

## GUBENG STATION RAILWAY INFRASTRUCTURE PERFORMANCE ACCORDING TO USER PERCEPTION

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### ABSTRAK

Gubeng Station is the most populous station of 52 stations that enter the work area of PT KAI Daop 8 Surabaya, with 978,346 train passengers in January 2019, where this number is the highest number of train passengers for 3 years recorded at Gubeng station. Gubeng Station is also very unique, because it is located at a height of 5 meters and has two functionally different sides. The west side building is used for the departure and arrival of economy and express trains, while the east side building is for the departure and arrival of business and executive trains. This functional difference needs to be a study of the provision of infrastructure/facilities available at the Gubeng station whether it meets the minimum train service standards and has provided services/satisfaction and the importance of the existing facilities at the Gubeng station according to the train user perception. The method used is importance performance analysis (IPA) and the conclusion is that satisfaction and importance of the existing facilities at Gubeng station according to the train user perception obtained a satisfaction value of 2.48 which means that they still do not get maximum service and the average value of interest is 4.57 which means that the existing facilities at Gubeng station are needed by train passengers

**Keyword:** train, perception, woman, station, IPA.

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### INTRODUCTION

Train is one of the rail-based modes of transportation in Indonesia, and the existence of railroad modes in Indonesia has existed since the Dutch East Indies government in 1875, the Dutch East Indies government built a railroad via Staatssporwegen (SS) with the first SS route covering Surabaya-Pasuruan- Poor. The railroad mode is currently developing quite rapidly and is currently managed by PT Kereta Api Indonesia (Persero) which has seven subsidiaries including PT Reska Multi Usaha was established in 2003, PT Railink was established in 2006, PT Kereta Api Indonesia Commuter Jabodetabek was established in 2008, PT Kereta Api Tourism, PT Kereta Api Logistics and Kereta Api Property Management, all of which were established in 2009 and PT Pilar Sinergi BUMN Indonesia, established in 2015.

Gubeng Station is also the most populous station of 52 stations that enter the work area of PT KAI Daop 8 Surabaya, and in 2018 the total number of passengers boarding from Gubeng Station was 2,456,426 passengers with details of Executive class passengers of 704,985 people, Business class 233,860 passengers, Business class Economy 914,182 passengers, and local economy class 606,399 passengers. While the number of train passengers at Gubeng station in January 2019 was 978,346 passengers, which is the highest number of train passengers for 3 years recorded at Gubeng station.

Considering the increase in the number of train passengers is quite high, the passenger facilities during activities at the Gubeng station must be met in accordance with the minimum train service standards. Some of the facilities currently available include waiting rooms in zone 2 which are equipped with mobile facilities and cellphones, children playgrounds, toilets and health posts, park

stations with shark and crocodile statues as Surabaya icons and special rooms smoking in zone 3. Facilities that are available at this time are still lacking, one of which is the waiting room, where the waiting room available is still less extensive when compared to the number of passengers, for that it is necessary to analyze the performance of the railroad infrastructure of Gubeng Station Surabaya if seen from the perception of train users coming down and going up at Gubeng Station.

**Importance Performance Analysis (IPA)**

The *Importance Performance Analysis (IPA)* method was first introduced with the aim of measuring the relationship between consumer perceptions and priorities for improving product / service quality, also known as quadrant analysis (Brandt, DR 2000) and (Latu, TM, & Everett, AM 2000) *Importance Performance Analysis (IPA)* Conceptual is a multi-attribute model. This technique identifies the strengths and weaknesses of market supply by using two criteria, namely the relative importance of attributes and customer satisfaction. The application of *IPA* begins with the identification of attributes that are relevant to the observed choice situation. The list of attributes can be developed by referring to the literature, conducting interviews, and using managerial judgment.

