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# Analysis of Transjakarta Service Performance on the Cibubur-BKN by Servqual Method

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**Abstract**. Transjakarta is very important as public transportation, because it can effectively and efficiently provide access for the community to meet their daily needs for goods and services, one of which is the Cibubur-BKN route. The purpose of this study was to determine the service performance and service quality of the Cibubur-BKN Transjakarta bus route. The method used in this research is to distribute questionnaires to identify the level of satisfaction of service users in collecting data using the servqual method. The research strategy used is quantitative and qualitative with the research method used is descriptive research method. Through this approach, it aims to find out specifically, clearly and in detail how the performance and quality of services provided by the agency according to user perceptions. Based on the analysis of the respondent's reliability test for performance, Cronbach's alpha value is 0.931 and the respondent's reliability test value for expectations is 0.858. Furthermore, for Transjakarta Cibubur-BKN has a total performance value of 26, so according to the decision of the Director General of Transportation in 2002, the performance is very good. The service quality of Transjakarta Cibubur-BKN with a Servqual Score of 0.012 can be said that the overall level of customer satisfaction for Transjakarta Cibubur-BKN customers is not satisfied with the service received by users.

**Key words**: service quality, servqual method, Transjakarta Cibubur-BKN, bus performance

## Introduction

Transjakarta users have increased from year to year. According to data from the Central Statistics Agency, the passengers carried by the Transjakarta fleet have a total of 155 routes. as many as 188.77 million people in 2018, an increase from the previous years 144.86 million in 2017, and 123.70 million in 2016 (BPS Kota Bekasi, 2021). Behind the increase in the number of passengers, the quality of service provided by Transjakarta has not been able to provide maximum satisfaction to passengers (Høyer, 2000). There are still many passengers who feel that the service is unsatisfactory, it is proven that there are still some uncomfortable bus and stop facilities as well as supporting facilities such as unsterile lanes that disturb the comfort of Transjakarta users.

Urbanization is a strong phenomenon in developing countries, such as Malaysia and Indonesia (Prasetijo et al., 2016). In Indonesia, the phenomenon of urbanization continues to increase due to the increasingly difficult job opportunities in the regions. Meanwhile in metropolitan cities, industrialization is increasing rapidly, so that more and more workers are needed. The more workers to the metropolitan city, of course it will have a bad impact (Cervero, 2014). One of them is causing problems with land transportation that is cheap, safe, and comfortable. The impact that arises is the accumulation of transportation activities to the

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city center which is increasingly crowded. The transportation network and movement patterns to Jakarta from cities outside Jakarta trigger the growth of private vehicles to continue to increase (Isradi & Satrio, 2021).

The development of public transportation has grown since hundreds of years ago, user demand has grown along with technological developments. The sophistication of public transportation starts from transportation that uses human power, animal power, steam power, fuel oil, electricity, to battery technology. Of course, these technological developments must be addressed wisely and adapted to the needs of users in general. The development of public transportation in various countries shows the orientation of user service (Rifai et al., 2021)

Transjakarta in the Cibubur area has a very important role, because it can effectively and efficiently provide access for the community to meet their daily needs for goods and services. With the increasing demand for integrated transportation, it is increasing in terms of both quality and quantity (Indriany et al., 2016). In terms of quality, society demands fast, safe, and inexpensive transportation with good service management. On the other hand, in terms of quantity, with the increasing number of community activities in the Cibubur area, the more that must be fulfilled regarding the necessary transportation (Firdaus et al., 2021).

Thus, it is clear that there is a need for an integrated policy that is formulated comprehensively through a structured arrangement, to improve transportation connecting the city of Jakarta. In 2012, the provincial government of DKI Jakarta, in collaboration with local governments and Jakarta public transport operators, decided to launch a new mass transportation called Busway Integrated Border Transport (APTB), whose routes originate from the regions to Jakarta and Jakarta to the regions, which using the busway (Andriyani et al., 2021).

