

Analysis of Customer Satisfaction Level Towards the Service Quality of an Online Ride Hailing Service in Batam using Servqual and IPA Methods

Andi Erna Mulyana¹, Lisa Yunika Aswar², Faisal Amri Nasution³, Dwi Kartikasari⁴

{andierna@polibatam.ac.id¹, lisayunika22@gmail.com², Amri.faisal99@gmail.com³,
21h1203@ubd.edu.bn⁴}

Politeknik Negeri Batam, Business and Management Department, Batam City, Indonesia^{1,2,3}
University of Brunei Darussalam, Brunei Darussalam⁴

Abstract. This study aims to determine the customer satisfaction levels of a ride hailing service provider in Batam, and identify the service attributes that are in need of improvement. The data was analyzed using a combination of techniques including Servqual analysis and IPA methods with a sample size of 250 respondents. The results indicate that although the average service quality was quite good, it failed to meet consumer expectations. The level of customer satisfaction is 97%, indicating that the service is not yet satisfactory. The incomplete payment application, poorly groomed drivers, and non-responsive in handling customer complaints are the primary areas that are in need of improvement. Therefore, it is essential to improve those attributes to enhance the quality of the services and customer satisfaction. For future research aiming to develop or expand this topic, should incorporate brand image variables to examine their impact on customer satisfaction levels.

Keywords: Service Quality, Online Transportation, Customer Satisfaction, Service Quality Method (Servqual), Importance Performance Analysis (IPA)

1 Introduction

Transportation has means of moving people and goods from one place to another [1]. Transportation has two important roles: a means to enhance regional development and a tool that supports the movement of people and goods arising from activities in that area [2]. The importance of transportation in supporting community activities has led to the emergence of online transportation in Indonesia. The presence of online transportations or ride hailing services aims to make daily activities of the community easier, faster, and more efficient. Online transportation booking using smartphones can be done anywhere and anytime, without having to travel to terminals or depots, making it popular among people because it is easier and more practical [2]. This can accelerate the movement of people and goods from one place to another with ease.

In Indonesia, specifically in Batam, there are some online transportation or ride hailing service providers that operates and became popular. The sample online transportation that being used for this paper is one of them that were started operating in Batam in 2019. The quality of service provided by this online transportation provider in Batam is still not comparable to its competitors such as Grab and Gojek in terms of punctuality and completeness of equipment and amenities [3]. Therefore, this could lead to customer dissatisfaction if it's not resolved.

Service quality is a company's effort to meet customer expectations in order to survive and compete in the market [4]. Quality is the most important aspect of determining customer satisfaction. If customers feel that the quality provided does not meet their expectations, it will lead to customer dissatisfaction [5]. Customer satisfaction or dissatisfaction is the response given by customers to the difference between their expectations and the received performance [6].

Thus, the Servqual and IPA methods are used to measure service quality and customer satisfaction in this research. The Servqual method is used to compare customer expectations with perceived performance [7]. Meanwhile, the IPA method is used to identify the main elements of service quality that must be taken into consideration to achieve customer satisfaction [8].

Based on the stated problem, the research aims to determine the quality of this particular ride hailing service in Batam, determine the level of its customer satisfaction, and identify which service attributes that in need of improvement. The research will focus on users of this ride hailing service who used Bike and Car services. The respondents will be Batam residents who have used the services at least twice, so that customers can assess their satisfaction after comparing the two services.

2 Literature Studies

2.1 Service Quality

Service quality results from the comparison between the expected service and the performance received by the customer. Service quality consists of three main components [7], which are:

- a) Technical Quality, refers to the quality of service received by the customer.
- b) Functional Quality, refers to the quality of delivering the service.
- c) Corporate Image, refers to the profile, brand, or attractiveness of the company.

2.2 Dimention of Service Quality

There are five main dimensions of service quality [9] as follows:

- a) Reliability, which refers to the ability of employees to provide accurate and timely services without making mistakes.
- b) Responsiveness, refers to the ability of employees to meet the needs and desires of customers, provide clear information, and deliver services quickly and accurately.
- c) Assurance, which refers to the behavior of employees that can build trust and provide a sense of security to their customers.
- d) Empathy, which refers to when employees understand customer problems and act in the best interest of the customer without discrimination.
- e) Tangibles, which include the physical appearance, equipment, amenities, and communication materials of the employees.

