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STUDY OF PUBLIC TRANSPORTATION SERVICE LEVEL IN MAJALENGKA CITY

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ABSTRACT

In Majalengka, there are only a few public transportation options, including Angkutan Kota (public minivans), online motorcycle taxis (Ojek Online), and even traditional becak (pedicabs) can still be found in the city. The absence of trains and the limited number of public minivans may contribute to the lack of attractiveness of public transportation in Majalengka. Even in urban areas of Majalengka, some regions cannot be reached by public minivans. This study aims to evaluate the level of public transportation service to the community, providing evidence of the quality of public transportation services in Majalengka Kota. The research methodology employed in this study is quantitative. Majalengka Kota serves as the central government area of Kabupaten Majalengka, making it the hub of activities for its residents. This is due to the presence of various facilities that make Majalengka Kota a centre for activities, including recreational centres, food centres, favourite schools, etc. In conclusion, the Customer Satisfaction Index (CSI) in this study is 68%, which falls into the satisfactory category. The comparison of the importance and performance levels of transportation services shows a minimal GAP of 0.094, which is still positive, indicating a satisfactory and secure level of service. Lastly, the Importance Performance Analysis (IPA) graph identifies two variables, Administration (A) and Going (G), as the main priorities for improvement. The government should address these areas to anticipate and enhance future transportation services.

1. Introduction

Transportation is the movement of people or goods from one place to another. It is categorized into land, water, and air transportation. Land transportation itself has various types that evolve with time. In some developed countries, transportation systems are diverse and highly advanced, attracting people to travel. Development in cities are often oriented to the system of transportation with motorized vehicles (Johanes, Dermawan, Isradi, & Rifai, 2022).

In Indonesia, in recent years, there has been a quite significant surge in the use of private transportation, leading to a decrease in the use of public transportation by the community. Of course, this is a concerning

situation as the increasing number of private vehicles harms the environment and the sustainability of transportation in Indonesia. The urgency of everyone also influences this, but walking is repositioned as the potential to 'ease the position,' which reflects social, physical, andindividual factors of inequality in walking (AllenMassingue & Oviedob, 2022). Transportation problems are a severe problem to date; not only developing countries but alsodeveloping countries are experiencing it. Several significant countries that already have good transportationfacilities still have transportation problems such as congestion (Firmansyah, Rifai, & Taufik, 2022). The benefits of public transportation include contributing to faster economic growth and addressing traffic congestion issues in major cities in Indonesia. Additionally, it helps reduce pollution in Indonesia, which becomes more severe during the dry season.

The uneven distribution of public transportation between regions can be one of the reasons why Indonesia has yet to maximize public transit and reduce the number of private vehicles. This situation requires Indonesia to rethink strategies to ensure a more even distribution of advanced public transport, thereby increasing its attractiveness to the public. Inadequate road network facilities will cause traffic congestion problems (Ismawanda & Zajuli, 2018). Traffic congestion can also be minimized with the majority of the population using public transportation. A longer-term impact on transportation behavior becomes inevitable (Lucchesi, Tavares, Rocha, & Larranaga, 2022). The suboptimal state of public transportation can be attributed to various factors, one of which is the population size in that area. Majalengka is a region with limited public transportation.

Cities globally are grappling with the negative externalities of car travel and are therefore striving to move towards a more sustainable urban transportation system (Oeschger, Carroll, & Caulfield, 2020). In Majalengka, there are only a few public transportation options, including Angkutan Kota (public minivans), online motorcycle taxis (Ojek Online), and traditional becak (pedicabs), which can still be found in the city. The absence of trains and the limited number of public minivans may contribute to the lack of attractiveness of public transportation in Majalengka. Even in urban areas of Majalengka, some regions cannot be reached by public minivans. Additionally, the choice of public transportation in Majalengka is still a subject of discussion, particularly regarding the significantly increased fares, discouraging people from using public transport.

Therefore, this research focuses on public transportation services in the urban areas of Majalengka. This study aims to evaluate the level of public transportation services to the community. This research can prove the quality of public transportation services in the Majalengka Kota area.

2. Literature Review

2.1 Transportation

Transportation is the movement of people or goods from one place to another using vehicles. Transportation is divided into maritime, land, and air transportation. Land transportation includes cars, motorcycles, bicycles, trains, buses, etc. Marine transportation involves ships, while air transportation includes aircraft and helicopters. Transport planners are recommended to avoid using schemes for the development (e.g. automatically changing the vehicles to newly purchased ones or modifying the current timetable of the buses) (Zhang, Zhang, Sun, Zou, & Chen, 2018).

