

## Effect of Service Quality and Use of E-Service Technology on Customer Loyalty: A Case Study of Maxim in Aceh

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### Abstract

*This study aims to analyze the effect of service quality and use of e-service technology on customer satisfaction and customer loyalty of Maxim online transportation in Aceh. The study used Purba formula to select 96 respondents of total Maxim customers. The sampling technique used two-stage sampling, which was to determine districts/cities purposively and the city of Banda Aceh was obtained because the maxim was only in this city in the Aceh province. Furthermore, random sampling was used to determine respondents in the city of Banda Aceh. Data were obtained through questionnaires and path analysis using IBM SPSS v22 software. Data were obtained through questionnaires and analyzed using path analysis with software SPSS v22. The results reveal that customer satisfaction significantly and positively influence customer loyalty. Further, there is a significant influence on the causal relationship of service quality and the use of e-service technology on loyalty through customer satisfaction. This indicates that to boost customer loyalty, it is important to pay attention to service quality that can improve customer satisfaction.*

### Keywords

service quality; use of e-service technology; customer satisfaction; customer loyalty



## I. Introduction

Transportation is one of the most important aspects in human activities. As today's world demands for higher mobility, the need to have a better transport system is increasing so that people can carry out their daily activities easier. The presence of innovative applications on Android- and/or IOS-based smartphones has brought changes in all areas, including in transportation (Putri, Wahab, & Shihab, 2018). Online transportation applications have become one of the most used mobile applications in Indonesia. Such online apps allow customers to make reservations for pick-up or delivery through their smartphones. This method is very convenient for customers because it is simple and straightforward. Nevertheless, due to the increasingly advanced development of information and technology, customers are also becoming more selective in choosing which online transportation services they want. As such, online transportation service providers are now competing for the attention of customers to subscribe to their services.

In Indonesia, there are currently several online transportation service providers that are rigorously offering their businesses, including Gojek, Grab, Maxim, Anterin, Asia Trans, Get Indonesia, and Oke Jack, among others. Maxim, as the online transportation service under study, belongs to a company from Russia that has been around in this business since 2003. The company's history began with a taxi application service in the Chardinsk city, located in the Ural Mountains, Russia. In 2014, the company expanded its business by opening branches

in several countries such as Ukraine, Kazakhstan, Georgia, Bulgaria, Tajikistan, Belarus, Azerbaijan, and Italy.

Currently, Maxim is the third largest taxi company in Russia. In Indonesia, Maxim began operating in 2018 and has since developed into an online transportation company that does not only focus on taxis, but also other modes of transportation services such as motorcycle taxis or cars. Maxim also offers cooperation for Indonesians who want to become Maxim's partners in managing the online transportation service business in their respective regions. Maxim's online transportation service has received various responses from the public. Maxim as a means of public transportation offers services with many advantages including low prices, easy access, and speed of mobilization on traffic-congested roads, especially during rush hour. Maxim is also considered a solution to meet the needs of public transportation services, especially in the areas where conventional transportation services, such as public transportation, is difficult to find (Maghfira & Hidayat, 2019).

Business competition encourages online transportation service providers to seek for customer satisfaction. Customer satisfaction is the level of a person's feelings after comparing the performance of the product he/she feels with his/her expectations (Kotler & Keller, 2016). High or increased satisfaction tends to have a direct impact on customer behavior and attitudes, including decreasing the level of complaints, increasing trust, and repetition of purchases. Services and actions of emotional closeness to a brand and rational preferences ultimately result in high customer loyalty. Competitiveness within the online transportation industry involves service quality of service and also electronic quality because it is very easy for customers to switch to competitors as there is almost no transfer of costs on the internet (Barutcu, 2010). Therefore, loyal customers and word of mouth are the main goals of companies in the online industry (Casaló, Flavián, & Guinalú, 2008). Customers feel that online transportation costs are fairer than public transportation rates such as conventional taxis. Services of online transportation with non-cash payment methods make customers feel safer and more practical (Budiartie, 2016). The quality of services provided by online transportation service providers is better than conventional public transportation. This kind of service quality is needed because satisfied customers are more likely to make repeat purchases (Murray & Howat, 2002). Service quality is considered a key factor in performance of profitability. Service quality not only attracts new customers from competing companies, but also encourages repurchase intentions (Venetis & Ghauri, 2004; Wantara, 2015).

Service quality will be an antecedent to customer satisfaction; the higher the quality of service, the higher the customer satisfaction. Service quality has a strong link with customer satisfaction, financial performance, production costs, customer retention, customer loyalty, and marketing success. Through service quality, organizations can achieve higher levels of customer satisfaction and can maintain a constant competitive advantage (Amoako, Dzugbenuku, & Doe, 2016). Customers who are satisfied with the quality of service received will become loyal customers (Izogo & Ogba, 2015), in which customer loyalty brings profitability for the company because they are less sensitive to price, and also maintaining customer loyalty requires a much lower cost than attracting new customers (Silva & Gonçalves, 2016). Customer attitudes to a brand, store, or supplier, based on their repeat purchases, is called customer loyalty (Tjiptono, 2012). Kotler & Keller (2016) define loyalty as a customer commitment to repurchase certain products or services in the future even if circumstances and marketing rivals make efforts to lure customers to switch to another company. Customer loyalty occurs in several phases, they are: cognitive loyalty, affective loyalty, conative loyalty, and action loyalty (Oliver, 2010). There are several factors that affect customer loyalty, which consist of product or service performance, company brand

image, price-value relationship, employee performance or achievement, competition, on-time product delivery systems, and relationship to customer satisfaction (Cravens & Piercy, 2013).