3. Methodology

3.1. Research Method

This study used quantitative research with validity test analysis, reliability test analysis, Servqual method, and IPA method. Sampling was conducted using the purposive sampling technique, where the criteria for respondents were users of the ride hailing service, including bike or car service in Batam at least twice. Data was collected through a questionnaire survey of the service users. The population size was determined through the use of the Lemeshow formula because the number of populations was unknown, therefore the sample size was 250 respondents.

3.2. Servqual Method

The Servqual method is used to measure the quality of service based on customers' perceptions and expectations of the received service [10]. The formula that is used is shown below:

$$Q (\text{Quality}) = \frac{P (\text{Customer Perceptions})}{E (\text{Expected Services})} \quad (1)$$

Description: If quality (Q) ≥ 1 , then the service quality is considered good.

3.3. IPA Method

The IPA method is used to compare the performance of services provided based on the importance level of the consumers [11]. Below are the calculations of the level of conformity between performance and importance:

$$TK_i = \frac{X_i}{Y_i} \times 100\% \quad (2)$$

Description:

TK_i = Level conformity of the i respondent.

X_i = Mean value of service performance (perception).

Y_i = Mean value of consumer needs (expectations).

The percentage of suitability levels is divided into several categories as follows [12]:

Table 1. The score of Suitability Level

The score of Suitability Level (TK _i)	Description
< 100%	Unsatisfactory
= 100%	Satisfactory
>100%	Very Satisfactory

4 Result and Discussion

4.1 Validity Test

Questions are said to be valid if r count > r table and significance < 0.05 [13]. In the research results, r count > 0.1241. So, it can be said that the variables in this study are valid.

4.2 Reliability Test

An instrument or variable is said to be reliable if the Cronbach Alpha coefficient > 0.60 [13]. The data in the study shows that each variable is > 0.60, so it can be said that the variables in this study are reliable.

4.3 Respondent Description

The questionnaire was distributed and completed by 250 respondents. The data collected from the respondents provides information related to their gender, age, income level, frequency, and usage of the services.

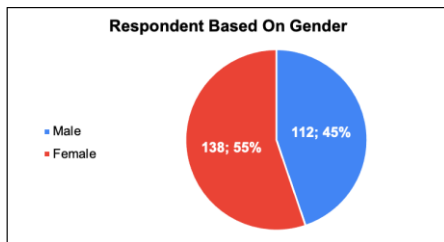


Figure 1. Gender of Respondent

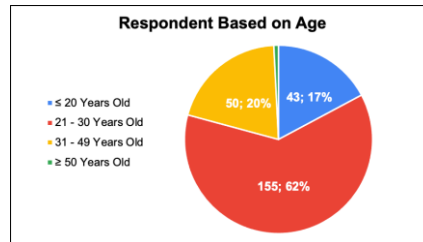


Figure 2. Age of Respondent

It is known that the majority of the respondents in this study were female, amounting to 138 individuals or 55%. Meanwhile, the majority of the respondents are in the age range of 21-30 years, with 155 individuals or 62%. These respondents belong to the productive age group and engage in various activities such as working, studying, and others. Therefore, they mostly used online transportation services in their daily activities.

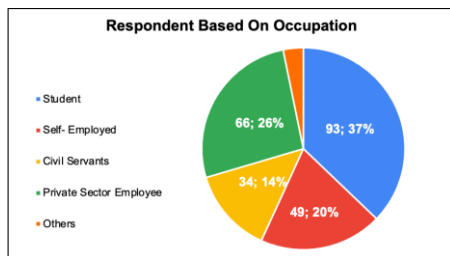


Figure 3. Occupation of Respondent

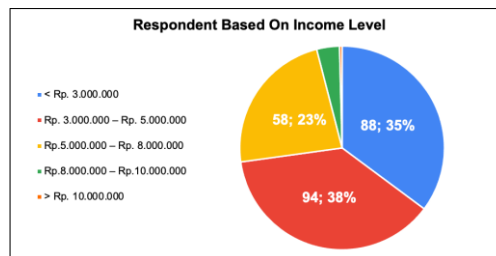


Figure 4. Income Levels of Respondent

It is known that the majority of respondents based on occupation are dominated by students with 93 respondents or 37%. The students mostly use a ride hailing service to travel to campus or school. Meanwhile, the majority of respondents based on their income level are dominated by those with an income of Rp. 3,000,000 - Rp. 5,000,000, with 94 respondents or 38%. The majority of individuals with this income range were 34 private sector employees who use the service for commuting to work. While 30 respondents were self-employed, 19 respondents were civil servants, 11 respondents were students and others.

