

Analysis of Jakarta's Mass Rapid Transit Infrastructure Services on Passenger Satisfaction Performance With The Influence of The Covid 19 Virus

¹Sunandar Ali, ²Mukhlisoh, ³Sumiyati

^{1,2}Faculty of Engineering, University Mercu Buana Jakarta, Indonesia

³Faculty of Administration, University Mercu Buana Jakarta, Indonesia

Ali.Sunandar@gmail.com , Mukhlisoh29@gmail.com, Sumi.widi@gmail.com

Abstract

Service quality is a strategy that is very important for the development and success of business organizations. The purpose of this study is to analyze the dominant variables in MRT Jakarta infrastructure services on customer satisfaction performance and to find solutions to the dominant variables found. The hypothesis of this research is whether or not there is an effect of MRT Jakarta infrastructure services on customer satisfaction performance with the Covid 19 pandemic. The results obtained through the analysis of the Customer Satisfaction Index (CSI) were 85.38% and stated that customers were very satisfied with the MRT Jakarta services provided. In the Importance Performance Index (IPA) analysis with a Cartesian diagram, there are three dominant variables of MRT Jakarta services on customer satisfaction performance. Judging from the level of performance and importance of the quality of MRT Jakarta services, on average, it is good, so that the MRT Jakarta management must prioritize several variables to be improved and maintain those variables that are considered to be in accordance with customer expectations.

Keywords

Csi, Customer Satisfaction, Ipa, Jakarta Mrt, Service

1. Introduction

In the city of Wuhan, China at the end of December 2019, a Corona virus infection was first discovered called COVID-19 (Corona Virus Disease 2019). Corona virus or severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a virus that attacks the respiratory system. The disease due to this viral infection is called COVID-19. Corona virus (COVID-19) can cause minor disorders of the respiratory system, severe lung infections, and even death (Pane, 2020).

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), better known as the Corona virus, is a new type of coronavirus that is transmitted to humans. This virus spreads very quickly and has spread to almost all countries, including Indonesia, in just a few months. This has led several countries to implement policies to impose lockdowns in order to prevent the spread of this virus. In Indonesia, a Large-Scale Social Restriction (PSBB) policy was implemented to suppress the spread of this virus (Pane, 2020).

The COVID 19 virus can be transmitted in various ways, one of which is through the mode of public transportation which is a public space where people gather in large numbers, one of which is the Jakarta MRT. The use of public transportation has the potential to increase the transmission of the COVID-19 virus (Shalihah, 2020).

Teguh Nugroho in Wardah (2020) as Head of the Ombudsman Representative Office for Greater Jakarta said that PT. Mass Rapid Transit (MRT) Jakarta is a company with the best efforts to prevent the Covid-19 Virus. This determination was made after inspections of several modes of mass transportation in Jakarta regarding the COVID-19 virus outbreak in DKI Jakarta. MRT is the most ready provider of public transportation public services because all indicators are met and only has weaknesses in the part of monitoring the obedience of officers in implementing SOPs such as not checking body temperature on prospective passengers.

With the Covid 19 Virus pandemic currently happening in DKI Jakarta, the Governor of DKI Jakarta, Anies Baswedan issued Governor's Letter Number 9 of 2020 concerning the obligation to use masks for public transportation passengers such as TransJakarta, MRT, and LRT to prevent the spread of the Covid 19 Virus. (CNN Indonesia, 2020).

Seeing the background of the above problems, the researchers are interested in conducting a study entitled "Analysis of Jakarta's Mass Rapid Transit Infrastructure Services on Customer Satisfaction Performance with the effect of the Covid 19 Virus".

2. Methodology

The analytical method used is a quantitative method. This method consists of several stages, namely interviews and questionnaire collection by 3 experts, the data collection stage with a pilot survey, the data collection and analysis stage with the respondent, and the final expert validation stage.