Transjakarta in Cibubur-BKN is very important, because it can effectively and efficiently provide access for the community to meet their daily needs for goods and services. With the increasing demand for integrated transportation, it is increasing in terms of both quality and quantity. In terms of quality, society demands fast, safe, and inexpensive transportation with good service management. On the other hand, in terms of quantity, with the increasing number of community activities in the Cibubur area, the more that must be fulfilled regarding the necessary transportation (Firdaus et al., 2021).

A special strategy is needed to control the rate of urbanization, namely by avoiding population concentration in an area, strengthening public services through increasing the role of public transport which is managed, optimized and harmonized with the infrastructure of other public transport modes, with the servqual method, service evaluation can be carried out. (Baskoro Adi et al., 2020).

## Research Method

The choice of research strategy used is quantitative and qualitative with the research method used is descriptive research method. Through this approach, it aims to find out specifically, clearly and in detail how the performance and quality of services provided by the agency according to user perceptions (Rangkuti, 2003). This quantitative approach was obtained from the results of a survey through a questionnaire instrument (Dwiatmoko, 2020). Data collection techniques were carried out by direct observation, interviews, and distributing questionnaires to obtain primary data (Irfan Rifai et al., 2021), while secondary data was obtained from the operator of the Trans Jakarta bus management (Andriyani et al., 2021).

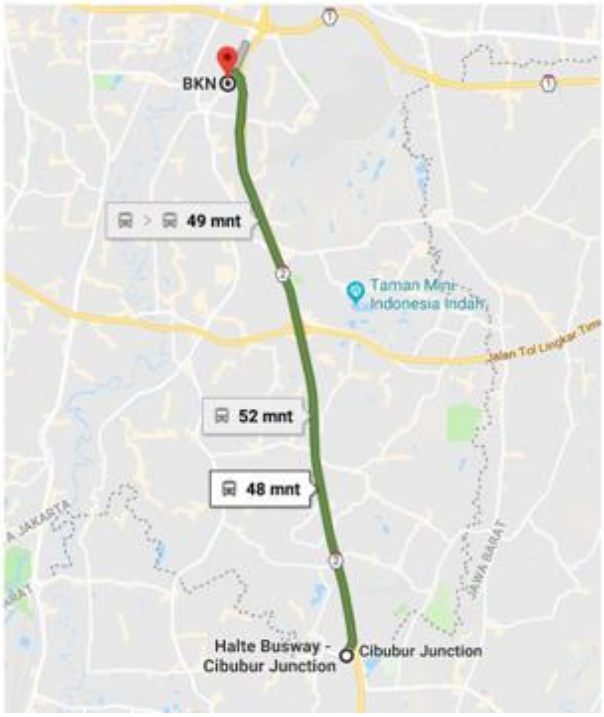


**Figure 1. Research location**

To determine the population of city transportation service users, it is assumed from the calculation of the number of fleets multiplied by the number of passenger capacity for one city transportation vehicle per day. The basis for this assumption is taken from the Decree of the Director General of Transportation Number: SK.698/AJ.206/DRDJ/2002. Where the passenger capacity for one vehicle is 300 people. The number of Transjakarta fleets is 8 vehicles, so the total population of users of Transjakarta public transportation services per day is 8 x 300 = 2400 people/day. By using the formula (Dermawan et al., 2021)

$$n = \frac{2400}{1+2400(0,1)^2} = 96 \text{ respondents}$$

So the sample to be studied as many as 96 respondents then rounded up to 100 respondents. Next is to determine the performance indicators of public transport services such as speed, headway, load factor, and number of buses at operating time (Wright & Fjellstrom, 2003).

Servqual model is a descriptive to describe the level of customer satisfaction. This model is closely related to the customer satisfaction model which is mostly based on the disconfirmation approach. In this approach attribute performance increases greater than the expectations or the attribute in question, then satisfaction (and service quality) will also increase. According to Parasuraman et al. (1985), service quality measurement in the servqual model is based on a multi-item scale designed to measure customer expectations and perceptions, as well as the gap between the two on five main dimensions, namely tangibles, reliability, responsiveness, assurance, and empathy. The five dimensions are translated into attributes for the expectation variable and the perception variable which are arranged based on statements based on the Likert scale. The explanation of the five dimensions is as follows:

1. Tangibles, related to the attractiveness of physical facilities, equipment, and materials used by the company, as well as other physical tangibles.
2. Reliability, is the company's ability to provide good, accurate and trustworthy services.
3. Responsiveness, is the company's willingness and ability to provide comfort and tranquility to employees, and provide services quickly.

