

# Rezky Ramadhani

## (2) THE INFLUENCE OF ARTIFICIAL INTELLIGENCE SERVICE QUALITY AND CUSTOMER TRUST ON CUSTOMER LOYALTY AT...

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# THE INFLUENCE OF ARTIFICIAL INTELLIGENCE SERVICE QUALITY AND CUSTOMER TRUST ON CUSTOMER LOYALTY AT BANK BRI UNIT LAROMPONG

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## ABSTRACT

*Study This aim For test influence quality service Artificial Intelligence technology and trust customers to loyalty customers at BRI Bank Larompong Unit . Loyalty customers is aspect important in maintain connection term long between banks and customers , while quality Artificial Intelligence services and trust customers considered as factors key influencing factors loyalty said.Design Study This use method Quantitative with approach analysis regression.in study This the sample used was 300 active customers in using Artificial Intelligence - based services .*

*Keywords : Quality Service , Trust Customers , Loyalty Customer*

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## INTRODUCTION

The banking sector is undergoing a major transformation in the ever-evolving digital era with the adoption of new technologies, such as Artificial Intelligence (Manta et al., 2025). Banks in Indonesia, including Bank BRI Larompong Unit, continue to adopt this technology to improve their operational efficiency and provide a better customer experience. Although AI-based services such as chatbots, virtual assistants, and personalized recommendation systems can increase customer satisfaction, their quality is not enough to make customers loyal (Arslan, 2022).

Consumer trust in the security and integrity of data managed by Artificial Intelligence is crucial. This trust creates a stronger relationship between banks and the individuals who use their services. Customer loyalty is key to the sustainability and growth of banks. If a bank's system is secure, customers are more likely to continue using it and even recommend it to others (Kim et al., 2024).

Banks must pay attention to the quality of their services to maintain and increase customer loyalty. Therefore, the influence of these two factors on employee performance at Bank BRI Palopo Branch is an important area to explore in order to optimize human resource management in achieving organizational goals (haedar et.al., 2024). Loyal customers tend to use banking services more often, have a tendency to maintain long-term relationships, and contribute significantly to bank revenue through continuous transactions (Hidayat & Idrus, 2023).

Therefore, to maintain and increase customer loyalty, banks need to pay attention to the quality of services provided, one of which is by utilizing technology. ("Challenges of Bank Service Digitalization by Artificial Intelligence." In addition to service quality, customer trust is also an important factor in determining their loyalty to a bank (Byambaa et al., 2025).

Clients must feel secure and satisfied with the bank's services, such as ease of access, transaction security, and fast and responsive service (Hapsari & Murini, 2022). With the increased use of Artificial Intelligence in the banking industry, the issue of customer trust has become increasingly important. This is because of the large amount of personal data processed by AI systems. Bank BRI Larompong Unit, a branch of Bank Rakyat Indonesia, strives to provide the best service to its customers by using various technologies, such as artificial intelligence (Nugroho, 2022).

The use of Artificial Intelligence is expected to improve customer service quality and provide a better experience, such as ease of transactions (Kiruthika et al., 2023), but further research is needed to determine the extent of AI's influence on customer loyalty and the relationship between customer trust in banks.

The quality of Artificial Intelligence services has a significant effect on customer loyalty, so Artificial Intelligence can increase customer loyalty. In addition, customer trust also has a significant

effect on customer loyalty, because high customer trust can increase customer loyalty. Seitansye & Guritno, 2023.

## **LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT**

### **AI Service Quality**

Service quality can be defined as customers' perceptions of service excellence resulting from the accumulation of customer satisfaction from various service experiences (Chen et al., 2025). Good and fulfilling service will make customers satisfied and loyal, so they will not buy competitors' products. Service quality is an important component of the profitability and success of service providers. It is the degree of difference between reality and customer expectations (Rane et al., 2023).

In the banking industry, service quality is very important, such as banks' efforts to meet customer needs and desires and the speed of coordination, which is a form of comparison between customer expectations and reality. Service quality is an important thing to pay attention to in the banking industry. Service quality is a very important item that must be considered in the banking world. Although service quality and customer satisfaction are abstract concepts, they can be measured to serve as a reference for improvement in determining the right strategy (Löffler, 2022).