The population in this study were MRT Jakarta passengers. According to the President Director of PT. MRT Jakarta, Wiliam Sabandar, data on the peak population of MRT Jakarta daily users with the Covid 19 pandemic has decreased, namely 9,000 people / day. The sampling method was carried out with 2 conditions, namely passengers who had used MRTJ services at least 5 times during the Covid 19 pandemic. The number of samples was taken using the Slovin formula:

$$n = \left(\frac{N}{1+N(e)^2} \right) = \left(\frac{9000}{1+9000(0.1)^2} \right) = 98,90$$

Information :

N = the number of research samples

N = the number of research population

e = percentage of tolerable errors, e 10%

Based on the Slovin formula, the minimum sample size is 98.90, taken 100 people. The instruments in this study were interviews and questionnaires.

The measurement scale used in this research is the Likert scale. For the assessment of the level of importance, it consists of very important (value 5), important (value 4), quite important (value 3), not important (score 2), and very insignificant (value 1). Meanwhile, the assessment of the level of satisfaction consists of very satisfied (score 5), satisfied (score 4), quite satisfied (score 3), dissatisfied (score 2), and very dissatisfied (score 1).

Data collection in this study consisted of 4 stages. The first stage is interviews and questionnaires to 3 experts, each expert is asked for help to validate the variables of the services provided. The second stage is a pilot survey which functions to assess whether the sentences of each variable are understandable or not. The third stage is the distribution of questionnaires to 100 respondents who are asked to assess the level of importance and level of satisfaction. The fourth stage, namely, final validation by each expert to help provide suggestions and solutions to the dominant variables found in the third stage of data collection.

3. Result and Analysis

3.1. Instrument Validity Test Results

The function of testing the validity of the research instrument is to determine the validity of each item of the research questionnaire. The definition of valid is that an effective questionnaire can be used as a data collection tool to explore problems that are the object of research. The criterion is if R count is greater than R table it means valid, and vice versa if R count is less than R table it means invalid. Based on (*degree of freedom/df*) selected confidence level of 95 percent and 5 percent alpha with the number of research samples of N = 100 respondents for customers, obtained r table of 0.195. To find out the correlation coefficient of the validity of each item of the research questionnaire, a calculation was carried out using the SPSS program.

Table 1. Results of Testing The Validity of Research Instruments at The Level of Importance

Nu.	R Count	R Table	Result	Nu.	R Count	R Table	Result
X1	0.496	0.195	Valid	X22	0.646	0.195	Valid
X2	0.380	0.195	Valid	X23	0.762	0.195	Valid
X3	0.555	0.195	Valid	X24	0.559	0.195	Valid
X4	0.602	0.195	Valid	X25	0.727	0.195	Valid
X5	0.420	0.195	Valid	X26	0.506	0.195	Valid
X6	0.520	0.195	Valid	X27	0.638	0.195	Valid
X7	0.320	0.195	Valid	X28	0.555	0.195	Valid
X8	0.218	0.195	Valid	X29	0.380	0.195	Valid
X9	0.250	0.195	Valid	X30	0.662	0.195	Valid
X10	0.320	0.195	Valid	X31	0.588	0.195	Valid
X11	0.501	0.195	Valid	X32	0.724	0.195	Valid
X12	0.435	0.195	Valid	X33	0.689	0.195	Valid
X13	0.416	0.195	Valid	X34	0.758	0.195	Valid
X14	0.602	0.195	Valid	X35	0.671	0.195	Valid
X15	0.662	0.195	Valid	X36	0.660	0.195	Valid
X16	0.519	0.195	Valid	X37	0.648	0.195	Valid
X17	0.510	0.195	Valid	X38	0.621	0.195	Valid
X18	0.662	0.195	Valid	X39	0.786	0.195	Valid
X19	0.615	0.195	Valid	X40	0.690	0.195	Valid
X20	0.601	0.195	Valid	X41	0.710	0.195	Valid
X21	0.532	0.195	Valid	X42	0.427	0.195	Valid

Source: Processed SPSS Software, 2020

Table 2. Results of Testing The Validity of Research Instruments Level of Satisfaction

