, escalators, golf carts). Theses attributes are the attributes which have high expectations, but the current performance of Terminal 3 is felt to be lacking.

P ISSN: 2528-0821
E ISSN: 2580-5479

Analytical Hierarchy Process from the Airport Management

This study also uses the AHP method involving airport managers, hereinafter referred to as experts or experienced people and directly involved in airport operations, namely the management of PT Angkasa Pura from supervisory position to vice president. The method of data collection is done by conducting interviews and distributing questionnaires (questionnaires) to determine the perceptions of managers to determine the priority order of services to passengers so that service improvement is optimal. This study obtained 30 votes from the questionnaire distribution, but based on AHP data processing, only 10 votes met the consistency ratio of 0.01 and were suitable for use in this study.

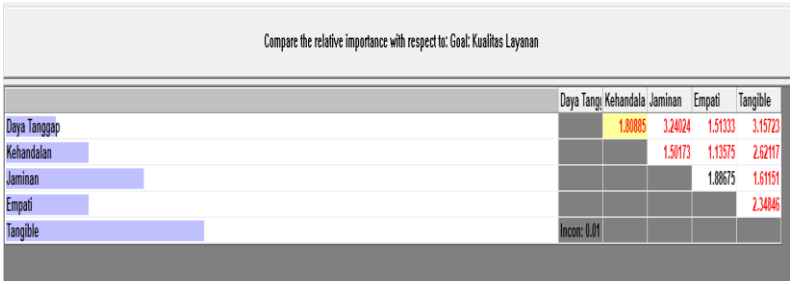

Figure 3. Ahp combined matrix

Figure 4. Model diagram

Based on the AHP result from the perception of the airport management, the dimensions that have the highest priority score are Tangible at 0.357 (35.7%), followed by Assurance 0.254 (25.4%), Reliability at 0.149 (14.9%), Empathy at 0.148 (14.8%) and the lowest priority is Responsiveness of 0.092 (9.2%). Overall Inconsistency score of 0.01 where this score is greater than 0.10 (10%) which means that the AHP model questionnaire in this study is consistent and acceptable.

P ISSN: 2528-0821
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Table 2. Comparison between passenger and Airport management perceptions

Dimension	Average Expectation Score (Each Dimension)	Average Performance Perception Score (Each Dimension)	Average Gap SERVQUAL of Passenger Perception (Each Dimension)	Priority Score From The Perception of Airport Management
Responsiveness	4.37	3.62	0.75	9.20%
Reliability	4.29	3.38	0.91	14.90%
Assurance	4.31	3.65	0.66	25.40%
Empathy	4.32	3.56	0.76	14.80%
Tangible	4.28	3.57	0.71	35.70%

According to passenger perception data, that Reliability ranks first as a service priority that must be corrected by airport management with a gap of 0.91. This shows passengers prioritize Reliability dimension while Tangible ranks first as a service priority that must be improved based on the perception of airport management. The Reliability only ranks three according the airport management, while Tangible only ranks four on the service quality with highest gap based on the perception of the passengers.

According to Schiffman and Kanuk (2007), individuals act and react based on their perceptions rather than objective reality. For service providers, customer perceptions are therefore more important than their own understanding of objective conditions. Recent studies also confirm that customer perceptions strongly shape satisfaction and behavioral outcomes, particularly in service environments (Zygiaris et al., 2022; Alanazi et al., 2024). What service providers consider to be reality is not as crucial as what customers perceive as reality, since customer perceptions directly influence their actions and behaviors (McKinsey & Company, 2022). Thus, despite the differences between passenger perceptions and airport management perceptions, this research emphasizes that airport management should prioritize service quality improvements based on passenger perceptions. Methods such as Importance-Performance Analysis (IPA) and the Analytical Hierarchy Process (AHP) have recently been applied to highlight service priorities and managerial decision-making in airport operations (Pivac et al., 2025). By doing so, management can better align with what passengers regard as reality, which ultimately shapes their experiences and behaviors.

CONCLUSION

The results indicate that passengers highlight several attributes requiring top-priority improvements, including effective public transportation access, parking facilities, clean and well-maintained toilets and showers, internet and Wi-Fi services, and mobility facilities such as lifts, escalators, and carts to boarding gates. Based on the SERVQUAL gap analysis, Reliability emerged as

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the most critical dimension for improvement, followed by Empathy and Responsiveness. Conversely, airport management, using the Analytical Hierarchy Process, emphasized Tangible aspects as the top priority, followed by Assurance, Reliability, and Empathy. The discrepancy between passenger and management perspectives provides constructive feedback for the airport authority, underscoring the need to balance physical facilities with service dimensions that more directly affect passenger satisfaction. To achieve this, airport staff should undergo regular licensing, renewal, and continuous training to ensure competence, updated knowledge, and professional qualifications. Strengthening both tangible and intangible service dimensions will enhance the overall service quality of Terminal 3 Soekarno Hatta Airport.

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