The transportation industry is the leading and basic industry of national economic and social development, and an important guarantee for social and economic development and improvement of people’s living standards (Li, Zhang, & Li, 2019). Perkembangan transportasi semakin meningkat baik itu transportasi udara, laut, maupun transportasi darat. Indonesia's rapid economic growth has also increased the number of private vehicles (Purnama, Rifai, & Nasrun, 2022). The development of

transportation is full of intelligent individuals who have innovations and implement them, leading to the advancement of transportation. Currently, Indonesia is actively working on creating advanced transportation systems.

The development of transportation certainly has positive impacts in various aspects. Mobility and accessibility for members of society are vital in the transportation network to enhance the quality of living (Sazu & Jahan, 2022). Including in terms of Indonesia's economy. Economic growth in Indonesia has increased with the sophistication and variety of transportation in the country, both in private and public transport.

2.2 Public Transportation

Public transportation is one of the modes available for the general public, requiring a specific fare. Public transportation is usually abundant in urban areas. However, in rural areas, public transportation is rare and sometimes nonexistent. It is unsurprising to hear such statements, considering the considerable distance from urban areas and the less stable economy in rural areas, making public transportation rare or unseen. Intercity public transport represents around 10% of the total trips, occupying about 45% of global passenger kilometers (Naveen & Gurtoo, 2022).

With the advancement of time, there are many advanced public transportation options, making them more attractive to the public, especially with more affordable costs. However, it's not uncommon to find traditional public transportation modes like pedicabs, horse-drawn carriages, and carts in every market in each city. Besides, public transportation systems are in a critical position for the environmental issues such as air pollution, trafc, time, energy, etc (Çelikbilek, Moslem, & Duleba, 2022).

Innovations in public transportation, such as the latest high-speed train connecting Jakarta and Bandung, are significant advancements. The impact of such developments includes increased effectiveness and efficiency in terms of both cost and time. Therefore, the government needs to allocate substantial funds to develop technology in public transportation. Understanding the interaction between citizens and public transportation systems is paramount in order to design and implement policies aimed at improving mobility (Massobrio & Nesmachnow, 2020).

The benefits of the increased public interest in public transportation include contributing to the growth of the economy in Indonesia. An improved transportation system supports lower transaction costs, permits economies of scale and specialization, widens opportunities, enhances trade, combines marketing and expands the income and welfare of society (Jawed, Talpur, Chandio, & Mahesar, 2019) Additionally, traffic congestion and pollution issues in Indonesia would decrease if the public chooses to use the available public transportation options in each region.

2.3 Level of Services

The level of service is one of the most crucial components for assessing the level of service by considering pedestrians' effective width and flow (Campisi, et al., 2022). In addition, service level is a criterion for quality assessment in modern and practical theory in transportation planning and the design of various types of transportation infrastructure (Kopylova, 2018). Therefore, the level of service must be carefully considered as it has a significant impact on public transportation when the service level is insufficient.

Besides that, Congestion can also be caused by decreasing public inclination to use public transport or a levelof vehicle traffic that exceeds a given road's capacity (Wincent, Rifai, & Isradi, 2022). The public transportation service level can be reflected in the friendliness of the public transportation providers. Additionally, the providers must consistently maintain comfort and safety to ensure passenger satisfaction. The owners of the public transportation directly feel the impact of this level of service, and one of the effects is the increased interest of the general public in utilizing their services. Therefore,

transportation infrastructure must be utilized at any time so as not to lose its function (Rifai, Ramadhan, Isradi, & Dermawan, 2021)

The level of service in public transportation is typically determined based on questionnaires distributed to public transportation users. These questionnaires aim to assess the comfort and safety levels experienced by users while utilizing public transportation. Public transportation users vary widely, ranging from children to adults, and many rely on public transit as a means of travel. The level of service is also influenced by traffic factors, the condition of road facilities, and environmental factors (Shu, Bian, Zhao, Rong, & Liu, 2021).

3. Method

The research method employed in this study is quantitative. Quantitative research is a method that involves numerical data. The data used in this research consists of primary data obtained from questionnaires. Additionally, secondary data is also required to support this study.

Majalengka Kota is the central administrative area of Majalengka Regency, where it has become the center of activities for the people of Majalengka Regency. This is because several places make Majalengka Kota the hub of activities, including recreational centers, food centers, favorite schools, etc. Therefore, transportation in this area is crucial for people who still need motorcycles.