Nu.	R Count	R Table	Result	Nu.	R Count	R Table	Result
X1	0.564	0.195	Valid	X22	0.663	0.195	Valid
X2	0.621	0.195	Valid	X23	0.603	0.195	Valid
X3	0.594	0.195	Valid	X24	0.644	0.195	Valid
X4	0.561	0.195	Valid	X25	0.667	0.195	Valid
X5	0.510	0.195	Valid	X26	0.526	0.195	Valid
X6	0.531	0.195	Valid	X27	0.630	0.195	Valid
X7	0.633	0.195	Valid	X28	0.640	0.195	Valid
X8	0.722	0.195	Valid	X29	0.513	0.195	Valid
X9	0.693	0.195	Valid	X30	0.614	0.195	Valid
X10	0.551	0.195	Valid	X31	0.663	0.195	Valid
X11	0.626	0.195	Valid	X32	0.692	0.195	Valid
X12	0.556	0.195	Valid	X33	0.730	0.195	Valid
X13	0.687	0.195	Valid	X34	0.657	0.195	Valid
X14	0.535	0.195	Valid	X35	0.654	0.195	Valid
X15	0.638	0.195	Valid	X36	0.701	0.195	Valid
X16	0.624	0.195	Valid	X37	0.666	0.195	Valid
X17	0.648	0.195	Valid	X38	0.681	0.195	Valid
X18	0.661	0.195	Valid	X39	0.723	0.195	Valid
X19	0.515	0.195	Valid	X40	0.662	0.195	Valid
X20	0.696	0.195	Valid	X41	0.684	0.195	Valid
X21	0.712	0.195	Valid	X42	0.400	0.195	Valid

Source: Processed SPSS Software, 2020

The results of testing the validity correlation coefficient or the calculated R value listed in the table above can be seen that the calculation results with the help of SPSS software, obtained R Count all items of the research questionnaire submitted to the parties who are the research sample meet the valid criteria, namely the measurement results of R Count greater than the examiner's figure on the R table of 0.195. This means that research variables can be used as effective data collectors to explore problems that are the object of research, and then they can be processed to measure the dimensions of the study and research indicators for each of the study dimensions.

3.2. Results of Measuring Instrument Reliability Testing

Testing the reliability of the measuring instrument is intended to determine the value of the instrument used to collect primary data from the research sample whether it is reliable or not. The notion of reliable is that the measuring instrument used can be trusted as a means of collecting data and can be relied on to measure research variables. The basis for decision making in the Cronbach's alpha reliability test is if the Cronbach's Alpha value is > 0.60 then the questionnaire is declared reliable or consistent, whereas if the Cronbach's Alpha value is < 0.60 then the questionnaire is declared unreliable or inconsistent.

Table 3. Importance Level Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
0.749	43

Source: Processed SPSS Software, 2020

Table 4. Satisfaction Level Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
0.752	43

Source: Processed SPSS Software, 2020

From the output table above, it is known that there are N of items or the number of variables totaling 43 items with a Cronbach's Alpha value of 0.749 > 0.60 for the level of importance and 0.752 > 0.60 for the level of satisfaction. As the basis for decision making in the reliability test, it can be concluded that 43 or all items are reliable or consistent.

3.3. Kolmogorov-Smirnov Normality Test Results

The normality test aims to test whether the data used in the study is normally distributed or not. In this study, the Kolmogorov-Sminov normality test was carried out with SPSS software. The basis for decision making in the K-S normality test is if the significance value (Sig.) > 0.05 then the research data is normally distributed, whereas if the significance value (Sig.) < 0.05 then the research data is not normally distributed.

Table 5. Normality Test Results

One-Sample Kolmogorov-Smirnov Test			
	N		Unstandardized Residual 100
Normal Parameters ^{a,b}	Mean		0.000000
	Std. Deviation		16.29640639
Most Extreme Differences	Absolute		0.116
	Positive		0.081
	Negative		-0.116
	Test Statistic		0.116
	Asymp. Sig. (2-tailed) ^c		0.129
Monte Carlo Sig. (2-tailed) ^d	Sig.		0.129
	99% Confidence Interval	Lower Bound	0.001
		Upper Bound	0.004

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. Lilliefors' method based on 10000 Monte Carlo samples with starting seed 2000000.