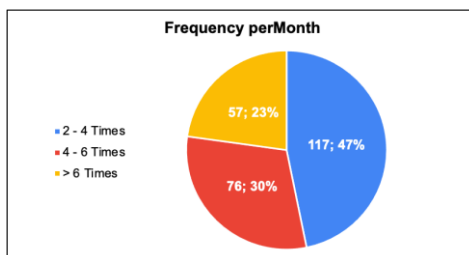


Figure 5. Usage Services of Respondent

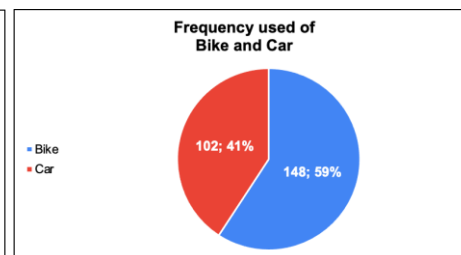


Figure 6. Frequency Used Services of Respondent

It is known that the majority of the respondent using the service was between 2 to 4 times per month. Meanwhile, the most frequently used service among the respondents was Bike with 59% of respondent. This is due to the affordable pricing and faster arrival time.

4.4 Servqual Analysis

Table 2. Servqual Analysis Results on Service Quality

Variable	Item	Indicator	Mean		Gap	Quality
			Perception	Expectation		
Tangibles	X1	Vehicles provide comfort.	3,46	3,57	-0,10	0,97
	X2	The vehicle features are complete.	3,44	3,55	-0,12	0,97
	X3	The application offers convenience.	3,43	3,48	-0,05	0,99
	X4	The payment application is comprehensive.	3,35	3,52	-0,17	0,95
	X5	The driver has a neat and clean appearance.	3,29	3,56	-0,27	0,92
Reliability	X6	Customers are taken to their destination.	3,38	3,50	-0,12	0,97
	X7	Drivers are skilled in driving.	3,49	3,61	-0,12	0,97
	X8	Drivers deliver customers on time.	3,38	3,47	-0,09	0,97
	X9	Drivers follow traffic regulations when driving.	3,45	3,61	-0,16	0,96
	X10	Drivers understand the travel routes.	3,44	3,49	-0,05	0,99
Responsiveness	X11	The driver confirms the order.	3,29	3,42	-0,13	0,96
	X12	Driver arrives quickly upon receipt of the order from the application.	3,41	3,46	-0,05	0,98
	X13	Application links customer and driver quickly.	3,36	3,51	-0,15	0,96
	X14	The driver responds quickly to complaints.	3,33	3,54	-0,21	0,94
	X15	The ride hailing service provides solutions to any problems.	3,36	3,50	-0,14	0,96
Assurances	X16	The driver has the knowledge and skills necessary to perform the job.	3,34	3,44	-0,10	0,97
	X17	The driver has a good understanding of the routes and addresses to be taken.	3,44	3,45	-0,01	1,00
	X18	The driver is reliable and professional.	3,43	3,59	-0,16	0,96
	X19	The driver places a high priority on passenger safety during the trip.	3,42	3,60	-0,17	0,95
	X20	Service is provided 24 hours.	3,36	3,41	-0,05	0,98
Empathy	X21	The ride hailing service provides customer care services.	3,24	3,44	-0,20	0,94
	X22	The driver is able to communicate effectively with customers in order to provide high-quality service.	3,36	3,43	-0,07	0,98
	X23	Driver treats customers politely and courteously.	3,51	3,62	-0,11	0,97
	X24	The ride hailing service provides affordable pricing with no changes to the application.	3,43	3,58	-0,15	0,96
	X25	The driver is always responsive to customer requests and complaints.	3,36	3,48	-0,11	0,97
Total Mean			3,39	3,51	-0,12	0,97

The results show that the average service quality score is 0.97 with a gap score of -0.12. The lowest quality score can be found in item 5 with the indicator of the driver's neat and clean appearance with a quality score of 0.92 and a gap score of -0.27. If the quality score is less than 1, the service is considered quite good even though it did not meet the customer's expectations and is therefore in need of improvement [14].