On the other hand, a set of attributes attached to goods or services is evaluated based on how important each product is to consumers and how the service or goods are perceived by consumers

On the other hand, a set of attributes attached to goods or services is evaluated based on how important each product is to consumers and how the service or goods are perceived by consumers. This evaluation is usually fulfilled by conducting a survey of samples consisting of consumers. After determining the proper attributes, consumers are asked two questions. One is a prominent attribute and the second is the performance of companies that use these attributes. By using mean, median or ranking measurements, the importance score and performance attributes are collected and classified into high or low categories; then by pairing the two ranking sets, each attribute is placed into one of the four quadrants of performance interest. The mean performance and importance scores are used as coordinates to plot individual attributes on the two dimensional matrix shown in Figure 1 below :

<b>Quadrant 4</b> Main priority	<b>Quadrant 1</b> Maintain Performance
<b>Quadrant 3</b> Low priority	<b>Quadrant 2</b> Exaggerated

**Figure 1.** Quadrant of Interests

**Information :**

Explanation for each quadrant (Brandt, D.R. 2000) :

1. First Quadrant, Maintain Performance (high importance & high performance) The factors located in this quadrant are considered as supporting factors for customer satisfaction so that management is obliged to ensure that the performance of the institutions under management can continue to maintain the achievements.

2. Second Quadrant, Excessive (low importance & high performance) The factors located in this quadrant are considered not too important, so the management needs to allocate the resources associated with these factors to other factors that have higher priority handling which still needs improvement, such as in the fourth quadrant.
3. Third Quadrant, Low Priority (low importance & low performance) The factors located in this quadrant have a low level of satisfaction and are also considered not too important for consumers, so the management does not need to prioritize or pay too much attention to these factors.
4. Fourth Quadrant, Increase Performance (high importance & low performance) The factors located in this quadrant are considered as very important factors by consumers however, the current conditions are not yet satisfactory, so the management is obliged to allocate adequate resources to improve the performance of various factors.

**RESEARCH METHODS**

**Flowchart of Research Concept Framework**

Below is shown a flow chart as shown in Figure 2 below.