Customer satisfaction is defined as a sample taken by customers for a particular product or service, whether the product or service can meet their needs and expectations (Zeithaml, Bitner, & Gremler, 2009). Customer satisfaction is also referred to as the emotional reaction of customers after purchase in the form of reactions, dissatisfaction, annoyance, neutrality, joy, or pleasure. Hellier et al., (2003) define satisfaction as the happiness and contentment felt by consumers, which results from fulfilling the wants, expectations, and needs of consumers related to the services provided by the company. Bateson & Hoffman (2011) state that customer satisfaction is a comparison between customer expectations and perceptions of the services they encounter. Customer satisfaction is customers' psychological reactions with respect to previous experiences with a comparison between perceived and perceived performance (Chang, Wang, & Yang, 2009). Spais & Vasileiou (2006) mention satisfaction as feelings of pleasure and disappointment from customers by comparing what is felt to their expectations.

Customer satisfaction means the comparison between what consumers expect and what consumers feel when using the product. When consumers feel the product's performance equals or exceeds their expectations, it means they are satisfied. Conversely, if the product's performance is less than expectations, it means they are not satisfied. Satisfaction According to (Fikri et al., 2020) customer satisfaction is a measure of whether a product is good or bad in meeting customer expectations. Satisfaction becomes an expectation after a purchase and becomes the basis for fulfillment before reaching customer participation. (Fadhillah, A. et al. 2021).

The highly rapid progress in information technology requires business actors to understand and utilize technology in business activities so that they can increase competitiveness. The drastic increase in the number of internet users every year and the behavior of consumers who want fast information and transactions that can be carried out in 24 hours are believed to be the driving factors for the development of information technology-based businesses (Khristianto, 2011). The use of information technology also has an impact on whether or not such information technology can support and assist organizations in implementing and achieving organizational strategies as a whole. The approach used to investigate the ease of technology is called Technology Acceptance Model (TAM). TAM offers a strong and simple explanation for the acceptance of technology and the behavior of its users (Harun, 2017).

Information technology facilities are used by companies to support the competitive strategy carried out in business. These days the attention to consumer satisfaction and loyalty is getting bigger and competition is getting tougher, especially in the online transportation business where many manufacturers are involved in fulfilling consumer needs and desires. Now, every company puts customer satisfaction as its main goal. Customer satisfaction is the main key to winning the competition, by providing value through quality service and use of information technology. However, customers cannot be easily satisfied as they need e-service, which is generally referred to as the difference between expected service and perceived service. E-service can also be defined as the extent to which a website facilitates efficient and effective shopping, purchase, and delivery of products and services (Zeithaml et al., 2009). E-service quality also means the ability of a website to facilitate shopping, purchasing, and distribution activities effectively and efficiently (Chase, Jacobs, & Aquilano, 2006). E-service quality is an evaluation and overall consumer assessment of the superiority and quality of e-service offerings in virtual markets (Santos, 2003). E-service quality is a topic often researched in the marketing field because of its relationship with cost, satisfaction,

retention, and loyalty (Gounaris, Dimitriadis, & Stathakopoulos, 2010). To this end, appropriate and effective service quality is needed to increase customer satisfaction.

By understanding the relationship between service quality, use of e-service technology, customer satisfaction, and customer loyalty, researchers as well as management of online transportation companies can better understand how to establish customer loyalty to maximize company profitability. This issue motivates this study to analyze customer loyalty of Maxim online transportation service to explain the complexity of the phenomenon that occurs in Aceh Province, Indonesia. To reduce model analysis and run a biased model, it is necessary to specify setting objects; thus, the researchers chose customers in the city of Banda Aceh as the observation unit. The selection of Banda Aceh city was made in consideration that Maxim online transportation in Aceh Province is currently available only in Banda Aceh city, and also that there were limitations of the previous studies regarding customer loyalty of Maxim online transportation in Aceh.

## II. Review of Literature

### 2.1. Customer Loyalty

Loyalty is something that arises without coercion but arises by itself. According to Giffin quoted by Sangadji & Sopiah (2013:104) states that loyalty refers more to the behavior of decision-making units to make continuous purchases of goods or services from a selected company. With purchases made by customers continuously can provide long-term benefits for the company. Kotler & Keller (2016:153) define that consumer loyalty is a deeply held commitment to rebuy or repatronize a preferred product or service in the future despite situational influences and marketing efforts having the potential to cause switching behavior. Tjiptono (2014:393) suggests that customer loyalty is a customer's commitment to a brand, store, or supplier, based on a very positive attitude and is reflected in consistent repeat purchases.

Harun (2017) states that customer loyalty actually comes from brand loyalty which reflects customer loyalty to a particular brand. Customer loyalty can be formed if the customer is satisfied with the brand or the level of service received, and intends to continue the relationship. Griffin (2016) state that the measurement of customer loyalty uses 5 indicators as follows:

1. Say positive things about the site to others.
2. Recommend the site to others who ask for your advice.
3. Advise friends or other people to transact with the site
4. Consider the site as the main choice for purchasing products or services online.
5. Place an order/purchase of products/services on the website in the near future.

### 2.2. Service Quality

Tjiptono (2012), states that service quality is the level of excellence expected and the reliance on that level of excellence to meet customer desires. Service is a measure of how good the level of service provided is in accordance with consumer expectations. Based on this definition, service quality is determined by the company's ability to meet consumer needs and desires in accordance with consumer expectations.