4.5 IPA Analysis

4.5.1. Analysis of Tangibles Variables

Table 3. Level of Tangibles Conformity

Tangibles														
Item	Indicator	Performance (Perception)					Item	Importance (Expectations)					Mean	Tki
		STS	TS	S	SS	Mean		STS	TS	S	SS			
		f	f	f	f			f	f	f	f	f		
X1	Vehicles provide comfort.	2	15	98	135	3,46	X1	2	7	88	153	3,57	97%	
X2	The vehicle features are complete.	6	10	103	131	3,44	X2	3	6	91	150	3,55	97%	
X3	The application offers convenience.	3	14	105	128	3,43	X3	5	7	101	137	3,48	99%	
X4	The payment application is comprehensive.	1	26	107	116	3,35	X4	3	9	92	146	3,52	95%	
X5	The driver has a neat and clean appearance.	4	19	127	100	3,29	X5	3	12	77	158	3,56	92%	
Total Mean		3,39					Total Mean		3,54					96%

The frequency table shows a relatively good level of tangibles performance based on the number of respondents who chose the agreed score. However, the average performance score of tangibles is 3.39, which is lower than the average importance score of 3.54. This indicates that the performance provided by this ride hailing service is still low and does not meet customer expectations. Meanwhile, the average result of Tki for the reliability variable is at 96%, with the lowest percentage at 92% for the indicator of a neat and clean driver. If Tki is less than 100%, the service is not yet satisfying and in need of improvement.

The frequency table shows a relatively good level of reliability performance based on the number of respondents who chose the agreed score. However, the average value of reliability performance is 3.43, which is lower than the average value of importance, namely 3.54. This indicates that the performance provided by this ride hailing service is still low and does not meet expectations. Meanwhile, the average result of Tki for the reliability variable is at 96%, with the lowest value at 96% for the indicator of drivers following traffic regulations when driving. If Tki is less than 100%, the service is not yet satisfying and is in need of improvement.

4.5.2. Analysis of Reliability Variable

Table 4. Level of Reliability Conformity

Reliability														
Item	Indicator	Performance (Perception)					Item	Importance (Expectations)					Mean	Tki
		STS	TS	S	SS	Mean		STS	TS	S	SS			
		f	f	f	f			f	f	f	f	f		
X6	Customers are taken to their destination.	3	10	126	111	3,38	X6	5	5	100	140	3,50	97%	
X7	Drivers are skilled in driving.	2	14	93	141	3,49	X7	3	9	71	167	3,61	97%	
X8	Drivers deliver customers on time.	2	17	114	117	3,38	X8	4	8	104	134	3,47	97%	
X9	Drivers follow traffic regulations when driving.	2	11	109	128	3,45	X9	7	4	69	170	3,61	96%	
X10	Drivers understand the travel routes.	3	12	106	129	3,44	X10	4	8	99	139	3,49	99%	
Total Mean		3,43					Total Mean		3,54					97%

4.5.3. Analysis of Responsiveness Variables

Table 5. Level of Responsiveness Conformity

		Responsiveness												
Item	Indicator	Performance (Perception)					Item	Importance (Expectations)				Mean	Tki	
		STS	TS	S	SS	Mean		STS	TS	S	SS			
		f	f	f	f			f	f	f	f			f
X11	The driver confirms the order.	2	17	137	94	3,29	X11	5	9	111	125	3,42	96%	
X12	Driver arrives quickly upon receipt of the order from the application.	5	13	107	125	3,41	X12	5	9	102	134	3,46	98%	
X13	Application links customer and driver quickly.	3	17	117	113	3,36	X13	3	9	96	142	3,51	96%	
X14	The driver responds quickly to complaints.	6	17	116	111	3,33	X14	4	9	85	152	3,54	94%	
X15	The ride hailing service provides solutions to any problems.	4	18	112	116	3,36	X15	4	8	98	140	3,50	96%	
Total Mean		3,35					Total Mean				3,49	96%		

The frequency table shows a relatively good level of responsiveness performance based on the number of respondents who chose the agreed score. However, the average score for responsiveness performance is 3.35, which is lower than the average score for importance, which is 3.49. This indicates that the performance provided by this ride hailing service is still low and does not yet meet customer expectations. Meanwhile, the average result of Tki for the responsiveness variable is 96%, with the lowest score at 94% for the indicator of responsiveness to customer complaints. If the Tki is less than 100%, the service is not yet satisfying and is in need of improvement.