Source: Processed SPSS Software, 2020

Based on the results of the SPSS program output for the normality test in the table above, it can be concluded that the significance value of the Asymp.Sig (2-tailed) level of importance and satisfaction level is 0.129. With the terms of significance > 0.05. So in accordance with the basis of decision making in the Kolmogorov-Smirnor normality test, it can be concluded that the data is normally distributed.

3.4. Linearity Test Results

Linearity test aims to determine whether two variables have a significant linear relationship or not. The basis for decision making in the linearity test in this study is to compare the significance value (Sig.) With 0.05. If the Deviation from Linearity Sig. > 0.05, then there is a significant linear relationship between the variables x

and y, whereas if the value is Deviation from Linearity Sig. > 0.05, then there is a significant linear relationship between the variables x and y.

Table 6. Linearity Test Results

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
Y * X	Between Groups	(Combined)	17404.318	35	497.266	1.816	0.019
		Linearity	8641.447	1	8641.447	31.551	0.000
		Deviation from Linearity	8762.872	34	257.732	0.941	0.568
		Within Groups	17528.842	64	273.888		
	Total		34933.160	99			

Source: Processed SPSS Software, 2020

Based on the significance value (Sig) from the table above, the Deviatin from Linearity Sig value is obtained. is $0.568 > 0.05$. So it can be concluded that there is a significant linear relationship between service level variables and satisfaction levels.

3.5. Customer Satisfaction Analysis

The average value of the level of importance and the level of satisfaction in each variable is used to calculate the value of the Customer Satisfaction Index (CSI), the following is a table of scores generated from the recapitulation of 100 MRT Jakarta respondents.

Table 7. Results of Customer Satisfaction Analysis

Nu.	Service Variables	I	P	Score (S) (I x P)
I	STATION <i>(Tangibles)</i>			
1	Accessibility and cleanliness at the station	4.80	4.49	21.55
2	Train waiting facilities	4.72	4.28	20.20
3	Toilet facilities	4.78	4.45	21.27
4	Place of worship facilities	4.63	4.17	19.31
5	Information boards are available including station names, line directions, and train destinations	4.80	4.52	21.70
6	There is a station map & train route map	4.77	4.44	21.18
7	first aid equipment facilities	4.65	3.85	17.90
8	There is a janitor	4.77	4.43	21.13
9	There is a security guard	4.85	4.55	22.07
10	Garbage disposal facilities	4.77	4.20	20.03
11	There are supporting facilities that provide comfort to passengers inside the station (where gadget charges)	3.98	3.63	14.45
12	There are automatic food and drink vending machines	3.89	3.61	14.04
13	Air circulation at the station	4.69	4.28	20.07
14	Lighting in the station	4.72	4.35	20.53
15	Station automatic door facility	4.82	4.70	22.65
16	Mandatory use of masks in the MRT area	4.87	4.45	21.67
17	Check body temperature before entering the station	4.83	4.53	21.88
18	Provision of hand sanitizers at the station	4.82	4.30	20.73
	<i>(Reliability)</i> <i>(Responsiveness)</i>			
19	Ease and speed of ticket service	4.75	4.26	20.24
20	Responsibility of officers in handling passenger complaints and emergencies at stations	4.62	4.07	18.80
	<i>(Assurance)</i>			
21	CCTV facilities in the station area	4.73	4.34	20.53
	<i>(Empathy)</i>			
22	Security inside the MRT station	4.83	4.45	21.49
23	Machine facilities tap in and tap out tickets	4.79	4.21	20.17
24	Courtesy, care and friendliness of officers to passengers at the station	4.63	4.08	18.89
	IN THE TRAIN <i>(Tangibles)</i>			
25	Complete facilities in the train series (seating, air conditioning, automatic doors, standing passenger handles)	4.76	4.47	21.28