Tjiptono (2012) said that quality or quality in the service industry is a presentation of products or services according to the applicable size at the place where the product is held and the delivery is at least the same as what consumers want and expect. According to Sunyoto (2013) service quality is centered on efforts to fulfill consumer needs and desires as well as the accuracy of its delivery to balance consumer expectations, namely the

compatibility between expectations and management perceptions, the compatibility between perceptions of consumer expectations and employee work standards, the existence of conformity between standards employee work with the services provided with the promised services and the compatibility between the services received and those expected by consumers.

Based on some of the definitions above, it can be concluded that service quality is a presentation of products or services that are in accordance with company standards and strived to deliver the same products and services as expected by customers.

The following are indicators of service quality according to Parasuraman & Grewal (2000) and Tjiptono (2012):

1. Reliability, this relates to the company's ability to provide accurate service from the first time without making any mistakes and delivering its services in accordance with the agreed time.
2. Responsiveness, this relates to the willingness and ability of employees to assist consumers and respond to their requests, and inform when services will be provided and then provide services quickly.
3. Empathy, stating that the company understands the problems of its customers and acts in the interests of consumers, and gives personal attention to consumers and has comfortable operating hours.
4. Tangible, with regard to the attractiveness of the physical facilities, complete equipment/equipment, and the materials used by the company are clean, as well as the appearance of the employees is neat

### **2.3. Use of E-Service Technology**

The use of e-service technology is all forms of technology applied to process and transmit information in electronic form. Meanwhile, the use of information technology is the benefit expected by users of information systems in carrying out their duties where the measurement is based on the intensity of utilization, the frequency of use and the number of applications or software used.

E-Services are one of the most important aspects that consumers consider when evaluating online services. E-Service is a leading application by utilizing the use of information and communication technology (ICT) in different areas, where technology has a role in facilitating the delivery of a service. E-Service is an online service available on the Internet, where valid transactions of buying and selling (procurement) are possible as opposed to traditional websites where only descriptive information is available and no online transactions are possible. A service provider is responsible for creating descriptions. computer-based services to customers over a network, Publishing the described services, to one or more service registrars, and accepting orders from one or more service requesters.

Harun (2017) states that information technology is all forms of technology applied to process and transmit information in electronic form. Meanwhile, the use of information technology is the benefit expected by users of information systems in carrying out their duties where the measurement is based on the intensity of utilization, the frequency of use and the number of applications or software used. The user factor is one of the most important aspects to consider in the application of a technology. Because of the level of user readiness to accept the technology has a major influence in determining the success of the application of the technology.

Sundaram, Ramkumar, & Shankar (2017) state that the use of e-service technology is a thorough assessment and evaluation by consumers of the advantages and qualities offered by e-services in the virtual market in online shopping, namely, the level of user-friendliness, reliability and security, assistance and responsiveness. the trust mechanism provided by the website.

Parasuraman, Zeithaml, & Malholtra (2005) state that the indicators of the use of e-service technology are:

1. Efficiency, the ability of customers to search for product-related information and the ease of accessing and leaving the website with minimal effort.
2. Fulfill, fulfill products and provide services requested by customers in a correct and timely manner.
3. System availability, the ability to perform the promised service accurately and reliably.
4. Privacy, the guarantee that customer data and transactions are safe and not leaked

#### 2.4. Customer Satisfaction

According to Irawan & Japarianto (2013) customer satisfaction is the result of the accumulation of consumers or customers in using products and services. Customers are satisfied if after buying the product and using the product, it turns out that the quality of the product is good. Therefore, every new transaction or experience will have an influence on customer satisfaction. Satisfied customers are customers who will share satisfaction with producers or service providers.

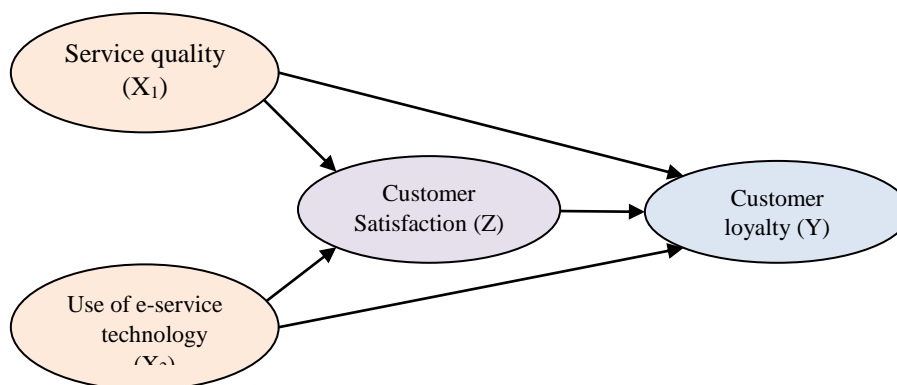
Worodiyanti & Maspiyah (2016) stated that customer satisfaction is an assessment or customer response to the performance of goods or services. Based on this definition, it can be concluded that customer satisfaction is the customer's response to the product, either goods or services that have been purchased by comparing product performance with customer expectations. Even satisfied customers will share their taste and experience with other customers. This will be a reference for the company in question.

Mardikawati & Farida (2013) argue that the indicators of customer satisfaction in transportation services are:

1. The suitability of the service as expected, in this case related to the customer's perception of whether or not the quality of the service he receives is in accordance with what the service provider promised to the customer's expectations.
2. The suitability of the service with the tariff paid, in this case related to the customer's perception of how they feel whether the service they receive is in accordance with the cost or rate they have paid to consume the service.
3. Customer satisfaction with the services offered, in this case relates to the perception of whether or not customers are satisfied with the services offered compared to other service providers.