4. Assurance, is a company's behavior or attitude that is able to foster a sense of trust and security for its employees. Guarantees also show that the company cares about its employees.
5. Empathy, means the company understands the problems and desires of its employees and strives to fulfill them.

The variables in this study include two dimensions, namely the performance dimension and the service dimension (Isradi et al., 2020).

**Result and Discussion**

From the data that has been obtained, the Transjakarta bus performance data processing is carried out as follows:

**Headway**

Headway of public transport vehicles with public transport vehicles behind them at a certain point. Calculation by calculating the difference between the hour of departure and the hour of arrival, then look for the average time between the two results that have been obtained by conducting a survey. The headway calculation results are presented in the following table.

**Table 1. Headway Analysis Results**

| No | Working days | | |
|---|---|---|---|
| | Depart | Arrive | *Headway* (minute) |
| 1 | 08:32 | 08:44 | 12 |
| 2 | 08:58 | 09:13 | 15 |
| 3 | 09:26 | 09:39 | 13 |
| Total | | | 40 |
| **Average** | | | **13,33** |

| No | Holiday | | |
|---|---|---|---|
| | Depart | Arrive | *Headway* (minute) |
| 1 | 10:19 | 10:37 | 18 |
| 2 | 10:56 | 11:17 | 21 |
| 3 | 11:34 | 11:53 | 19 |
| Total | | | 58 |
| **Average** | | | **19,33** |

The results of the headway analysis from Table 1 above can be seen that the time between the time required from one bus to the next bus on weekdays has an average value of 13.33 minutes, and the average time between on holidays is 19.33 minute.

**Load Factor**

In this study, the number of passengers on weekdays is calculated by counting on the bus during rush hour conditions, namely 06:00-07:00 with the number of passengers being 79 passengers. Furthermore, the number of passengers on holidays carried out at 06:00-07:00 is 43 passengers. This Transjakarta bus has a passenger capacity of 85 passengers consisting of 35 seats and 50 for standing passengers. The load factor calculation is as follows:

$$\text{LF} = \frac{Psg}{C} \text{ x } 100\%$$

$$\text{LF} = \frac{79}{85}\ x\ 100\% = 92{,}94\ \% \ \rightarrow \text{Working days}$$

$$\text{LF} = \frac{43}{85}\ x\ 100\% = 50.58\ \% \ \rightarrow \text{Holiday}$$

From the results of the load factor analysis above, on weekdays it has a loading factor of 78.8%, from the results of the analysis it can be said that it is good according to public transport service standards. Furthermore, the results of the loading factor analysis on holidays are 50.58% and also get good criteria according to public transport service standards.

**Travel Speed**

The results of the analysis of the survey data above show that the average speed of the Transjakarta bus is 45.5 km/hour, and from the table it can be seen that the highest speed occurs during the day because traffic conditions during the day run smoothly, the volume of vehicles is less than the conditions in in the morning when the volume of vehicles is more, it can be seen in the following Table 2.

**Table 2. Travel Speed Analysis Results**

| No | Speed | | Average Speed | |
|---|---|---|---|---|
| | Morning (Km/Hour) | Afternoon (Km/Hour) | Morning (Km/Hour) | Afternoon (Km/Hour) |
| 1 | 43 | 54 | 43,333 | 47,667 |
| 2 | 36 | 42 | | |
| 3 | 51 | 47 | | |
| **Average** | | | **45,5 km/jam** | |

**Travel Time**

The results of the analysis of travel time from the table above the average travel time on weekdays is 1.9167 minutes/km with the fastest average value of travel time is during the day with a route length of 26 km and a travel time of 29 minutes so that a travel time of 1 ,1154 minutes/km. The lowest average value of travel time is in the morning with a route length of 26 km and a travel time of 73 minutes with a travel time of 2.8077 minutes/km.