26	There are officers patrolling the train series	4.56	4.26	19.43
27	Enforce seat and standing distance limits between passengers	4.75	4.41	20.95
28	Imposing restrictions on the number of passengers in one carriage and a series of trains	4.70	4.29	20.16
29	There is entertainment media on board	3.67	3.35	12.29
<i>(Reliability)</i>				
30	Train arrivals and departures are according to a predetermined schedule	4.80	4.32	20.74
31	The reliability of the machinist in driving a train series (braking and speed in carrying the train)	4.75	4.49	21.33
<i>(Responsiveness)</i>				
32	Accuracy provides sequentially skipped station information via the audio speaker	4.74	4.47	21.19
33	Responsiveness of machinists in opening and closing the train circuit door	4.68	4.46	20.87
34	Security officer responsiveness handle emergencies	4.68	4.23	19.80
<i>(Assurance)</i>				
35	Availability of information on train destinations and closest stops	4.68	4.44	20.78
36	Availability of emergency situation facilities in the train circuit (APAR and glass breaker)	4.76	4.32	20.56
37	Staff knowledge of information about the train (delay or the train is in trouble)	4.65	4.09	19.02
38	Availability of health facilities in train cars (box First aid)	4.61	3.92	18.07
39	CCTV facilities in the train circuit	4.66	4.23	19.71
<i>(Empathy)</i>				
40	Ease of getting seats for priority passengers (disabilities, elderly, and pregnant women)	4.78	4.30	20.55
41	Comfort and cleanliness of facilities in the train series	4.73	4.35	20.58
42	The suitability of MRT rates with the facilities provided	4.53	3.74	16.94
TOTAL		196.00	178.78	836.73

Source: Processed by Researchers, 2020

$$CSI = \frac{T}{(5 \times Y)} \times 100\%$$

$$CSI = \frac{836,73}{(5 \times 196,00)} \times 100\%$$

$$= 85.38 \%$$

Based on CSI calculations, the MRT Jakarta customer satisfaction level is 85.38%. It can be concluded that the customer satisfaction criteria are in the Very Satisfied category.

3.6. Importance Performance Analysis (IPA)

According to Martinez in Ariyoso (2009) menyebutkan Importance Performance Analysis (IPA) is a measure of one's level of satisfaction with the performance of other parties. Satisfaction is measured by comparing the level of importance with the level of satisfaction obtained. If the level of consumer expectation is

higher than the level of performance it indicates that the consumer has not achieved satisfaction, whereas if the level of performance is higher than the level of expectation it indicates that the customer has reached satisfaction. The steps of the Importance Performance Analysis (IPA) analysis are :

1. Conformity Level Analysis

The level of suitability is the result of a comparison between the satisfaction performance score and the importance score, so it can be used to determine the priority scale (Yola and Budianto, 2013). The level of suitability between satisfaction performance and importance score can be seen in Table 4.16. According to (Sukardi and Chandrawatisma, 2008), if the value of the conformity level is close to 100% and is above average, it can be said that the consumer is satisfied, and if the conformity level > 100% means that the quality of service provided has exceeded what is considered important. by the customer or service (Supranto, 2016).

Formula :

$$TKI = \frac{X1}{Y1} \times 100\%$$

Information :