#### 2.5. The Conceptual Framework

Based on the literature review and also previous research, a conceptual framework of this study can be arranged as presented in the following figure:



**Figure 1.** Conceptual framework

Source: Slack & Singh (2020), Harun (2017) and Akbar & Djatmiko (2016).

## 2.6. Research Hypothesis

Based on the literature review, previous research, and the above conceptual framework, the hypotheses in this study are as follows

- H<sub>1</sub> : Service quality affects costumer satisfaction of Maxim in Banda Aceh.
- H<sub>2</sub> : Used of e-service technology affect costumer satisfaction of Maxim in Banda Aceh.
- H<sub>3</sub> : Service quality affects costumer loyalty of Maxim in Banda Aceh.
- H<sub>4</sub> : Used of e-service technology affect costumer loyalty of Maxim in Banda Aceh.
- H<sub>5</sub> : Costumer satisfaction affects costumer loyalty of Maxim in Banda Aceh
- H<sub>6</sub> : Service quality affects costumer loyalty of Maxim in banda Aceh trought costumer satisfaction as mediating variable.
- H<sub>7</sub> : Used of e-services technology affects customer loyalty of Maxim in Banda Aceh through customer satisfaction as mediating variable.

## III. Research Methods

This is quantitative and associative research that analyzes the influence or relationship between the independent variable on the dependent variable, either simultaneously or partially. The study was conducted in December 2020 with the population were all unknown customers of Maxim online transportation in Aceh. The sampling technique used two-stage sampling, which was to determine districts/cities purposively and the city of Banda Aceh was obtained because the maxim was only in this city in the Aceh province. Furthermore, random sampling was used to determined respondents in the city of Banda Aceh. The study used Purba formula to determine the sample size, gaining 96 respondents through convenience sampling. To obtain the data, the study disseminated questionnaires to the respondents. The questionnaire items contained a Likert scale ranging in 1, 2, 3, 4, and 5 (Arikunto, 2013). The data were then analyzed using the descriptive analysis and regression path analysis through IBM SPSS version 22. In addition, the data were also tested for the classical assumption, including linearity, normality, and multicollinearity.

## IV. Results and Discussions

The respondents played a crucial role in this study. In the following table, the respondent profiles consisting of age, sex, marital status, education level, and monthly income are displayed.

**Table 1.** Respondent profile

No	Explanation	Sub-category	Frequency	Percentage
1.	Age	a. 20-25 years	18	19
		b. 26-35 years	34	35
		c. 36-45 years	33	34
		d. 46-50 years	0	0
		e. Over 51 years	12	12
2.	Sex	a. Famale	46	48
		b. Male	50	52
3.	Highest Education	a. Senior high school	21	22
			18	19
		b. Diploma	34	35
		c. Bachelor	23	24
		d. Postgraduate		

No	Explanation	Sub-category	Frequency	Percentage
4.	Monthly income	a. < Rp 1 million	33	34
		b. Rp 2 – 3 million	26	27
		c. Rp 4 – 5 million	36	37
		d. > Rp 6 million	2	2
<b>Total</b>			<b>96</b>	<b>100,0</b>

Source: Primary data (2021), processed

Table 1 informs that out of 96 respondents, 35 of them aged 26-35 years old, and 52 of them were males. Based on the respondents' highest education level, most (34 individuals) obtained a bachelor degree. Also, 37% of the respondents' income ranged between 4-5 million rupiahs per month.

#### 4.1. Validity and Reliability Tests

Data are considered valid if the questions in the questionnaire effectively represent something to be measured by the questionnaire or statistically if the corrected item to total correlation coefficient  $> 0.05$ . The validity test suggests that the service quality (X1), use of e-service technology (X2), customer satisfaction (Z), and customer loyalty (Y) variables were valid because  $r$  statistic  $> r$  table or  $> 0.361$ .

**Table 2.** Validity Test

No	Items	Variable instrument	Performance	$r$ -table (N=68)	Result
1	A1	Costumer	0.416	0.201	Valid
2	A2	loyalty	0.399	0.201	Valid
3	A3		0.474	0.201	Valid
4	B1	Costumer	0.326	0.201	Valid
5	B2	Satisfaction	0.488	0.201	Valid
6	B3		0.376	0.201	Valid
7	B4		0.294	0.201	Valid
8	B5		0.405	0.201	Valid
9	C1	Service Quality	0.784	0.201	Valid
10	C2		0.651	0.201	Valid
11	C3		0.770	0.201	Valid
12	C4		0.806	0.201	Valid
13	C5		0.694	0.201	Valid
14	D1	Use of e-	0.512	0.201	Valid
15	D2	service	0.464	0.201	Valid
16	D3	technology	0.551	0.201	Valid
17	D4		0.476	0.201	Valid

Source: Primary data (2021), processed

Table 2 shows that the instrument of customer loyalty variable had as many as 3 items declared valid because they met the criteria, in which  $r$ -count  $>$  was greater than  $r$ -table. Further, the instrument of customer satisfaction variable had 5 items declared valid, 5 items of service quality variable instruments were declared valid, and 4 items of use of e-service technology variable instruments were valid.

The reliability test aims to evaluate whether the questionnaire is consistent after repeated implementations. The acceptable reliability rate is  $\geq 0.60$ . The reliability test of this four research variables indicated that the service quality (X<sub>1</sub>), use of e-service technology



(X<sub>2</sub>), customer satisfaction (Z), and customer loyalty (Y) variables were reliable because the Cronbach's alpha values ( $\alpha$ ) were  $> 0.60$ .

