

## The Influence of Product Quality and Service Quality on Customer Loyalty to PT Indosat Ooredoo Products

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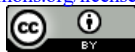
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### ABSTRACT

*The rapid development of technology in the digital era, especially in the telecommunications sector, has changed the way people communicate and access information. PT Indosat Ooredoo Hutchison, as one of the largest telecommunications service providers in Indonesia, continues to innovate in improving product and service quality to maintain customer loyalty. This study aims to analyze the influence of product quality and service quality on customer loyalty of PT Indosat Ooredoo partially and simultaneously. The research method used is associative quantitative, with data collection techniques in the form of interviews and questionnaires to active Indosat customers, as well as secondary data from official reports and publications. The results of the analysis show that product quality has a positive and significant effect on customer loyalty with a significance value of  $0.002 < 0.05$ . Similarly, service quality shows a positive and significant effect with a significance value of  $0.000 < 0.05$ . These two variables together contribute 65.2% to customer loyalty, while the remaining 34.8% is influenced by other variables outside this study. These findings indicate that improving network performance, product features, and responsive and friendly service are important factors in maintaining and increasing customer loyalty. Therefore, a strategy focused on strengthening product and service quality is a crucial step for PT Indosat Ooredoo in facing the increasingly competitive telecommunications industry.*

### INTRODUCTION

In this digital era, technology is growing rapidly, particularly in the telecommunications sector (Czarnecki & Dietze, 2017). The rapid development of telecommunications technology has brought about fundamental changes in the way people interact and convey information, even without having to meet in person (Alenoghena et al., 2023; Alenezi et al., 2023; Sutrisno, 2023). Today, the use of telecommunications media plays an increasingly significant role in facilitating social interaction and information exchange worldwide. Along with this development, the need for telecommunications media has become increasingly important and is considered a basic necessity in carrying out daily activities.

This not only influences communication methods but also expands the scope and accessibility of information, creating a profound social impact in various areas of life. One of the key players in the Indonesian telecommunications industry is PT Indosat Tbk, now known as PT Indosat

Ooredoo Hutchison. The company was originally established on November 10, 1967, as the first foreign investment company (PMA) in Indonesia, providing international telecommunications services via the Intelsat international satellite. Over the past five decades, PT Indosat has transformed significantly in line with market dynamics and the digital technology needs of the Indonesian people (Shifa et al., 2024).

PT Indosat Ooredoo Hutchison is currently the result of a merger between PT Indosat Tbk and Hutchison 3 Indonesia in early 2022. This merger strengthens the company's position as the second-largest telecommunications service provider in Indonesia, competing closely with other major operators such as Telkomsel and XL Axiata (Widiarma & Yulianto, 2023). Under the IM3 and Tri (3) service brands, the company provides prepaid and postpaid cellular services, and expands its services through Indosat HiFi, a fiber-optic internet service for homes and businesses.

Furthermore, Indosat also provides voice communication services for fixed lines, including international direct calls (IDD), as well as multimedia and data communication services to support the needs of modern society. The company continues to innovate in digital infrastructure development, including building a 5G network and expanding high-quality internet coverage to remote areas of Indonesia (Fowdur et al., 2022; Dahmir et al., 2024). PT Indosat Tbk has a defense strategy to increase customer loyalty through superior product and service quality to ensure its survival and customer trust.

Creating customer satisfaction can provide benefits, including a harmonious relationship between the company and its customers, repeat purchases, and the development of customer loyalty, which can benefit the company. Product quality is a crucial factor influencing consumer decisions when using a service. Alzoubi et al. (2022) and Dona et al. (2023) said that, dimensions of product quality include performance (function), features, reliability, conformance to specifications, serviceability, aesthetics, and perceived quality. High-quality products tend to meet consumer expectations and create a positive user experience.