The results of the analysis of travel time from the table above, the average travel time on holidays is 1.3718 minutes/km with the fastest average value of the fastest travel time being during the day with a route length of 26 km and a travel time of 27 minutes so that the travel time is obtained. 1.0385 min/km. The lowest average value of travel time is in the morning with a route length of 26 km and a travel time of 47 minutes with a travel time of 1.8077 minutes/km.

**Frequency**

The frequency of service at the busiest time is 06:00 – 07:30 on weekdays, the average headway is 13.33 minutes, as follows:

$$\text{Frequency} = \frac{60}{\text{Headway}}$$

$$\text{Frequency} = \frac{60}{13{,}33} = 4{,}5011 \approx 5 \text{ vehicle/hour}$$

**Table 3. Results of Frequency Analysis**

| No | Day | Headway (minute) | Frequency (veh/hour) |
|---|---|---|---|
| 1 | Working days | 13,333 | 4,50 |
| 2 | Holiday | 19,333 | 3,103 |

The results of the frequency analysis on weekdays from Table 3 above show that the average number of buses that pass at a certain observation point for 1 hour is as much as 4,5 ≈ 5 vehicle/hour and the frequency on holidays can be seen from the results of the analysis in the table above that the average bus that passes at certain observation points for 1 hour is 3,103 ≈ 3 vehicle/hour.

**Service Quality**

Based on the results of the analysis above, the overall performance of Transjakarta Cibubur-BKN can be seen in Table 4 as follows.

**Table 4. Performance of Transjakarta Cibubur-BKN Public Transportation Services**

| No | Rating Parameters | Rating Standard | | | Analysis Resultss | Performance Value | Criteria |
|---|---|---|---|---|---|---|---|
| | | Not Good | Moderate | Good | | | |
| | | 1 | 2 | 3 | | | |
| A | B | C | D | E | F | G | H |
| 1 | *Weekday load factor* (%) | >100 | 80-100 | <80 | 92,94 | 2 | Moderate |
| 2 | *Holiday load factor* (%) | >100 | 70-100 | <70 | 50,58 | 3 | Good |
| 3 | Travel speed (km/h) | <5 | 5-10 | >10 | 45,5 | 3 | Good |
| 4 | Headway weekdays (minutes) | >15 | 10-15 | <10 | 13,33 | 2 | Moderate |
| | Headway holiday (minutes) | | | | 19,33 | 1 | Not Good |
| 5 | Service time (hours) | <13 | 13-15 | >15 | 17 | 3 | Good |
| 6 | Frequency of working days (vehicles/hour) | <4 | 4-6 | >6 | 5 | 2 | Moderate |
| | Frequency of holidays (vehicles/hour) | | | | 3 | 1 | Not Good |
| 7 | Weekday travel time (minutes/km) | >12 | 6-12 | <6 | 1,64 | 3 | Good |
| 8 | Waiting time (minutes) | >30 | 20-30 | <20 | 8,17 | 3 | Good |
| 9 | End and start of the journey | 05:00-18:00 | 05:00-20:00 | 05:00-22:00 | 05:00-22:00 | 3 | Good |
| **Total** | | | | | | **26** | **Verry Good** |

The results of the analysis from the table above show that the results of the assessment of the service quality of Transjakarta Cibubur-BKN with a value of 26 which means that it is included in the very good criteria.

**Questionnaire Analysis**

This questionnaire was given to users of Transjakarta services, there were 100 service users who became respondents. The following is data on the respondents in terms of gender, age, last education, profession/occupation and income level.

Figure 2 below shows that in terms of gender, the proportion of female passengers is 61% of the total respondents. Meanwhile, the proportion of male passengers is 39%. Thus, Transjakarta transportation services are mostly used by female passengers.