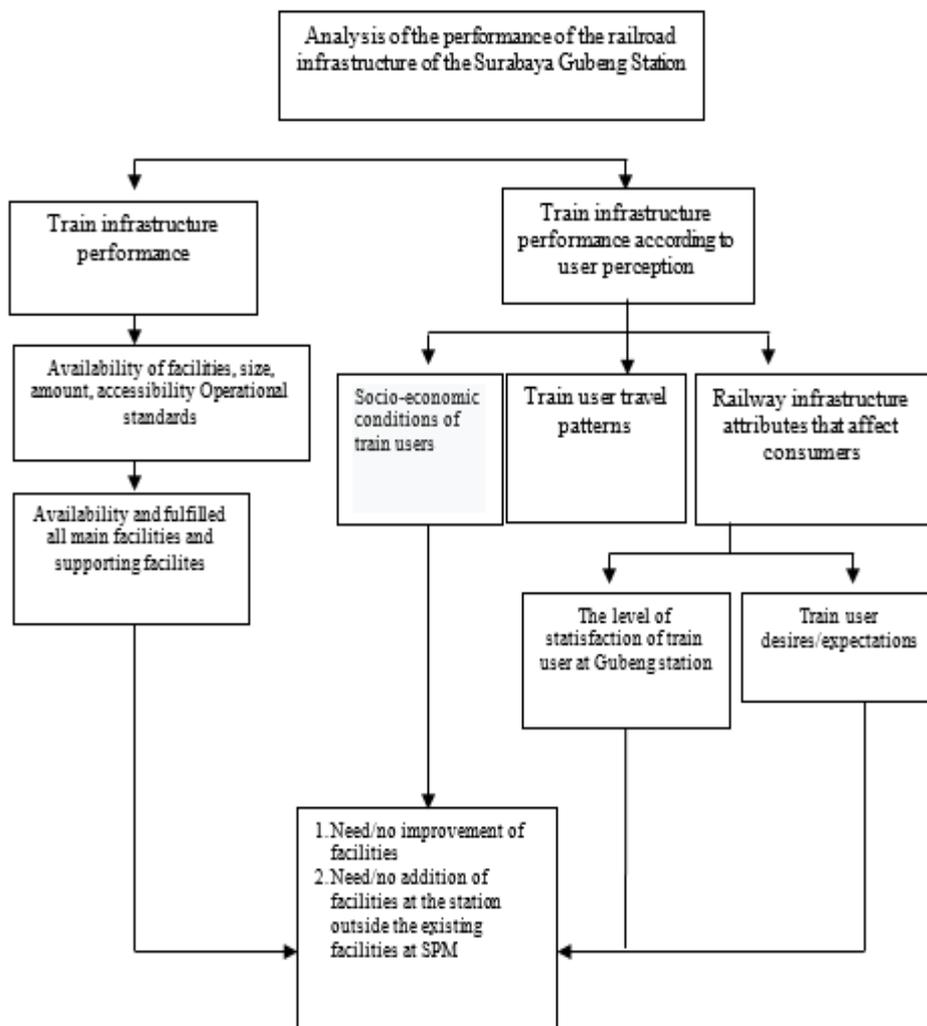
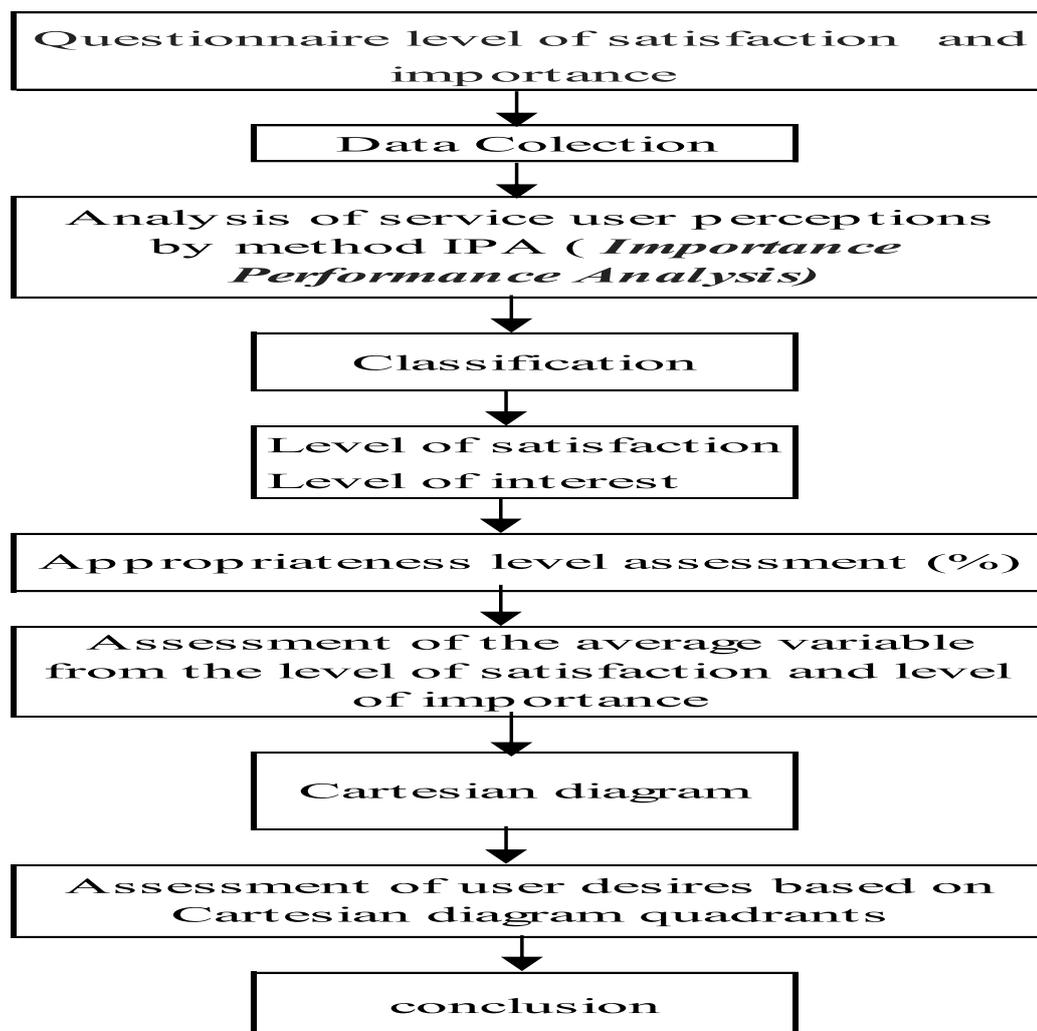