TKI = Level of Conformity

X1 = Performance Appraisal Score

Y1 = Interest Rating Score

Table 8. Conformity Level Analysis

No.	Service Variables	Importance Level (Y)	Satisfaction Level (X)	Conformity Level (%)
I	STATION			
	<i>Tangibles</i>			
1	Accessibility and cleanliness at the station	4.80	4.49	93.54%
2	Train waiting facilities	4.72	4.28	90.68%
3	Toilet facilities	4.78	4.45	93.10%
4	Place of worship facilities	4.63	4.17	90.06%
5	Information boards are available including station names, line directions, and train destinations	4.80	4.52	94.17%
6	There is a station map & train route map	4.77	4.44	93.08%
7	first aid equipment facilities	4.65	3.85	82.80%
8	There is a janitor	4.77	4.43	92.87%
9	There is a security guard	4.85	4.55	93.81%
10	Garbage disposal facilities	4.77	4.20	88.05%
11	There are supporting facilities that provide comfort to passengers inside the station (where gadget charges)	3.98	3.63	91.21%
12	There are automatic food and drink vending machines	3.89	3.61	92.80%
13	Air circulation at the station	4.69	4.28	91.26%
14	Lighting in the station	4.72	4.35	92.16%
15	Station automatic door facility	4.82	4.70	97.51%
16	Mandatory use of masks in the MRT area	4.87	4.45	91.38%
17	Check body temperature before entering the station	4.83	4.53	93.79%
18	Provision of hand sanitizers at the station	4.82	4.30	89.21%
	<i>(Reliability)</i>			
	<i>(Responsiveness)</i>			
19	Ease and speed of ticket service	4.75	4.26	89.68%
20	Responsibility of officers in handling passenger complaints and emergencies at stations	4.62	4.07	88.10%
	<i>(Assurance)</i>			
21	CCTV facilities in the station area	4.73	4.34	91.75%
	<i>(Empathy)</i>			
22	Security inside the MRT station	4.83	4.45	92.13%
23	Machine facilities tap in and tap out tickets	4.79	4.21	87.89%
24	Courtesy, care and friendliness of officers to passengers at the station	4.63	4.08	88.12%
	IN THE TRAIN			
	<i>(Tangibles)</i>			
25	Complete facilities in the train series (seating, air conditioning, automatic doors, standing passenger handles)	4.76	4.47	93.91%

26	There are officers patrolling the train series	4.56	4.26	93.42%
27	Enforce seat and standing distance limits between passengers	4.75	4.41	92.84%
28	Imposing restrictions on the number of passengers in one carriage and a series of trains	4.70	4.29	91.28%
29	There is entertainment media on board	3.67	3.35	91.28%
<i>(Reliability)</i>				
30	Train arrivals and departures are according to a predetermined schedule	4.80	4.32	90.00%
31	The reliability of the machinist in driving a train series (braking and speed in carrying the train)	4.75	4.49	94.53%
<i>(Responsiveness)</i>				
32	Accuracy provides sequentially skipped station information via the audio speaker	4.74	4.47	94.30%
33	Responsiveness of machinists in opening and closing the train circuit door	4.68	4.46	95.30%
34	Security officer responsiveness handle emergencies	4.68	4.23	90.38%
<i>Jaminan / Kepastian (Assurance)</i>				
35	Availability of information on train destinations and closest stops	4.68	4.44	94.87%
36	Availability of emergency situation facilities in the train circuit (APAR and glass breaker)	4.76	4.32	90.76%
37	Staff knowledge of information about the train (delay or the train is in trouble)	4.65	4.09	87.96%
38	Availability of health facilities in train cars (box first aid)	4.61	3.92	85.03%
39	CCTV facilities in the train circuit	4.66	4.23	90.77%
<i>(Empathy)</i>				
40	ease of getting seats for priority passengers (disabilities, elderly, and pregnant women)	4.78	4.30	89.96%
41	Comfort and cleanliness of facilities in the train series	4.73	4.35	91.97%
42	The suitability of MRT rates with the facilities provided	4.53	3.74	82.56%
Average Compliance Level				91.20%

Source: Processed by Researchers, 2020

Based on Table 8, after calculating the level of suitability for decision-making scores, it is taken from the average level of suitability itself. Where the decision score obtained is 91.20%.

2. Cartesian Quadrant Analysis

Cartesian diagram is used to map the variables of service quality that have been analyzed and to determine which service variables satisfy or do not satisfy consumers. The formula used is :

$$X = \frac{\sum X1}{k}$$

$$= \frac{178,78}{42}$$

$$X = 4.26$$

$$Y = \frac{\sum Y1}{k}$$

$$= \frac{196,00}{42}$$

$$Y = 4.67$$

The average score of the level of performance or satisfaction (X) of 4.26 is taken from the total average score of the level of performance or satisfaction of 178.78 divided by the total number of variables as many as 42 variables and the average score of the level of importance (Y) of 4.67 taken from the total. the overall average value of the importance level of 196.00 divided by the total number of variables of 42 variables. After obtaining the average score of the level of importance and level of performance or satisfaction, a mapping of the location of each variable is obtained based on the Cartesian diagram in Figure 1 below.