4.5.4. Analysis of Assurances Variables

Table 6. Level of Assurances Conformity

		Assurances												
Item	Indicator	Performance (Perception)					Item	Importance (Expectations)				Mean	Tki	
		STS	TS	S	SS	Mean		STS	TS	S	SS			
		f	f	f	f			f	f	f	f			f
X16	The driver has the knowledge and skills necessary to perform the job.	4	12	130	104	3,34	X16	3	11	109	127	3,44	97%	
X17	The driver has a good understanding of the routes and addresses to be taken.	2	14	107	127	3,44	X17	4	10	106	130	3,45	100%	
X18	The driver is reliable and professional.	5	7	114	124	3,43	X18	5	5	78	162	3,59	96%	
X19	The driver places a high priority on passenger safety during the trip.	1	15	111	123	3,42	X19	5	7	72	166	3,60	95%	
X20	Service is provided 24 hours.	5	28	90	127	3,36	X20	4	14	108	124	3,41	98%	
Total Mean		3,40					Total Mean				3,50	97%		

The frequency table shows a relatively good level of assurance performance based on the number of respondents who chose the agreed score. However, the average value of the assurance

performance is 3.40, which is lower compared to the average importance value of 3.50. This indicates that the performance provided by this ride hailing service is still low but consumers are already satisfied with the driver's understanding with the percentage of Tki at 100%. If Tki is 100%, the service is already satisfying, but improvement is still needed on other indicators to improve the service quality of assurance variables.

4.5.5. Analysis of Empathy Variable

Table 7. Level of Empathy Conformity

		Empathy											
Item	Indicator	Performance (Perception)					Item	Importance (Expectations)				Mean	Tki
		STS	TS	S	SS	Mean		STS	TS	S	SS		
		f	f	f	f			f	f	f	f		
X21	The ride hailing service provides customer care services.	8	22	122	98	3,24	X21	6	11	101	132	3,44	94%
X22	The driver is able to communicate effectively with customers in order to provide high-quality service.	5	15	116	114	3,36	X22	4	5	121	120	3,43	98%
X23	Driver treats customers politely and courteously.	3	10	94	143	3,51	X23	4	7	70	169	3,62	97%
X24	The ride hailing service provides real-time affordable pricing in the application.	4	7	117	122	3,43	X24	6	8	72	164	3,58	96%
X25	The driver is always responsive to customer requests and complaints.	2	18	117	113	3,36	X25	5	8	100	137	3,48	97%
Total Mean		3,38					Total Mean				3,51	96%	

The frequency table shows a relatively good level of empathy performance based on the number of respondents who chose the agreed score. However, the average score for empathy performance is 3.38, which is lower than the average score for importance, which is 3.51. This indicates that this ride hailing service's performance is still low and has not met the customer's expectations. Meanwhile, the average result of Tki for the empathy variable is at 96%, with the lowest percentage at 94% for the indicator of the existence of customer care service. If Tki is less than 100%, the service is not yet satisfying.

4.5.6. Customer Satisfaction Analysis

Table 8. Level of Customer Satisfaction

		Customer Satisfaction											
Item	Indicator	Performance (Perception)					Item	Importance (Expectations)				Mean	Tki
		STS	TS	S	SS	Mean		STS	TS	S	SS		
		f	f	f	f			f	f	f	f		
X26	Satisfied with the speed of the driver's response to the order.	5	16	129	100	3,30	X26	4	6	106	134	3,48	95%
X27	Satisfied with the service.	5	13	99	133	3,44	X27	4	7	92	147	3,53	98%
X28	Satisfied with the ease of using the application.	5	14	100	131	3,43	X28	5	6	87	152	3,54	97%

Customer Satisfaction														
Item	Indicator	Performance (Perception)				Mean	Item	Importance (Expectations)				Mean	Tki	
		STS	TS	S	SS			STS	TS	S	SS			
		f	f	f	f			f	f	f	f			
X29	Willing to use the ride hailing service the next day.	5	17	100	128	3,40	X29	2	13	113	122	3,42	100%	
X30	Satisfied with its price.	4	13	126	107	3,34	X30	3	8	102	137	3,49	96%	
Total Mean						3,38	Total Mean						3,49	97%

The level of conformity indicates that customer satisfaction is at a percentage of 97%. If Tki is less than 100%, the service has not yet satisfied the customer, but they are still willing to use this ride hailing service the next day with a percentage of 100%.