Furthermore, service quality plays a significant role in fostering long-term relationships with customers (Marcos & Coelho, 2022). Service quality comprises five main dimensions: reliability, responsiveness, assurance, empathy, and tangibles. Good service will foster customer satisfaction and trust in the company. Customer loyalty is a form of customer commitment to continue using a company's products or services in the future (Susriyanti et al., 2023; Chohan et al., 2022). Dimensions of customer loyalty include repeat purchases, cross-purchase of products and services, and referrals.

According to Sujono et al. (2024), Competition in the Indonesian telecommunications industry involves several major operators competing on customer base and service quality. To analyze PT Indosat Ooredoo Hutchison's position in the market, the following data is presented regarding the market share of cellular operators. This data is expected to serve as a basis for formulating relevant strategies to increase Indosat's competitiveness in the telecommunications industry.

## METHODOLOGY AND PROCEDURES

This study uses an associative quantitative research method. Associative research is a type of research that aims to examine the relationship or influence between two or more variables. This research has a higher level of complexity compared to descriptive and comparative research, because through this research, theories can be developed that can be used to explain, predict, and control the phenomena being studied (Sugiyono 2017). In this study, data collection techniques are divided into two types: primary data and secondary data. Primary data was obtained through interviews and questionnaires. Interviews were conducted based on the opinion of Sugiyono (2017:137), who stated that interviews are used as a data collection

technique when researchers want to conduct a preliminary study to identify problems to be studied, as well as to dig deeper information from respondents, especially if the number of respondents is relatively small. Therefore, the author interviewed several customers who were part of the research sample to obtain information regarding product quality and service quality. In addition, questionnaire techniques were also used in primary data collection. According to Sugiyono (2017:142), a questionnaire is a data collection technique carried out by providing written questions or statements to respondents to be answered. In this case, the respondents were customers who actively use PT Indosat Tbk's services. Meanwhile, the secondary data in this study refers to Siregar (2013:16), who states that secondary data is data published or used by organizations other than the processors. The secondary data used included PT Indosat Tbk's annual reports and articles related to product quality and service quality. A population is a generalized domain consisting of objects/subjects with certain properties and characteristics determined by the researcher, who is then studied and conclusions are drawn from them (Sugiyono, 2014). The population in this study was all PT Indosat Tbk customers, whose number is unknown. The sampling technique used in this study was purposive sampling, which is a technique for determining samples based on certain considerations. According to Siregar (2016:138), a Likert scale can be used to measure a person's attitudes, opinions, and perceptions about a particular object or phenomenon. In this study, instrument testing was conducted to ensure the validity and reliability of the measuring instrument used. According to Sugiyono (2016:102), a research instrument is a tool for measuring social and natural phenomena. The instruments used in this study consist of validity tests and reliability tests. Validity tests, according to Siregar (2017:75), are tests that show the extent to which a measuring instrument is able to measure what it should measure. The technique used to test the validity of the instrument in this study is to correlate the score of each question or statement in the questionnaire with the total score, using the product moment correlation formula. An instrument is said to be valid if the product moment correlation coefficient exceeds 0.3, is greater than the  $r$ -table value ( $\alpha; n-2$ ) with  $n$  as the number of samples, and the significance value ( $\text{sig}$ ) is less than or equal to  $\alpha$ .