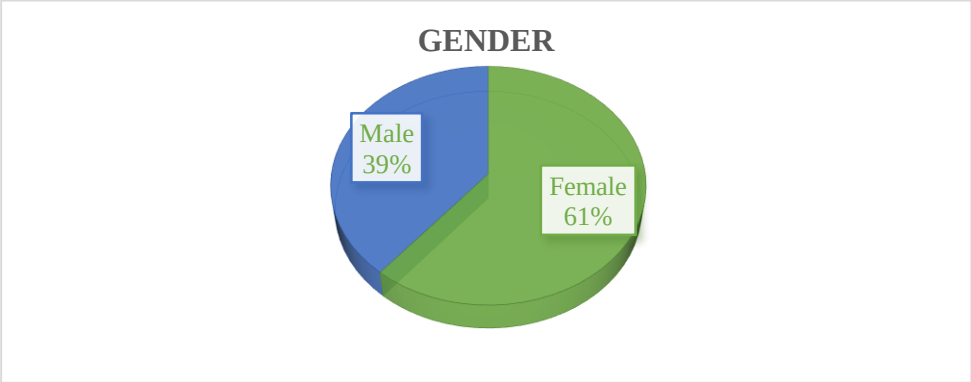


**Figure 2. Respondent Data Gender**

Figure 3 below shows the activities of respondents by type of work. 62% of Transjakarta service users use Transjakarta facilities for work, while the rest use Transjakarta for college or school purposes. Transjakarta service users when viewed from their work background, it can be concluded that those who have jobs other than students, government employees, private employees, and entrepreneurs. Based on the type of passenger work, it can be seen that passengers using Transjakarta also include other professions.

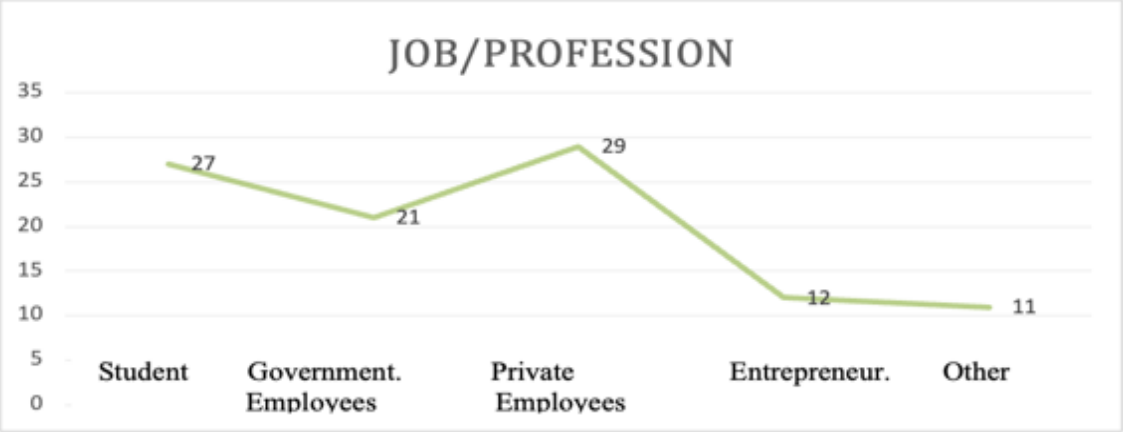


**Figure 3. Occupational/Professional Respondent Data**

**Validity Test Analysis**

Validity test using Pearson Product Moment correlation. The result of correlation (r) Person is used to detect the validity of each statement item. The statement item will be valid if the Pearson (r) value is greater than the critical value in the Pearson correlation (r) Product Moment table according to the degrees of freedom and significance. Table 5 and Table 6 show that all statement items in this study are valid. Where the value of (r) Product Moment with a degree of freedom of 28 and a significance of 0.05 is 0.361. The value of the correlation coefficient of all statements is greater than the critical value, which means that the statement items in the questionnaire have met the validity requirements.

**Table 5. Test Results of Performance Statement Validity**

| Attribute | R Value | R Table | Remarks |
|---|---|---|---|
| X1 | .646**<br>.000 | 0,361 | Valid |
| X2 | .638**<br>.000 | 0,361 | Valid |
| X3 | .760**<br>.000 | 0,361 | Valid |
| X4 | .812**<br>.000 | 0,361 | Valid |
| X5 | .642**<br>.000 | 0,361 | Valid |
| X6 | .792**<br>.000 | 0,361 | Valid |
| X7 | .861**<br>.000 | 0,361 | Valid |
| X8 | .626**<br>.000 | 0,361 | Valid |
| X9 | .546**<br>.002 | 0,361 | Valid |
| X10 | .703**<br>.000 | 0,361 | Valid |

| Attribute | R Value | R Table | Remarks |
|---|---|---|---|
| X11 | .770*<br>.000 | 0,361 | Valid |
| X12 | .817**<br>.000 | 0,361 | Valid |
| X13 | .775**<br>.000 | 0,361 | Valid |
| X14 | .705**<br>.000 | 0,361 | Valid |
| X15 | .509**<br>.004 | 0,361 | Valid |