4.6 Cartesian Diagram

After determining the average score of performance and importance, the scores will be plotted onto a Cartesian diagram as follows :

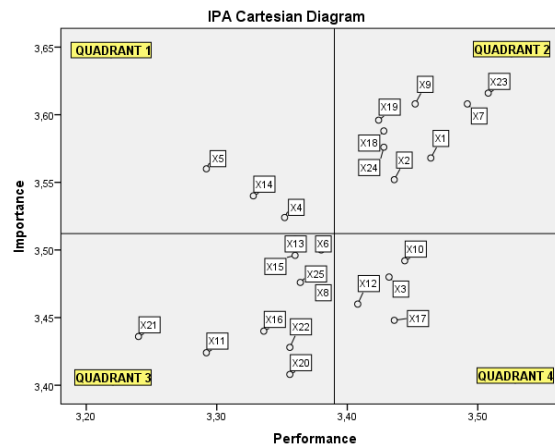


Figure 7. IPA Cartesian Diagram

- Quadrant 1 (Top Priority)**
 This quadrant is considered important to consumers, but the service provided is not satisfactory, especially the services that are present in items 4, 5, and 14 with the description of the payment application is comprehensive to customer needs, the driver's appearance is neat and clean, and the driver is responsive in handling customer complaints are not in accordance with consumer expectations. Therefore, in order to improve the quality of service, improvements must be made to these items.
- Quadrant 2 (Maintain Achievements)**
 This quadrant indicates that this ride hailing service provides satisfactory services, which require maintaining the quality of service. These attributes are present in items 1, 2, 7, 9, 18, 19, 23, and 24, such as vehicles provide comfort, the vehicle features compliance with the Police standards for vehicles, drivers are skilled in driving, driver compliance with traffic regulations during driving, driver reliability and professionalism towards consumers, prioritization of consumer safety and security, driver treats customers politely and courteously, and it provides real-time affordable pricing in the application.

c) **Quadrant 3 (Low Priority)**

The quadrant for this attribute is of low importance and receives little attention from customers. However, this attribute still needs improvement, especially in items 6, 8, 11, 13, 15, 16, 20, 21, 22, and 25, where customers are delivered to the exact drop-off point, the driver transport the customers on time, drivers confirm orders and locations by contacting customers, its app quickly connects customers and drivers, this ride hailing service provides solutions if problems arise when customers order, drivers have the knowledge and skills to perform their duties, it's service is available 24 hours, it provides customer care services, drivers communicate effectively with customers to provide quality service, and drivers always listen to customers' requests and complaints.

d) **Quadrant 4 (Excessive)**

This quadrant has low importance but the service is delivered well, causing customers to feel like the service is excessive. This attribute is present in items 3, 10, 12, and 17, with the following descriptions: the ride hailing service app offers convenience, drivers have a good understanding of the route, drivers arrive quickly after receiving orders through the app, and drivers have knowledge of the intended destination. Since the service for this attribute is delivered well, its quality needs to be maintained. However, it is necessary to redirect the focus towards other attributes that consider high-priority service, in order to achieve customer satisfaction.

5. Conclusion

Based on the results, it can be concluded that this ride hailing service quality still does not meet customers' expectations, thus the average service is quite good but still in need of improvement. Meanwhile, the average customer satisfaction level of the service quality is 97%, indicating that the service is not yet satisfying, but customers are satisfied with the driver's understanding of the route and are willing to use the services again in the future.

Important aspects of this ride hailing service performance that are deemed unsatisfactory from the customer's perspective are its incomplete payment application that does not fully meet the customer needs, drivers not looking neat and clean, and unresponsive in handling customer complaints. Therefore, to increase customer satisfaction, improvement related to those attributes is necessary.

6. Recommendation

Based on this research, it is recommended to include a digital payment feature in this ride hailing service application system to simplify the payment process, drivers are also expected to maintain a neat and clean appearance while driving and respond to customer complaints more promptly to improve customer satisfaction with the overall service. For future research aiming to develop or expand the same topic to this research, should incorporate brand image variables to examine their impact on customer overall satisfaction levels.

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