Next, a reliability test is conducted to determine the consistency of measurement results for the same symptoms when measurements are taken twice or more with the same measuring instrument. According to Siregar (2017:87), reliability is said to be good if the Cronbach's Alpha value is greater than 0.60. Reliability testing in this study was conducted using the SPSS program version 25 for Windows. After the instrument was tested, a classical assumption test was conducted consisting of a normality test, a linearity test, and a multicollinearity test. The normality test aims to determine whether the data population is normally distributed or not. According to Siregar (2017:153), the Kolmogorov-Smirnov method is used by comparing the cumulative frequency of the theoretical distribution with the empirical distribution. The steps include formulating a hypothesis ( $H_0$ : data is not normally distributed;  $H_a$ : data is normally distributed), determining the level of significance, and making a decision based on the calculated  $D$  and  $D_{\text{huruf}}$  values. If  $D_{\text{hitung}} < D_{\text{huruf}}$ , then  $H_0$  is accepted; conversely, if  $D_{\text{hitung}} > D_{\text{huruf}}$ , then  $H_0$  is rejected. The linearity test aims to determine whether there is a linear relationship between the independent variable ( $X$ ) and the dependent variable ( $Y$ ). According to Siregar (2017:178), the linearity test is a prerequisite for applying linear regression. The steps include formulating a hypothesis ( $H_0$ : non-linear relationship;  $H_a$ : linear relationship) and testing for significance. If  $F_{\text{count}} < F_{\text{table}}$ , then  $H_0$  is accepted; conversely, if  $F_{\text{count}} > F_{\text{table}}$ , then  $H_0$  is rejected. Next, a multicollinearity test is used to determine whether there is a correlation between the independent variables.

According to Ghazali (2018:107), a good regression model does not show any correlation between the independent variables, because if there is a correlation, the variables are not orthogonal. After the classical assumption test is performed, a multiple linear regression

analysis is performed. According to Siregar (2017:405), multiple linear regression is a development of simple linear regression, used to predict the effect of one or more independent variables on a single dependent variable. This method is used when there is more than one independent variable influencing the dependent variable. To measure the strength of the relationship between variables, the multiple correlation coefficient is used. According to Siregar (2017:337), the correlation coefficient indicates the strength and direction of the relationship between two or more variables. The level of this relationship is classified into five categories: very low (0.00–0.199), weak (0.20–0.399), moderate (0.40–0.599), strong (0.60–0.799), and very strong (0.80–1.000). The coefficient of determination ( $R^2$ ) is also calculated to determine the contribution of the independent variables to the dependent variable. According to Siregar (2017:338), the  $R^2$  value ranges from 0 to 1. The closer it is to 1, the better the model's ability to explain variation in the dependent variable. Simultaneous effects are tested using the F test. According to Siregar (2017:439), the F test is used to determine whether all independent variables jointly influence the dependent variable. The hypotheses used are:  $H_0$  = there is no significant effect between product quality and service on customer loyalty;  $H_a$  = there is a significant effect. Decision making is done based on the significance value, namely  $H_0$  is accepted if  $\text{sig} > 0.05$  and rejected if  $\text{sig} < 0.05$ . Finally, a partial test was conducted using a t-test. According to Sugiyono (2017:235), partial correlation is used to determine the effect of each independent variable on the dependent variable separately. This test is conducted with the

## RESULTS AND DISCUSSION

following hypotheses: (1) For the product quality variable:  $H_0$  = no significant effect on customer loyalty;  $H_a$  = there is a significant effect on customer loyalty; (2) For the service quality variable:  $H_0$  = no significant effect on customer loyalty;  $H_a$  = there is a significant effect on customer loyalty. Decisions are made based on the calculated t-value compared to the t-table and the significance level ( $\text{sig}$ ).  $H_0$  is accepted if  $\text{sig} > 0.05$  and rejected if  $\text{sig} < 0.05$ .

### Data Analysis

#### Validity Test

The results of the validity test for the questions in the Product Quality Variable (X1) questionnaire are shown in Table 1 below.