**Table 6. Test Results of Performance Statement Validity**

| Attribute | R Value | R Table | Remark |
|---|---|---|---|
| X1 | .608**<br>.000 | 0,1654 | Valid |
| X2 | .672**<br>.000 | 0,1654 | Valid |
| X3 | .662**<br>.000 | 0,1654 | Valid |
| X4 | .566**<br>.000 | 0,1654 | Valid |
| X5 | .628**<br>.000 | 0,1654 | Valid |
| X6 | .680**<br>.000 | 0,1654 | Valid |
| X7 | .710**<br>.000 | 0,1654 | Valid |
| X8 | .615**<br>.000 | 0,1654 | Valid |
| X9 | .494**<br>.000 | 0,1654 | Valid |
| X10 | .576**<br>.000 | 0,1654 | Valid |
| X11 | .475**<br>.000 | 0,1654 | Valid |
| X12 | .699**<br>.000 | 0,1654 | Valid |
| X13 | .405**<br>.000 | 0,1654 | Valid |
| X14 | .399**<br>.000 | 0,1654 | Valid |
| X15 | .329**<br>.000 | 0,1654 | Valid |

**Reliability Test Analysis**

Reliability test results obtained in Table 7 below.

**Table 7. Reliability Test Results 100 Respondents Performance Statement**

| **Reliability Statistics** | | |
|---|---|---|
| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
| .842 | 843 | 15 |

On Table 7 results of the reliability test of the expectation statement of 100 respondents got a reliability result of 87.5%.

Cronbach's alpha > 60%

87,5% > 60%

Then the results of the reliability test of the statement of expectations of 100 respondents are considered reliable.

## Servqual Analysis

The measurement of service quality scores with the servqual model includes calculating the difference between the values given by customers for each statement consisting of the expectations (expectations) and performance (reality) variables. The formula for the servqual score for each statement for each customer is: Servqual score = Performance score – Expected score. The results of the servqual score measurement are shown in Table 8 below.

**Table 8. Measuring Servqual Score**

| No. | Attribute | Average | | Performance - Expecttation | Dimensions | Dimensions Average | | Servqual Score |
|---|---|---|---|---|---|---|---|---|
| | | Performance | Expectation | | | Performance | Expectation | |
| 1 | Bus speed | 3,990 | 4,070 | -0,080 | Reliability | 4,060 | 4,153 | -0,093 |
| 2 | Facilities on the bus | 4,080 | 4,210 | -0,130 | | | | |
| 3 | Easy ticket payment | 4,110 | 4,180 | -0,070 | | | | |
| 4 | Bus driver skills | 4,180 | 4,030 | 0,150 | Assurance | 4,183 | 4,080 | 0,103 |
| 5 | Passenger comfort | 4,260 | 4,140 | 0,120 | | | | |
| 6 | Officer skills | 4,110 | 4,070 | 0,040 | | | | |
| 7 | Officer appearance | 4,110 | 4,030 | 0,080 | Tangible | 4,073 | 4,103 | -0,030 |
| 8 | Arrival route clarity | 3,990 | 4,200 | -0,210 | | | | |
| 9 | Cleanliness on the bus | 4,120 | 4,080 | 0,040 | | | | |
| 10 | Friendliness and courtesy of officers | 4,140 | 4,090 | 0,050 | Emphaty | 4,173 | 4,117 | 0,057 |
| 11 | Officers concern for special passengers | 4,130 | 4,050 | 0,080 | | | | |
| 12 | The concern of officers in managing queues | 4,250 | 4,210 | 0,040 | | | | |
| 13 | Clarity of officers in providing route information | 4,200 | 4,090 | 0,110 | Responsiveness | 4,187 | 4,163 | 0,023 |
| 14 | The skills and speed of officers in serving passenger payments | 4,110 | 4,220 | -0,110 | | | | |
| 15 | The readiness of officers in serving the needs of passengers | 4,250 | 4,180 | 0,070 | | | | |
| | **Average Servqual Score** | | | | | | | **0,012** |

Based on the results of calculations with the servqual model contained in the servqual score table, it is known that the overall score is 0.012. A score of 0.012 means that the level of satisfaction of Transjakarta Cibubur-BKN customers as a whole, customers are less satisfied with the services received by users.