Figure 2. Flowchart of Research Concepts

**Data Processing Flowchart of *Importance Performance Analysis (IPA)***



**Figure 3.** Stages *Importance Performance Analysis (IPA)*

**Sampling Method**

Sampling in this study is a combination of accidental sampling techniques with purposive / judgment sampling. Accidental sampling method is a technique of determining samples based on chance, ie anyone who accidentally meets a researcher can be used as a sample, if it is deemed that the person who happened to be met is suitable as a source of data. While purposive/judgment sampling is a sampling determination technique chosen based on the purpose of the study, namely data samples based on certain characteristics related to the study

**DISCUSSION**

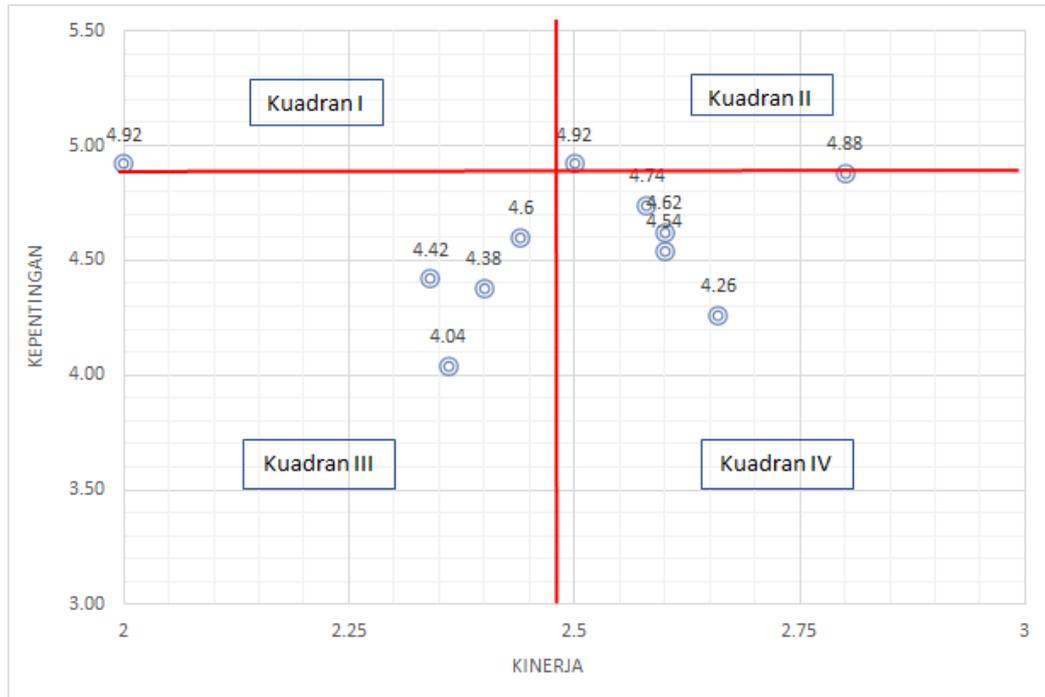
**Station Facility Satisfaction and Interest**

Train user satisfaction for services provided in the area of Gubeng station and also the importance of several facilities that are already available affect the overall train service, for that it needs to be known to be able to improve and improve the quality of service. Based on the results of a survey of train users, the average value of the satisfaction level is 2.48 and the average priority increase is 4.57, while the level of satisfaction and priority of each facility that has been provided at Gubeng station is clearer. can be seen in Table 1 and Figure 4 below.