Table 1. Instrument Validity Test for the Product Quality Variable (X1)

Question	Result r		Information
	r count	r table (5%)	
X1.1	0,473	0,195	Valid
X1.2	0,398	0,195	Valid
X1.3	0,548	0,195	Valid
X1.4	0,360	0,195	Valid
X1.5	0,477	0,195	Valid
X1.6	0,409	0,195	Valid
X1.7	0,591	0,195	Valid
X1.8	0,548	0,195	Valid
X1.9	0,302	0,195	Valid
X1.10	0,226	0,195	Valid
X1.11	0,323	0,195	Valid
X1.12	0,211	0,195	Valid
X1.13	0,444	0,195	Valid
X1.14	0,539	0,195	Valid
X1.15	0,484	0,195	Valid
X1.16	0,545	0,195	Valid
X1.17	0,501	0,195	Valid

X1.18	0,564	0,195	Valid
X1.19	0,526	0,195	Valid
X1.20	0,480	0,195	Valid
X1.21	0,550	0,195	Valid

Data Source: Processed Data, 2025

Table 1 shows that, of the 21 questions posed to respondents, all questions in the Product Quality variable (X1) are valid, as the calculated r value is greater than the table r value. The results of the validity test for the questions in the Service Quality variable (X2) obtained from the questionnaire are shown in Table 2 as follows:

Table 2. Instrument Validity Test for the Service Quality Variable (X2)

Question	Result r		Information
	r count	r table (5%)	
X2.1	0,495	0,195	Valid
X2.2	0,509	0,195	Valid
X2.3	0,438	0,195	Valid
X2.4	0,373	0,195	Valid
X2.5	0,404	0,195	Valid
X2.6	0,522	0,195	Valid
X2.7	0,459	0,195	Valid
X2.8	0,291	0,195	Valid
X2.9	0,406	0,195	Valid
X2.10	0,237	0,195	Valid
X2.11	0,408	0,195	Valid
X2.12	0,430	0,195	Valid
X2.13	0,506	0,195	Valid
X2.14	0,487	0,195	Valid
X2.15	0,407	0,195	Valid

Data Source: Processed Data, 2025

Table 2 shows that, out of the 15 questions posed to respondents, all questions in the Service Quality variable (X2) are valid, as the calculated r value is greater than the table r value. The results of the questionnaire validity test for the Customer Loyalty variable (Y) are shown in Table 3 as follows:

Table 3. Instrument Validity Test for Customer Loyalty Variable (Y)

Question	Result r		Information
	r count	r table (5%)	
Y1	0,579	0,195	Valid
Y2	0,715	0,195	Valid
Y3	0,676	0,195	Valid
Y4	0,614	0,195	Valid
Y5	0,470	0,195	Valid
Y6	0,699	0,195	Valid

Data Source: Processed Data, 2025

Table 3 shows that, based on the six questions posed to respondents, all questions in the Customer Loyalty (Y) variable are valid, as the calculated r value is greater than the table r value.

### ***Reliability Test***

The results of the reliability test for the Product Quality (X1), Service Quality (X2), and Customer Loyalty (Y) variables are shown in Table 4 as follows:

Table 4. Reliability Test

Research Variables	Cronbach's Alpha	N of Item
Product Quality (X1)	0,791	21
Service Quality (X2)	0,662	15
Customer Loyalty (Y)	0,691	6

Data Source: Processed Data, 2025

Table 4 shows that the Cronbach's alpha value for the Product Quality (X1) variable is 0.791, Service Quality (X2) is 0.662, and Customer Loyalty (Y) is 0.691. Therefore, it can be concluded that the questionnaire is reliable because the Cronbach's alpha value is greater than 0.60.

### Classical Assumption Test

#### Normality Test

The results of the normality test can be seen in Table 5 as follows:

Table 5. Normality Test

	Unstandardized Residual
<b>N</b>	100
<b>Normal Parameters<sup>a, b</sup></b>	
Mean	0.0000000
Std. Deviation	1.40109157
<b>Most Extreme Differences</b>	
Absolute	0.051
Positive	0.051
Negative	-0.047
<b>Kolmogorov-Smirnov Z</b>	0.505
<b>Asymp. Sig. (2-tailed)</b>	0.960

Data Source: Processed Data, 2025

Table 5 shows that the normality test indicates an Asymp. Sig. (2-tailed) value of 0.960 > 0.05. Based on these results, the data used in this study are normally distributed.