## Cartesian Diagram of Customer Satisfaction Dimensions

Transjakarta Cibubur-BKN customer satisfaction based on the five dimensions can be seen in Figure 4 below.

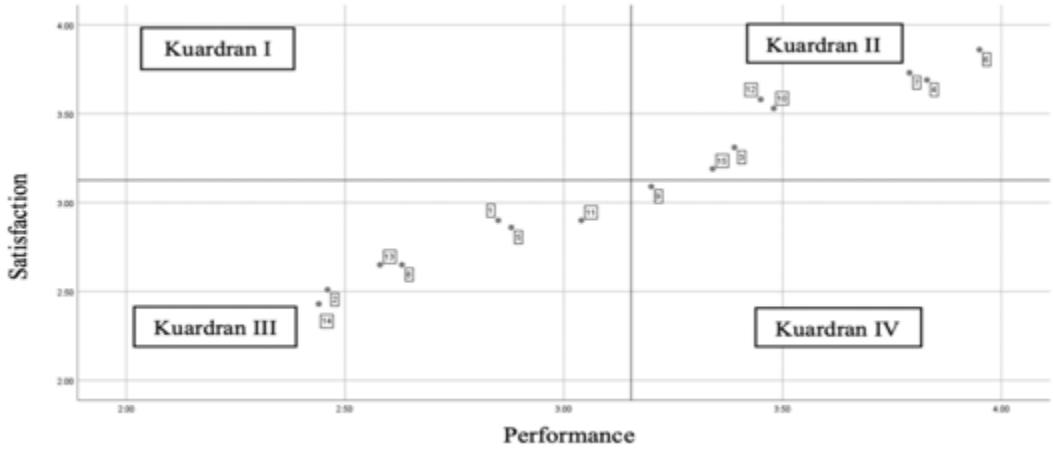


**Figure 4. Cartesian Diagram Importance Performance Analysis Customer Satisfaction**

From Figure 4 above, Reliability is in quadrant I. This shows that the Reliability dimension needs to be prioritized, because this dimension is considered very important by customers, while the level of service provided is not satisfactory. The service performance provided by Transjakarta is lower than customer expectations.

The Responsiveness dimension is in quadrant II. This shows that the handling needs to be maintained by Transjakarta, because in general the level of performance has been in accordance with the expectations/interests of Transjakarta customers.

Tangible dimensions in quadrant III are still considered less important for customers, while the quality of implementation is normal or sufficient. This means that the performance and expectations of Transjakarta customers on a variable are at a low level, so that Transjakarta on a variable is at a low level, so Transjakarta can give low priority to these variables.

Assurance and Empathy dimensions are inquadrant IV which are considered excessive in their performance. This is because Transjakarta customers think it is not too important to have these variables, but the performance given by the government is very good, so it is very satisfying.

## Conclusion

Based on the analysis of the performance of the Transjakarta public transportation on the Cibubur-BKN route, it can be concluded that its performance has a total performance value of 26. Based on the table, the quality of public transportation services according to the decision of the Director General of Transportation in 2002 is very good. This shows that the Cibubur-BKN route is feasible to be designated as a fixed route in the Cibubur area:

a. The service quality of Transjakarta Cibubur-BKN with a Servqual Score of 0.012, overall customers are not satisfied with the service received.
b. The service dimension that produces the highest level of satisfaction is assurance, then Empathy, then Responsiveness, then Tangible. The dimension that has a low level of satisfaction is Reliability, this of course still needs improvement to match the expectations of customers who use Transjakarta services.

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