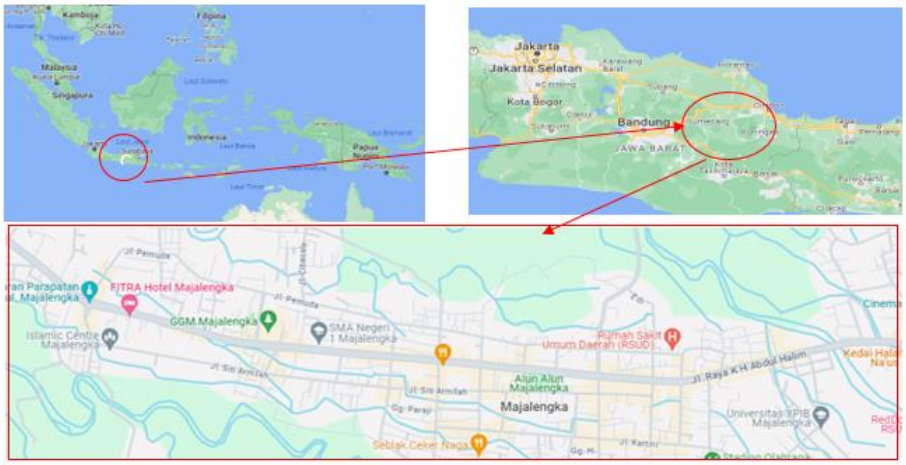

Figure 1. Research Location

The primary data required consists of questionnaire data. The questionnaire data requires 50 respondents who are residents of the Majalengka Regency, particularly those residing in Majalengka Kota. In addition to primary data, secondary data is also needed for this research, which includes the number of public transportation and population data for the Majalengka Regency, especially in the Majalengka Kota area.

In managing the questionnaire data, the rater theory is used. This theory is a grouping based on service quality. The rater theory has 5 Servqual Dimensions: reliability, empathy, responsiveness, assurance, and tangibles. Using this theory, it is hoped that this research will make it easier to group questionnaire questions about public transportation based on the type of question asked.

Table 1. Variable Driver

Servqual Dimension	Indicator	Code
Reliability	The driver has adequate driving skills.	D-01
Reliability	Provide genuine attention to passengers.	D-02

Reliability	Prioritizing consumer needs	D-03
Empathy	Putting consumer needs first	D-04
Responsiveness	Can communicate with passengers well	D-05

Table 2. Variable Vehicles

Servqual Dimension	Indicator	Code
Tangible	The vehicle has good roadworthiness	V-01
Tangible	Vehicles have traction	V-02
Tangible	Vehicle condition is clean and well-maintained	V-03
Tangible	Passenger seats are in good condition and well-maintained	V-04
Tangible	There are supporting facilities	V-05
Tangible	Level of comfort for the vehicle,	V-06
Responsiveness	Ease of fresh air entering the vehicle	V-07

Table 3. Variable Administration

Servqual Dimension	Indicator	Code
Reliability	Prices are relatively cheap	A-01
Reliability	There are fixed costs,	A-02
Empathy	There is a price difference between the general public and school children,	A-03
Responsiveness	There is tolerance for poor transportation	A-04

Table 4. Variable On Going

Servqual Dimension	Indicator	Code
Reliability	Passengers can understand the available routes.	G-01
Reliability	Passengers can find out the differences in types of public transportation.	G-02
Reliability	Passengers are satisfied with the existing route.	G-03
Empathy	Passengers feel comfortable while traveling	G-04
Responsiveness	Passengers feel safe while traveling.	G-05
Responsiveness	Passengers quickly reach their destination.	G-06

Table 5. Variable Brand Image

Servqual Dimension	Indicator	Code
Assurance	City Transportation has a good Brand Image.	B-01
Assurance	Have a driver who has qualified skills.	B-02
Assurance	Has more attraction.	B-03
Assurance	I am adapting to developments over time.	B-04
Assurance	Have a good image towards passengers.	B-05
Assurance	Have a good image towards other drivers.	B-06

After categorizing according to the variables in this questionnaire, the purpose of this questionnaire is to measure the level of importance and satisfaction of public transportation passengers. The questionnaire data uses a rating scale from 1 to 10, with details ranging from very unimportant/very dissatisfied to very important/very satisfied.

The data will be processed using CSI (Customer Satisfaction Index) following the questionnaire. In the process, it is necessary to determine the Mean Importance Score (MIS) and Mean Satisfaction Score (MSS) scores. After that, select the value of Weight Factors (WF) and the Weight Score (WS). This will result in a satisfaction index for passengers with a 0-100% scale. The satisfaction scale is shown in the table below.