#### Linearity Test

To see the results of the linearity test for the Product Quality (X1) and Customer Loyalty (Y) variables in this study, see Table 6 below:

Table 6. Linearity Test Results for Product Quality (X1) and Customer Loyalty (Y) Variables

Customer Loyalty* Product Quality	Sum of Squares	df	Mean Square	F	Sig.
<b>Between Groups</b>					
(Combined)	103.406	20	5.170	1.397	.149
Linearity	46.587	1	46.587	12.589	.001
Deviation from Linearity	56.819	19	2.990	0.808	.691
<b>Within Groups</b>	292.354	79	3.701		
<b>Total</b>	395.760	99			

Data Source: Processed Data, 2025

From Table 6 above, it can be concluded that there is a significant linear relationship between the variables Product Quality (X1) and Customer Loyalty (Y) because the Sig. Deviation From Linearity value is  $0.691 > 0.05$ . The results of the linearity test between the Service Quality (X2) and Customer Loyalty (Y) variables can be seen in Table 7 as follows:

Table 7. Linearity Test Results for Service Quality (X2) and Customer Loyalty (Y) Variables

<b>Customer Loyalty* Service Quality</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
<b>Between Groups</b>					
(Combined)	66.718	13	5.132	1.341	.206
Linearity	38.048	1	38.048	9.944	.002
Deviation from Linearity	28.670	12	2.389	0.624	.816
<b>Within Groups</b>	329.042	86	3.826		
<b>Total</b>	395.760	99			

Data Source: Processed Data, 2025

From Table 7 above, it can be concluded that there is a significant linear relationship between the variables Service Quality (X2) and Customer Loyalty (Y) because the Deviation From Linearity sig. value is  $0.816 > 0.05$ .

### **Multicollinearity Test**

The results of the multicollinearity test can be seen in Table 8 as follows:

Table 8. Multicollinearity Test Results

#### **Coefficients<sup>a</sup>**

<b>Model</b>	<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>			<b>Collinearity Statistics</b>	
	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>	<b>t</b>	<b>Sig.</b>	<b>Tolerance</b>	<b>VIF</b>
(Constant)	1.162	4.106		.283	.778		
Product Quality	.112	.036	.273	3.157	.002	.973	1.028
Service Quality	.235	.047	.427	4.944	.000	.973	1.028

Data Source: Processed Data, 2025

From Table 8 above, it can be concluded that there are no symptoms of multicollinearity in variable (Y) with respect to Product Quality (X1) and Service Quality (X2), as the Tolerance value is greater than 0.10 and the VIF value is less than 10.00.

### **Multiple Linear Regression Analysis**

The results of the multiple linear regression analysis can be seen in Table 9 as follows:

Table 9. Results of Multiple Linear Regression Analysis

#### **Coefficients<sup>a</sup>**

<b>Model</b>	<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>		
	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>	<b>t</b>	<b>Sig.</b>
(Constant)	1.162	4.106		.283	.778
Product Quality	.112	.036	.273	3.157	.002
Service Quality	.235	.047	.427	4.944	.000

a. Dependent Variable: Customer Loyalty

Data Source: Processed Data, 2025

Based on the results of the multiple linear regression analysis in Table 9 above, the multiple linear regression equation can be written as follows:

$$Y = 1,162 + 0,112 X1 + 0,235 X2$$

The value of  $a = 1.162$  means that if Product Quality (X1) and Service Quality (X2) are both zero (0), then Customer Loyalty (Y) is 1.162. Meanwhile, the multiple regression coefficient for the Product Quality (X1) variable is 0.112, meaning that if the Product Quality (X1) variable increases by one unit, then the Customer Loyalty (Y) value will increase by 0.112 units. The multiple regression coefficient for the Service Quality (X2) variable is 0.235, meaning that if the Service Quality variable increases by one unit, then the Customer Loyalty (Y) value will increase by 0.235 units.