**Table 1.** Average Level of Satisfaction and Priority in Improving Facility Services at Gubeng Station

Variable Code	Variable Caption	Rate	
		Level Satisfaction	Priority Improvement
X <sub>1</sub>	Clear Information	2.50	4.92
X <sub>2</sub>	Counter	2.80	4.88
X <sub>3</sub>	Waiting Room	2.66	4.26
X <sub>4</sub>	Pray room	2.58	4.74
X <sub>5</sub>	Toilet	2.60	4.54
X <sub>6</sub>	Parking area	2.40	4.38
X <sub>7</sub>	Facility to up/down passangers	2.34	4.42
X <sub>8</sub>	Disable facilities	2.36	4.04
X <sub>9</sub>	Medical facility	2.00	4.92
X <sub>10</sub>	Safety and security facilities	2.60	4.62
X <sub>11</sub>	Cleaning Facility	2.44	4.60

If seen from table 1 above, for each facility the satisfaction level can be seen, for the highest satisfaction level is the ticket/ticket counter facility. Ticket purchase facilities get the highest level of satisfaction because train users can be served offline or direct purchases at counters that are available at the station or by buying online through the internet that can be accessed anytime and anywhere through the official website of the Indonesian railroad and to print tickets also provided a ticket printout facility at Gubeng station. While the facility with the lowest level of satisfaction is the health facility at Gubeng Station, this is due to the unavailability of clinics for train users and only available lactation space. Meanwhile, to determine the priority of improving the quality of service facilities that already exist today, the variables / facilities are plotted into the Importance Performance Analysis quadrant based on the average value of the level of satisfaction and the average value of the priority of facility improvement. For more details about the distribution of the Importance Performance analysis quadrant can be seen in Figure 4 below.



**Figure 4.** Distribution of Importance Performance Analysis Quadrant Based on Average Value of Level of Satisfaction and Priority of Facility Improvement

Based on the picture above, a grouping of variables based on quadrants is obtained, including:

1. Quadrant I, variables / facilities that exist in this quadrant require priority handling to improve service quality, facilities in this quadrant are Health facilities. Health facilities at Gubeng station only provide Lactation rooms without a clinic or special place to do first aid if there are train passengers if they experience health problems.
2. Quadrant II, variables / facilities in this quadrant are facilities that must be maintained in terms of service performance, this is because the quality of services provided is in accordance with the standards and meets the desires of train users at Gubeng station, the facilities in this quadrant are information facilities consisting of information on ticket availability, train arrival and departure information, train route service information and directions information and signs.
3. Quadrant III, variables / facilities in this quadrant are facilities that have a low level of service and are also considered not too important in the provision of facilities at Gubeng station, variables / facilities in this quadrant are facilities for passengers with special needs, facilities for up and down facilities toilet and cleaning facilities.
4. Quadrant IV, variables / facilities in this quadrant are variables / facilities that are not too important and tend to be excessive service performance, variables / facilities that exist in this quadrant are waiting room facilities, places of worship, parking facilities and safety and security facilities

### Railway Infrastructure Performance Conditions

The condition of service facilities for train passengers at Gubeng station simultaneously affect the performance of railroad infrastructure, to be able to find out which facilities most influence the performance of railroad infrastructure, a linear regression analysis is carried out simultaneously.