**Table 3.** Reliability Test

N o	Variable	Item Variable	Cronbach's Alpha	Result
1	Costumer loyalty	5	0.619	Reliable
2	Costumer satisfaction	3	0.617	Reliable
3	Service quality	5	0.892	Reliable
4	Use of e-service technology	4	0.711	Reliable

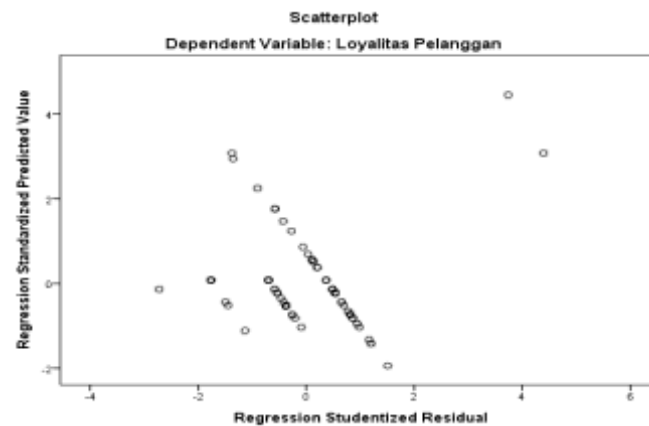
Source: Primary data (2021), processed

#### 4.2. Test of classical assumption

The test of classical assumption seeks to ensure that the data meet the criteria of Best Linear Unbiased Estimator (BLUE) and produce valid parameters. Accordingly, this study also runs the test of the classical assumption that consisted of the normality, multicollinearity, and heteroscedasticity tests.

#### 4.3. Normality test

Testing for normality in this study was carried out by analyzing normal probability graphs. The graph compares the cumulative distribution of the actual data to the normal distribution. If it shows that the distribution of errors (in the form of points) is still around the straight line, then this indicated that the model meets the assumption of normality, or the residue of the model can be said to be normally distributed (Santoso, 2009: 346).



**Figure 2.** Normality test

Source: Primary data (2021), processed

Figure 2 displays how many errors (in the form of points) still exist around the straight line. This signifies that the regression model fulfills the normality assumption, or the residue of the model can be normally distributed.

#### 4.4. Multicollinearity test

The multicollinearity test analyzes whether the independent variables are highly correlated with each other. The test evaluates the tolerance and Variance Inflation Factor (VIF) values. Serious multicollinearity exists when the tolerance value is below 0.10 and VIF value is above 10.

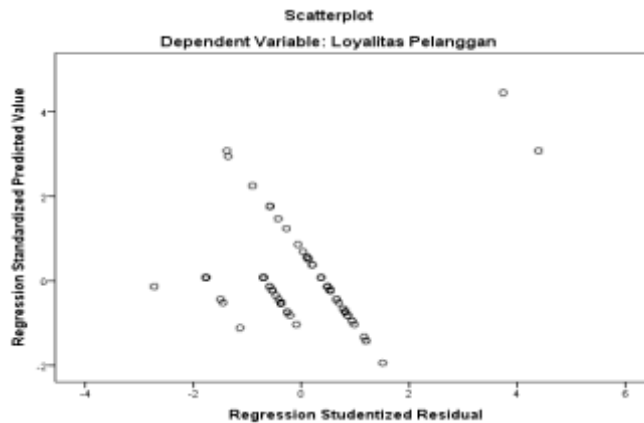
**Table 4.**Multicollinearity test

Model	Tolerance	VIF
Customer satisfaction	0.630	1.588
Service quality	0.772	1.295
Use of e-service technology	0.764	1.309

The results suggest the absence of serious multicollinearity between the independent variables due to the tolerance value was above 0.10 and VIF < 10.

#### 4.5. Heteroscedasticity test

Heteroscedasticity test analyzes whether the data violate the heteroscedasticity assumption, i.e., variance differences of residuals for all observations in the regression model. Detection of heteroscedasticity can be done by looking at certain patterns on the scatterplot graph. If a certain pattern emerges, such as the dots that form a certain regular pattern (wavy, widened, then narrowed), then heteroscedasticity is identified. If no clear pattern exists and the dots spread above and below the 0 on the Y axis, then heteroscedasticity does not occur.



**Figure 3.** Heteroscedasticity test

Source: Primary data (2021), processed

The above figure 3 shows that the scatterplot graph does not have a certain pattern, i.e., an ascending pattern to the upper right, or decreasing to the upper left, or other certain patterns. This indicates that the regression model is free of heteroscedasticity.

#### 4.6. Path analysis and Sobel test

Path analysis is a technique for estimating the impact of a series of independent variables on an independent variable from a series (correlation) that is observed, where it is suspected that there is an asymmetrical causal relationship between the variables. This model is usually used to explain the pattern of relationships between variables with the aim of knowing the indirect effect of a set of independent variables (exogenous) on the dependent variable (endogenous). This analysis usually involves intervening variables.