### **Multiple Correlation Coefficient Analysis (R2)**

The results of the data processing for the Multiple Correlation Coefficient Analysis (R2) can be seen in Table 10 as follows:

Table 10. Results of the Correlation Coefficient Analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.652 <sup>a</sup>	.425	.413	1.41546

a. Predictors: (Constant), VAR00002, VAR00001

b. Dependent Variable: VAR00003

The data analysis results in Table 10 above show that the correlation coefficient between Product Quality (X1) and Service Quality (X2) on Customer Loyalty (Y) is 0.652, indicating a strong relationship, with a correlation value ranging from 0.60 to 0.799. This means that the relationship between Product Quality and Service Quality on Customer Loyalty for PT Indosat Ooredoo products is categorized as strong.

### **Coefficient of Determination Analysis (R<sup>2</sup>)**

Based on Table 10, the coefficient of determination, or  $R^2$ , is 0.652, or 65.2%. This means that Product Quality (X1) and Service Quality (X2) influence Customer Loyalty (Y) for PT Indosat Ooredoo products by 65.2%, with the remaining 34.8% influenced by other variables outside this study.

### **Simultaneous Test (F-Test)**

The results of the Simultaneous Test (F-Test) in this study can be seen in Table 1.20 below:

Table 11. Simultaneous Test Results (F-Test)

#### **ANOVA<sup>b</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	116.857	2	58.428	20.321	.000 <sup>a</sup>
Residual	278.903	97	2.875		
Total	395.760	99			

a. Predictors: (Constant), Kualitas Pelayanan, Kualitas Produk

b. Dependent Variable: Loyalitas Pelanggan

Based on Table 11, the significance value for the simultaneous influence of Product Quality (X1) and Service Quality (X2) on Customer Loyalty (Y) is  $0.000 < 0.05$ , thus concluding that the independent variables simultaneously influence the dependent variable.

### **Partial Test (t-Test)**

The results of the Partial Test (t-Test) data processing can be seen in Table 12 as follows:

Table 12: Partial Test Results (t-Test)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.162	4.106		.283	.778
Product Quality	.112	.036	.273	3.157	.002
Service Quality	.235	.047	.427	4.944	.000

a. Dependent Variable: Customer Loyalty

Data Source: Processed Data, 2025

Based on the Partial Test formula, the t-table value is Testing the first hypothesis, it is known that the significance value of the Product Quality variable (X1) on Customer Loyalty (Y) is  $0.002 < 0.05$ , so  $H_a$  is accepted and  $H_0$  is rejected, so it can be concluded that the Product Quality variable (X1) partially has a significant effect on Customer Loyalty (Y) on PT Indosat Ooredoo Products. Testing the second hypothesis, it is known that the significance value of the Service Quality variable (X2) on Customer Loyalty (Y) is  $0.000 < 0.05$ , so  $H_a$  is accepted and  $H_0$  is rejected, so it can be concluded that the Service Quality variable (X2) partially has a significant effect on Customer Loyalty (Y) on PT Indosat Ooredoo Products.

### CONCLUSION

Product quality has a positive and significant effect on customer loyalty. This means that the higher the quality of products offered by PT Indosat Ooredoo, such as network performance, reliability, conformity to specifications, and additional features, the higher the level of customer loyalty. Service quality also has a positive and significant effect on customer loyalty. This shows that responsive, honest, friendly, and satisfying service will make customers feel valued and choose to continue using Indosat services. Simultaneously, product quality and service quality together have a strong influence on customer loyalty. Based on the results of the coefficient of determination, it is known that these two variables contribute 65.2% to customer loyalty, while the remaining 34.8% is influenced by other variables not studied.

### SUGGESTION

The company needs to continuously improve the quality of its network and products, particularly in terms of internet speed and signal stability, to meet customer expectations. Furthermore, customers are expected to be more proactive in providing feedback and complaints directly to Indosat so that services and products can be continuously improved and tailored to their needs.

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