From the results of linear regression (table 2) the coefficient of the equation model is obtained as follows:

$$Y = -2.433E-5 + 0.091.X_1 + 0.091.X_2 + 0.092.X_3 + 0.090.X_4 + 0.092.X_5 + 0.091.X_6 + 0.091.X_7 + 0.089.X_8 + 0.091.X_9 + 0.091.X_{10} + 0.092.X_{11}$$

**Table 2** Equation Coefficients

Coefficients <sup>a</sup>												
Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	-2.433E-5	.001		-.017	.987	-.003	.003					
X1	.091	.000	.134	194.062	.000	.090	.092	.613	.999	.100	.550	1.820
X2	.091	.000	.149	213.097	.000	.090	.091	.474	1.000	.109	.542	1.845
X3	.092	.000	.121	190.653	.000	.092	.093	.617	.999	.098	.651	1.537
X4	.090	.001	.125	165.409	.000	.088	.091	.742	.999	.085	.462	2.166
X5	.092	.001	.150	176.574	.000	.091	.093	.739	.999	.091	.365	2.743
X6	.091	.001	.112	132.774	.000	.090	.093	.767	.999	.068	.371	2.696
X7	.091	.001	.129	129.489	.000	.090	.093	.702	.999	.066	.265	3.771
X8	.089	.001	.127	130.581	.000	.088	.091	.760	.999	.067	.279	3.585
X9	.091	.001	.129	149.636	.000	.090	.092	.739	.999	.077	.357	2.801
X10	.091	.001	.136	142.832	.000	.089	.092	.822	.999	.073	.290	3.445
X11	.092	.000	.139	186.054	.000	.091	.093	.639	.999	.096	.473	2.112

a. Dependent Variable: Y

**Table 3. Model Testing  
 Model Summary<sup>b</sup>**

		ANOVA <sup>a</sup>				
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.584	11	1.689	344751.219	.000 <sup>b</sup>
	Residual	.000	38	.000		
	Total	18.584	49			

a. Dependent Variable: Y

b. Predictors: (Constant), X11, X2, X7, X3, X4, X1, X9, X6, X5, X10, X8

Model	R	R Square	Adjusted R Square	of the Estimate	Square Change	Change	df1	df2	Change	
1	1.000 <sup>a</sup>	1.000	1.000	.00221	1.000	344751.219	11	38	.000	2.022

a. Predictors: (Constant), X11, X2, X7, X3, X4, X1, X9, X6, X5, X10, X8

b. Dependent Variable: Y

From table 3 the results of testing multiple linear equation models of the facilities (X) that are already available at the gubeng station on the performance of the railroad infrastructure (Y) it can be concluded that :

1. If the coefficient of a variable / facility is positive then the variable is favored and vice versa if the coefficient of a variable is negative then the variable is not liked, while the results obtained from the analysis are positive for all variables.
2. From the results of the F test on the utility model obtained a significant value of 0.000 which means smaller than the significant level used by 5%, this means there is a linear relationship in the multiple linear regression model obtained between the independent variable and the dependent variable. And from the results of the model constant t test obtained a significant value of 0.000 which means smaller than the significant level used, this shows that the model constant is significant. For the t test for the independent attribute coefficient obtained a significant value of 0.000, which means smaller than the significant level. While from the coefficient of determination test (R<sup>2</sup>) obtained a value of 1 and the correlation coefficient (R) is 1, which means that the model indicators are very good or can represent the real situation

## CONCLUSION

Based on the results of the analysis of the study of Performance Analysis of Gubeng Station Railway Infrastructure According to User Perception, it can be concluded that :

Satisfaction and interest of existing facilities at Gubeng station according to the perception of train users obtained a satisfaction value of 2.48, which means that they still do not get maximum service and the average value of interest is 4.57, which means the existing facilities at Gubeng station indeed required by train passengers.

The current condition of the performance of the railroad infrastructure of the Surabaya Gubeng Station is affected by the provision of clear information facilities, counters, waiting rooms, places of worship, toilets, parking lots, passenger / boarding facilities, disabled facilities, health facilities, safety facilities and safety and cleaning facilities. This can be seen from the results of the test of the equation model with the value  $R^2 = 1$ , where from the figure it states that the equation model is quite good and there is a relationship between the independent variable (Y) and the dependent variable (X)

To improve the quality of Gubeng station railroad infrastructure services in accordance with the results of the distribution of the quadrants of interests, that the addition of Health facilities in the form of clinics and medical equipment is needed especially for the handling of Covid19

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