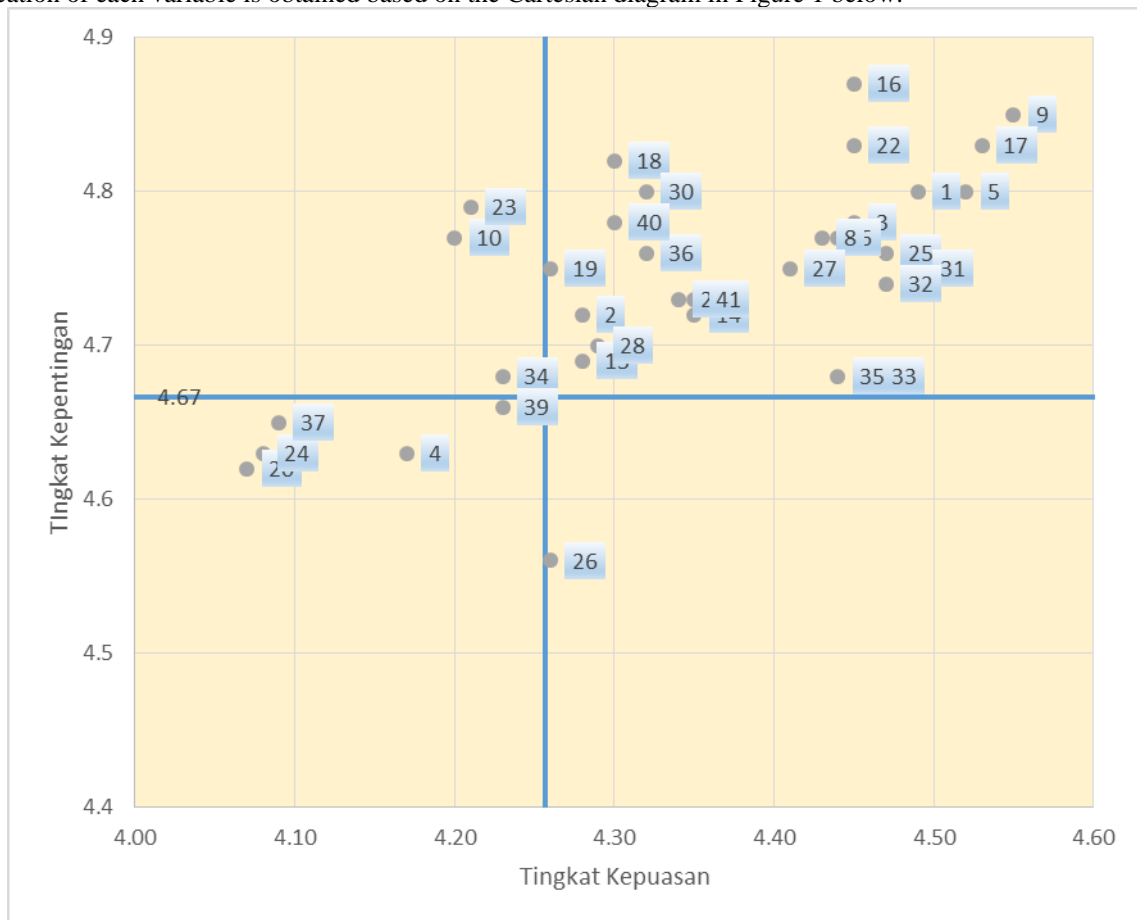


Figure 1. Cartesian Diagram Results
Source: Processed by Researchers, 2020

Based on the IPA diagram above, the results show that the services included in quadrant 1, quadrant 2, and quadrant 3, and quadrant 4 are as follows:

- a. Quadrant I (Top priority for improvement)

This quadrant shows the top priority variables that affect customer satisfaction. The variables in this quadrant need to be prioritized by the agency, because these variables are considered very important by customers, while the level of performance is still not satisfactory. The variables included in quadrant I are:

X10 = Disposal facility

X23 = The performance of the tap in and tap out ticket machine facilities

X34 = Responsibility of security personnel in handling emergencies

b. Quadrant II (Keep it up)