Table 6. Skala CSI

Score CSI	Keterangan
80.1 % - 100%	Very Satisfaction
65.1 % - 80 %	Satisfaction
50.1% - 65%	Netral
34.1% - 50%	Not Satisfaction
0.00% - 34.0%	Very Not Satisfaction

After that, the data will be processed using the Importance-Performance Analysis (IPA) method. This method maps the variables measured from the questionnaire results to public transportation passengers with importance and satisfaction values. This method has four quadrants, each with different results. The IPA method graph, along with the results and parameters, is presented in Figure 2.

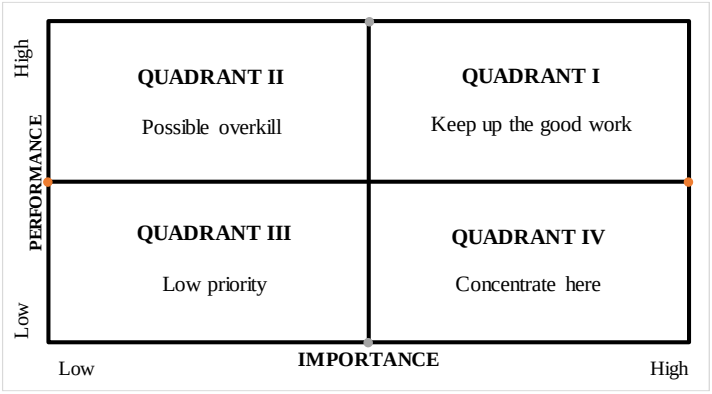

Figure 2. IPA Methode

Quadrant 1 (High Interest and High Satisfaction) variables are recommended to continue its performance. Quadrant 2 (Low Interest and High Satisfaction) means excessive performance. Quadrant

3 (Low Interest and Low Satisfaction) means low priority. Quadrant 4 (High interest and low satisfaction) means that it needs more concentration (Rifai, Prasetyo, & Rhismono, 2021).

4. Result and Discussion

After obtaining the questionnaire data, the next step is to process the questionnaire results. In the first step, calculate the average importance score in the questionnaire.

4.1 Means Importance Skor

After conducting the questionnaire with 50 community samples, the next step is to calculate the average values for the level of importance in the questionnaire data. Processing this data, it is grouped according to the variables listed in Chapter 3. The table of average importance scores is shown below.

Table 7. MIS Score

Variables	Importance
Driver	6,77
Vehicles	6,69
Administration	6,88
On Going	6,83
Brand Image	6,79

Based on the table above, the most miniature importance score is for the "vehicles" variable, which has a value of 6.69. Meanwhile, the most significant importance score is for the "Administration" variable, which is 6.88.

4.2 Means Satisfaction Score

After calculating the average importance scores, the next step is estimating the average satisfaction scores based on the questionnaire results. Similar to the average importance scores, these scores will also be grouped according to their respective variables.

Table 8. MSS Score

Variables	Satisfaction
Driver	6,68
Vehicles	6,92
Administration	6,78
On Going	6,78
Brand Image	6,79

Based on the table above, the smallest satisfaction level value is found in the Driver variable, with a score of 6.68. Meanwhile, the most significant satisfaction level value is located in the Vehicles variable, with a score of 6.92.

4.3 Weight Factors and Weight Score

After calculating the MIS and MSS values, the next step is to determine the weight factors and weight score. To determine the Weight Factors, you calculate the percentage of the MIS score per variable divided by the total MIS value of all variables measured. Meanwhile, the Weight Score is obtained by multiplying the WF value by MSS. The table of Weight Factors is shown below.

Table 9. Weight Factors Score

Variables	MIS	Weight Factors (%)
Driver	6.77	19.9
Vehicles	6.69	19.7
Administration	6.88	20.3
On Going	6.83	20.1
Brand Image	6.79	20.0

It can be seen that the Weight Factors (WF) value is the largest for the administration variable and the smallest for the vehicle variable. This is by the MIS value because the WF value is a percentage of the total number of MIS. Next, the Weight Score table is in the table below.

Table 10. Weight Score

Variables	Weigt Factors (%)	MSS	Weight Score
Driver	19.9	6.68	1.33
Vehicles	19.7	6.92	1.36
Administration	20.3	6.78	1.38
On Going	20.1	6.78	1.36
Brand Image	20.0	6.79	1.36

It can be seen in the table above that the weight scores for each variable are obtained, where the smallest value and the most significant value are for the driver and administration variables.

4.4 Customer Index Satisfaction

By knowing the values that make up the CIS, we will then calculate the satisfaction index value of the people who have filled out the questionnaire. The satisfaction index values are in the table below.