The intervening variable is a variable that affects the relationship between the independent variable and the dependent variable into an indirect relationship. The independent (exogenous) variables in this study are service quality and use of e-service technology, whereas the dependent variable (endogenous) is customer loyalty. In addition, the intervening variable to be tested for its mediation role is customer satisfaction. Therefore, in this study the path analysis of the first stage of regression was carried out to test the effect of service quality and the use of e-service technology on customer satisfaction. The second

stage of regression was to examine the effect of service quality and use of e-service technology on customer satisfaction. Furthermore, the third stage of regression aimed to examine the effect of customer satisfaction on customer loyalty. Then, the Sobel test was employed to examine the mediating role of customer satisfaction on the effect of service quality and the use of e-service technology on customer loyalty. Following are the results of the path analysis and Sobel test:

**Table 5.** Result of Path Analysis and Sobel Test

No	Model	Standardized coefficient	Performance	Sig
<b>Dirrect effect</b>				
1.	$X_1 \rightarrow Z$	0.431	0.431	0.000
2.	$X_2 \rightarrow Z$	0.441	0.441	0.000
3.	$X_1 \rightarrow Y$	0.259	0.259	0.006
4.	$X_2 \rightarrow Y$	0.397	0.397	0.000
5.	$Z \rightarrow Y$	0.373	0.373	0.000
Total of dirrect effect			1.901	0.006
<b>Indirrect effect</b>				
6.	$X_1 \rightarrow Z \rightarrow Y$	$0.431 \times 0.373$	0.161	0.000
7.	$X_2 \rightarrow Z \rightarrow Y$	$0.441 \times 0.373$	0.164	0.000
Total of indirrect effect			0.325	0.000
<b>Total effect</b>		$1.901 + 0.325$	2.226	0.000
<b>Sobel Test</b>		3.896	3.896	0.000
		3.231	3.231	0.000
<b>Z-Score <math>\alpha = 0,05</math></b>		1.96	1.96	0.000

Source: Primary data (2021), processed

Table 5 shows that the direct effect of service quality on customer satisfaction was 0.431 greater than the indirect effect of service quality on customer loyalty through customer satisfaction as a mediator with a value of 0.161. In terms of the Sobel test value, it was found that the t-statistic value of 3.896 was greater than the Z-score value of 1.96 ( $\alpha = 0.05$ ). This suggests that customer satisfaction can partially mediate the effect of service quality on customer loyalty. Further, table 5 also shows that the direct effect of the use of e-service technology on customer satisfaction was 0.430 greater than the indirect effect of the use of e-service technology on customer loyalty through customer satisfaction as a mediator with a value of 0.164. The calculation of the Sobel test value found that the t-statistic value of 3.231 was greater than the Z-score of 1.96 ( $\alpha = 0.05$ ). This means that satisfaction can partially mediate the effect of using e-service technology on customer satisfaction.

#### 4.7. Hypothesis testing

This study used a t-test to test the hypotheses partially, i.e., to investigate whether each independent variable (X) partially affects the dependent variable (Y), with the significance value of  $\alpha = 0.05$ . Following are the results of hypothesis testing:

**Table 6.** Hypothesis decisions

Hypothesized path	Standardized coefficients	t-statistic	t-table	Sig	Decision
<b>H<sub>1</sub></b> X <sub>1</sub> → Z	0.431	5.232	1.986	0.000	Supported
<b>H<sub>2</sub></b> X <sub>2</sub> → Z	0.441	5.352	1.986	0.000	Supported
<b>H<sub>3</sub></b> X <sub>1</sub> → Y	0.259	2.829	1.986	0.006	Supported
<b>H<sub>4</sub></b> X <sub>2</sub> → Y	0.397	4.334	1.986	0.000	Supported
<b>H<sub>5</sub></b> Z → Y	0.373	3.899	1.986	0.000	Supported
<b>H<sub>6</sub></b> X <sub>1</sub> → Y → Z	0.161	3,896	1.986	0.000	Supported
<b>H<sub>7</sub></b> X <sub>2</sub> → Y → Z	0.164	3,231	1.986	0.000	Supported

Source: Primary data (2021), processed

Table 6 indicates that the first hypothesis stating that service quality directly affects customer satisfaction of Maxim online transportation services in Banda Aceh was supported because the t-statistical value was greater than the t-table value ( $5.232 > 1.986$ ). This finding is in accordance with several previous studies (Izogo & Ogba, 2015; Putri et al., 2018). The second hypothesis stating that the use of e-service technology has a direct effect on customers was also supported because the t-statistical value was greater than the t-table value ( $5.352 > 1.986$ ). This finding conforms with several previous studies (Akbar & Djatmiko, 2016; Harun, 2017). The third hypothesis stating that service quality has a direct effect on customer loyalty was also supported because the t-statistical value was greater than the t-table value ( $2.829 > 1.986$ ), and this finding is in line with several studies (Izogo & Ogba, 2015; Wantara, 2015). The fourth hypothesis stating that the use of e-service technology has a direct effect on customer loyalty was supported because the t-statistical value was greater than the t-table value ( $4.334 > 1.986$ ), and this finding is in accordance with the previous studies (Akbar & Djatmiko, 2016). Further, the fifth hypothesis stating that customer satisfaction has a direct effect on customer loyalty was also supported because the t-statistical value was greater than the t-table value ( $3.899 > 1.986$ ) and this finding conforms with the previous studies (Akbar & Parvez, 2009). The sixth hypothesis stating that service quality affects customer loyalty through customer satisfaction was supported because the t-statistical value was greater than the t-table value ( $3.896 > 1.986$ ), and this finding corroborates some studies claiming that service quality has a positive impact on customer satisfaction, while customer satisfaction has a positive impact on customer loyalty (Jahanshahi, Gashti, Mirdamadi, 2011). In addition, the seventh hypothesis stating that the use of e-service technology affects customer loyalty through customer satisfaction was also supported because the t-statistical value was greater than the t-table value ( $3.231 > 1.986$ ), and this finding is in accordance with some previous studies (Akbar & Djatmiko, 2016; Harun, 2017).