This quadrant shows the variables that affect customer satisfaction. The variables in this quadrant must be maintained by the agency, because the variables in this quadrant are considered by the customer to match the agency's performance with what the customer expects. The variables included in quadrant II are X1, X2, X3, X5, X6, X8, X9, X13, X14, X15, X16, X17, X18, X19, X21, X22, X25, X27, X28, X30, X31, X32, X33, X35, X36, X40, X41.

c. Quadrant III (Low Priority)

This quadrant shows the variables that are considered less important by customers and the quality of their implementation is normal or sufficient. The variables included in quadrant III are X4, X7, X11, X12, X20, X24, X26, X29, X37, X38, X39, X42.

d. Quadrant IV (Exaggerated)

This quadrant shows the variables that affect customer satisfaction. The variables in this quadrant are overestimated by the customer, because the customer considers it not very important to the existence of these variables, but is carried out very well by the agency so that it is very satisfying. In this study, there are no variables included in this Quadrant IV.

4. Conclusion

Based on the results of data analysis that has been done, the conclusions that can be drawn are as follows :

1. Based on the results of the Cartesian diagram analysis data processing that has been obtained, there are 3 dominant variables that affect customer satisfaction are :

X10 = Disposal facility

X23 = The performance of the tap in and tap out ticket machine facilities

X34 = Responsibility of security personnel in handling emergencies

2. Alternative solutions that can be given to each of the dominant variables found are:

- a. Variable 10 which is disposal facility, An alternative solution that can be done is to provide garbage dumps (according to waste classification) at several stations in places that are easily accessible by MRT Jakarta service users. Adjusted to service provider regulations.
- b. Variable 23 which is The performance of the tap in and tap out ticket machine facilities, An alternative solution that can be done is checking the tap in and tap out machines before transportation services operate for the public to ensure that each unit is functioning and can be used properly by consumers, and maintenance is carried out on each machine periodically to avoid damage. If there is damage to the machine during operational hours, it is necessary to inform consumers.
- c. Variable 34 which is Responsibility of security personnel in handling emergencies, an alternative solution that can be done is that every officer must be equipped with emergency response training before carrying out work.

References

Ariyoso (2009) *Konsep Importance Performance Analysis (IPA)*, wordpress.

CNN Indonesia (2020) *Wajib Pakai Masker di Angkutan Umum Jakarta Berlaku 12 April*, *cnnindonesia.com*.

Available at: <https://www.cnnindonesia.com/nasional/20200406104233-20-490675/wajib-pakai-masker-di-angkutan-umum-jakarta-berlaku-12-april>.

Pane, M. D. C. (2020) *Covid-19, Alodokter*. Available at: <https://www.alodokter.com/covid-19>.

Shalihah, N. F. (2020) *Memahami Potensi Risiko Penularan Virus Corona di Transportasi Umum*, *Kompas.com*.

Available at: <https://www.kompas.com/tren/read/2020/03/29/202100965/memahami-potensi-risiko-penularan-virus-corona-di-transportasi-umum?page=all>.

Sukardi and Chandrawatisma, C. (2008) 'Analisis Tingkat Kepuasan Pelanggan Terhadap Produk Corned Pronas Produksi PT CIP, Denpasar, Bali', *Teknologi Industri Pertanian*, 18(2), pp. 106–117.

Supranto, J. (2016) *Statistik Teori dan Aplikasi*. 8th edn. Jakarta: Erlangga.

Wardah, F. (2020) *Ombudsman: MRT Paling Siap dalam Usaha Pencegahan Virus Corona*, *voaindonesia.com*.

Available at: <https://www.voaindonesia.com/a/ombudsman-mrt-paling-siap-dalam-usaha-pencegahan-virus-corona/5330359.html>.

Yola, M. and Budianto, D. (2013) 'Analisis Kepuasan Konsumen Terhadap Kualitas Pelayanan dan Harga Produk dengan Menggunakan Metode Importance Performance Analysis (IPA)', *Optimasi Sistem Industri*, 12(12).