Table 11. CSI Score

Variables	MIS	Weigt Factors (%)	MSS	Weight Score
Driver	6.77	19.9	6.68	1.33
Vehicles	6.69	19.7	6.92	1.36
Administration	6.88	20.3	6.78	1.38
On Going	6.83	20.1	6.78	1.36
Brand Image	6.79	20.0	6.79	1.36
TOTAL	**34.0**	**100.0**	**34.0**	**6.8**
			Nilai CSI	**68%**

It can be seen from the table above that the CSI value itself is 68%. So, the CSI value is considered satisfactory. This is, of course, based on the order and assessment guidelines above, and the results are that respondents are satisfied with the performance of public transport services, especially city transport, so the number of city transport passengers will likely remain stable.

4.5 Importance and Performance Analysis

After you have finished finding out the CSI value, make a graph of the IPA method to find out whether there is a GAP in terms of this transportation service's level of importance and performance. Before making a graph, make a GAP to compare the two parameters. The table is in the table below.

Table 12. Comparison of Importance and Performance

Variables	Importance	Performance	GAP
Driver	6.77	6.68	0.09
Vehicles	6.69	6.92	0.23
Administration	6.88	6.78	0.1
On Going	6.83	6.78	0.05
Brand Image	6.79	6.79	0
Average	6.792	6.79	0.094

It can be seen in the table above that the level of importance and performance of public transportation services still has a GAP of 0.094. However, a positive GAP means the community is still unaffected by this transportation service. Next, make a graph of the Science Method to find out which variables need to be improved to increase the performance of these four variables. The IPA method graph is in the image below.

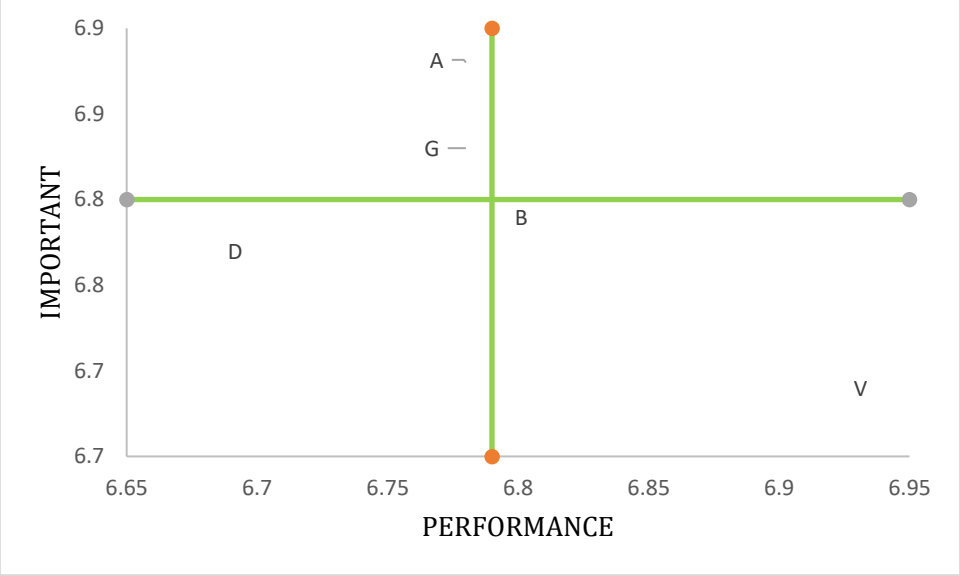

Figure 3. Result of Importance adn Performance Analysis

Based on the graph above, it can be seen that there are no variables that occupy quadrant 1, where this quadrant means a balance between interests and equally good performance. Meanwhile, quadrant 2 contains two variables, Administration (A) and On Going (G), which are included in the main priorities that must be improved. Meanwhile, quadrant 3 has two variables, namely Driver (D) and Brand Image (B), where in this quadrant, the second priority is improving service. Meanwhile, there is one variable for quadrant four, namely Vehicle (V), which has low priority in this quadrant.

5. Conclusion

In the work process above, several stages must be carried out first, starting from MIS calculations to finally producing the IPA method graph. The Customer Satisfaction Index (CIS) value in this research is 68%, which is still considered satisfactory. Meanwhile, to compare the level of importance and performance of this transportation service, the GAP is classified as very small, namely 0.094, where this value is still positive, so it is still classified as safe and satisfactory. Finally, create a Science Method graph

with the results of two variables that are the main priority for improvement, namely in terms of Administration (A) and Going (G). Of course, the government must improve it to anticipate things that will be lacking in the future.

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