#### IV. Conclusion

This study concludes that service quality, use of e-service technology, and customer satisfaction have a positive and significant effect on the customer loyalty of Maxim online transportation in Banda Aceh city. The findings reveal that service quality has a significant impact on customer satisfaction, and good service quality will increase customer satisfaction. Furthermore, the use of e-service technology has a significant impact on customer satisfaction, and the higher the use of e-service technology is, the higher customer satisfaction will be. In addition, service quality has a significant effect on customer loyalty; the higher service quality, the higher customer loyalty. Subsequently, the use of e-service technology has a significant influence on customer loyalty, in which the higher the use of e-service technology is, the higher customer loyalty will be. The findings also suggest that

customer satisfaction does not have a direct impact on customer loyalty. In this case, customer satisfaction can partially mediate the impact of service quality on customer loyalty, and it will have an impact on customer loyalty if customer satisfaction increases. Also, customer satisfaction can partially mediate the impact of the use of e-service technology on customer loyalty. As a result, the use of e-service technology will have an impact on customer loyalty if customer satisfaction increases.

This study, however, only observed 96 customers of Maxim in Banda Aceh city. Therefore, further research needs to use a more comprehensive sample size and sampling technique. In addition, further research should add other variables to determine customer loyalty through an in-depth and extensive research approach.

## References

- Akbar, A. A., & Djatmiko, T. (2016). Pengaruh E-Service Quality Terhadap E-Customer Satisfaction Dan E-Customer Loyalty Pada Lazada.co.id. *E-Proceeding of Management*, 3(1), 142–150.
- Akbar, M. M., & Parvez, N. (2009). Impact of Service Quality, Trust, and Customer Satisfaction on Customers Loyalty. *ABAC Journal*, 29(1). Retrieved from <http://www.assumptionjournal.au.edu/index.php/abacjournal/article/view/526>
- Amoako, G., Dzogbenuku, R. K., & Doe, J. K. (2016). How Service Experience Leads to Brand Loyalty: Perspective from the Telecom Sector in Ghana. Retrieved from <https://papers.ssrn.com/abstract=2900018>
- Arikunto, S. (2013). *Prosedur Penelitian: Suatu Pendekatan Praktik*. Jakarta: Rineka Cipta.
- Barutcu, S. (2010). E-Customer Satisfaction in the E-Tailing Industry: An Empirical Survey for Turkish E-Customers. *Ege Academic Review*, 10(1), 15–35. Retrieved from <https://ideas.repec.org/a/ege/journal/v10y2010i1p15-35.html>
- Bateson, J. E. G., & Hoffman, K. D. (2011). *Services Marketing*. Sydney: outh-Western Cengage Learnin.
- Budiartie, G. (2016). Tidak Sekadar Lebih Murah. *Tempo Magazine*, 90.
- Casaló, L. V., Flavián, C., & Guinalú, M. (2008). The role of satisfaction and website usability in developing customer loyalty and positive word-of-mouth in the e-banking services. *International Journal of Bank Marketing*, 26(6), 399–417. <https://doi.org/10.1108/02652320810902433>
- Chang, H. H., Wang, Y. H., & Yang, W. Y. (2009). The impact of e-service quality, customer satisfaction and loyalty on e-marketing: Moderating effect of perceived value. *Total Quality Management and Business Excellence*, 20(4), 423–443. <https://doi.org/10.1080/14783360902781923>
- Chase, R. B., Jacobs, F. R., & Aquilano, N. J. (2006). *Operations Management for Competitive Advantage* (11th ed.). New York: McGraw-Hill.
- Cravens, D. W., & Piercy, N. . (2013). *Strategic Marketing* (10th ed.). New York: McGraw-Hill.
- Fadhillah, A. et al. (2021). Analysis of Information Quality, Trust and Satisfaction on Customer Participation (Case Study on Customer Online Shop Shopee in Rantauprapat). *Budapest International Research and Critics Institute-Journal (BIRCI-Journal)*. P. 3039-3051.
- Gounaris, S., Dimitriadis, S., & Stathakopoulos, V. (2010). An examination of the effects of service quality and satisfaction on customers' behavioral intentions in e-shopping. *Journal of Services Marketing*, 24(2), 142–156. <https://doi.org/10.1108/08876041011031118>

- Griffin, J. (2016). *Customer Loyalty, Menumbuhkan dan Mempertahankan Kesetiaan Pelanggan*. Alih Bahasa Dwi Kartini Yahya. Jakarta: Erlangga.
- Harun, A. R. (2017). Pengaruh Kualitas Layanan Dan Pemanfaatan Teknologi Terhadap Kepuasan Dan Loyalitas Pelanggan Go-Jek. *Jurnal Ecodemica*, 1(2), 210–223. Retrieved from <https://ejournal.bsi.ac.id/ejurnal/index.php/ecodemica/article/view/2026>
- Hellier, P. K., Geursen, G. M., Carr, R. A., & Rickard, J. A. (2003). Customer repurchase intention. *European Journal of Marketing*, 37(11/12), 1762–1800. <https://doi.org/10.1108/03090560310495456>
- Irawan, D., & Japarianto, E. (2013). Analisis Pengaruh Kualitas Produk Terhadap Loyalitas Melalui Kepuasan Sebagai Variabel Intervening pada Pelanggan Restoran Por Kee Surabaya. *Jurnal Ilmu Pemasaran*, 1(2), 1–8.
- Izogo, E. E., & Ogba, I. E. (2015). Service quality, customer satisfaction and loyalty in automobile repair services sector. *International Journal of Quality and Reliability Management*, 32(3), 250–269. <https://doi.org/10.1108/IJQRM-05-2013-0075>
- Jahanshahi, Gashti, Mirdamadi, N. and K. (2011). Study of the Effects of Customer Service and Product Quality on Customer Satisfaction and Loyalty. *International Journal of Humanities and Social Science*, 1(7), 253–260.
- Khristianto, W. (2011). Pengaruh Kualitas Informasi, Kualitas Sistem dan Kualitas Layanan terhadap Kepuasan Pelanggan dan Loyalitas Pelanggan dalam Melakukan Online Shopping (Studi pada Pelanggan Online Shopping di Forum Jua. Universitas Brawijaya.
- Kotler, P., & Keller, K. L. (2016). *Marketing Management (15th ed.)*. Pearson Education Inc.
- Maghfira, Y., & Hidayat, K. (2019). Maxim, transportasi online asal Rusia yang mulai gencar ekspansi ke Indonesia. Retrieved March 1, 2021, from <https://industri.kontan.co.id/news/maxim-transportasi-online-asal-rusia-yang-mulai-gencar-ekspansi-ke-indonesia?page=all>
- Mardikawati, W., & Farida, N. (2013). Pengaruh Nilai Pelanggan dan Kualitas Layanan Terhadap Loyalitas Pelanggan, Melalui Kepuasan Pelanggan Pada Pelanggan BUS Efisiensi (Studi PO Efisiensi Jurusan Yogyakarta-Cilacap). *Jurnal Administrasi Bisnis*, 2(1), 64–75. <https://doi.org/10.14710/jab.v2i1.5355>
- Murray, D., & Howat, G. (2002). The Relationships among Service Quality , Value , Satisfaction , and Future Intentions of Customers at an Australian Sports and Leisure Centre. *Sport Management Review*, 5, 25–43.
- Oliver, R. L. (2010). *Satisfaction: A Behavioral Perspective on The Customer*. New York: McGraw Hill.
- Parasuraman, A., & Grewal, D. (2000). The impact of technology on the quality-value-loyalty chain: A research agenda. *Journal of the Academy of Marketing Science*, 28(1), 168–174. <https://doi.org/10.1177/0092070300281015>
- Parasuraman, A., Zeithaml, V. A., & Malholtra, A. (2005). E-S-QUAL A Multiple Item Scale for Assessing Electronic Service Quality. *Journal of Service Research*, 7(X), 1–21.
- Putri, Y. A., Wahab, Z., & Shihab, M. S. (2018). The effect of service quality and brand trust on loyalty and the intervening role of customer satisfaction in transportation service. *International Journal of Scientific and Research Publications (IJSRP)*, 8(7). <https://doi.org/10.29322/ijsrp.8.7.2018.p7959>
- Sangadji, E. M., & Sopiah. (2013). *Perilaku Konsumen*. Yogyakarta: Penerbit Andi.
- Santos, J. (2003). E-service quality: A model of virtual service quality dimensions. *Managing Service Quality: An International Journal*, 13(3), 233–246. <https://doi.org/10.1108/09604520310476490>

- Silva, G. M., & Gonçalves, H. M. (2016). Causal recipes for customer loyalty to travel agencies: Differences between online and offline customers. *Journal of Business Research*, 69(11), 5512–5518. <https://doi.org/10.1016/j.jbusres.2016.04.163>
- Slack, N. J., & Singh, G. (2020). The effect of service quality on customer satisfaction and loyalty and the mediating role of customer satisfaction : Supermarkets in Fiji. *TQM Journal*, 32(3), 543–558. <https://doi.org/10.1108/TQM-07-2019-0187>
- Spais, G. S., & Vasileiou, K. (2006). Path Modeling The Antecedent Factors To Consumer Repurchase Intentions For Advanced Technological Food Products: Some Correlations Between Selected Factor Variables. *Journal of Business Case Studies (JBACS)*, 2(2), 45–72. <https://doi.org/10.19030/jbcs.v2i2.4889>
- Sundaram, V., Ramkumar, D., & Shankar, P. (2017). Impact of E-Service Quality on Customer Satisfaction and Loyalty Empirical Study in India Online Business Marketing Department , Government Sector of India Government Arts College , Paramakudi Indira Colleges of Engineering & Management , Pune. *Kinerja*, 21(1), 48–69.
- Sunyoto, D. (2013). *Dasar-Dasar Manajemen Pemasaran*. Yogyakarta: CAPS.
- Tjiptono, F. (2012). *Service Management Mewujudkan Pelayanan Prima*. Yogyakarta: PT. Andi Offset.
- Tjiptono, F. (2014). *Pemasaran Jasa-Prinsip, Penerapan dan Penelitian*. Yogyakarta: Andi Offset.
- Venetis, K. A., & Ghauri, P. N. (2004). Service quality and customer retention: building long-term relationships. *European Journal of Marketing*, 38(11/12), 1577–1598. <https://doi.org/10.1108/03090560410560254>
- Wantara, P. (2015). The Relationships among Service Quality, Customer Satisfaction, and Customer Loyalty in Library Services. *International Journal of Economics and Financial Issues*, 5(5), 10–11. Retrieved from <http://www.econjournals.com>
- Worodiyanti, N. W., & Maspiyah. (2016). Pengaruh Kualitas Produk, Harga dan Kualitas Layanan Terhadap Kepuasan Konsumen di Elladerma Skin Care Malang. *E-Journal*, 05(01), 23–28.
- Zeithaml, V., Bitner, M. J., & Gremler, D. (2009). *ervices Marketing: Integrating Customer Focus Across the Firm*. New York: McGraw-Hill Irwin.