In the banking industry, service quality is very important. This industry is highly dependent on customer trust and satisfaction, so every communication between the bank and its clients must be managed properly. Löffler (2022) states that although customer satisfaction and service quality are abstract concepts, both can be measured in certain ways. Factors such as service speed, accuracy of information, staff comfort, and process convenience are some of the ways that can be used to measure both. These measurements are very important for assessing service performance and determining the right improvement strategy to meet customer expectations on an ongoing basis.

### **Customer Trust**

Bank trust is essential for building long-term, mutually beneficial relationships. For example, bank trust in data security and customer privacy increasingly relies on AI (Setiansye & Guritno, 2023). Customer personal data is highly valuable and vulnerable to misuse in an increasingly connected digital world. Therefore, banks must be fully committed to keeping this personal data secure by using advanced technology and strict security protocols. In



addition, trust is strengthened by the bank's honesty and ability to fulfill customer promises and expectations.

According to Li & Quintos (2023), customer trust is also shaped by the customer's experience with the quality of service provided by the bank, whether through direct interaction with staff or through AI-based applications. If customers feel that they always receive appropriate, responsive, and adequate service, customer trust will increase. Customer trust is the customer's belief that the bank can protect and safeguard their money. A number of variables that shape this trust can affect the bank-customer relationship.

Direct customer experience shapes overall trust, according to Maulazid and Fatmawati (2023)—both through face-to-face service and when interacting with AI systems such as chatbots or mobile banking applications. Consistent, responsive, and accurate service will increase customer confidence that the bank is capable of providing the best service. Overall, consumer trust is the result of a combination of security, transparency, high-quality service, and positive customer experiences. According to Rismawati et al. (2023), integrated services that are able to provide information in a timely manner reflect good system quality and can increase user trust in the institution.. These factors work together to build stable and mutually beneficial long-term relationships for both parties.

### **Customer Loyalty**

Customer loyalty is a deep commitment by customers to regularly purchase or use a company's products or services. Positive customer attitudes, such as recommending products to others, and the customer's desire to continue using the service even though there are other options (Ardani et al., 2022). Customer loyalty is the long-term loyalty or commitment of customers to the bank, which is reflected in their behavior to continue using the goods or services offered by the bank even though they have other options.

Customer loyalty can also be seen as the level of customer engagement, such as repeating transactions, recommending others, and maintaining long-term relationships with the bank. Customer loyalty also reflects customers' commitment to using specific bank products and services even though the bank offers deals, there are offers from other banks. They found that customer loyalty is influenced by a combination of trust and customer satisfaction. Customer loyalty also describes the extent to which they are involved in establishing long-term relationships with the bank. This can be seen from the frequency of transactions, the duration of service use, and the tendency of customers to remain within the bank's service ecosystem.

Kim et al. (2024) emphasize that customer loyalty is not formed instantly, but is the result of a combination of various factors such as trust in the bank, service quality, and consistent satisfaction. Therefore, to build strong loyalty, banks need to pay attention to all aspects of the customer experience, from security and convenience to service personalization. Furthermore, customer loyalty can also create a positive chain effect for the bank's reputation and growth. Loyal customers tend to be effective brand ambassadors, providing credible word-of-mouth promotion and contributing to long-term revenue stability. Thus, loyalty enhancement strategies should be a key focus in customer relationship management in the modern banking industry.

**H<sub>1</sub> : The quality of Artificial Intelligence services has a positive effect on customer loyalty at Bank BRI Larompong Unit.**

The Effect of Artificial Intelligence Service Quality on Customer Loyalty

These results show that the better the quality of AI services provided by Bank BRI Larompong Unit, the higher the loyalty of its customers. The quality of AI services includes system response speed, information accuracy, ease of use, and convenience in digital transactions (Tresnawati et al., 2022).

**H<sub>2</sub> : Customer trust has a positive effect on customer loyalty at Bank BRI Larompong Unit.**

This statement is reinforced by (Kim et al., 2024), who states that trust is a key variable in establishing long-term relationships between companies and customers ( ). High trust will make customers more loyal, less likely to switch to other banks, and more likely to recommend the service to others. Therefore, H2 is accepted.

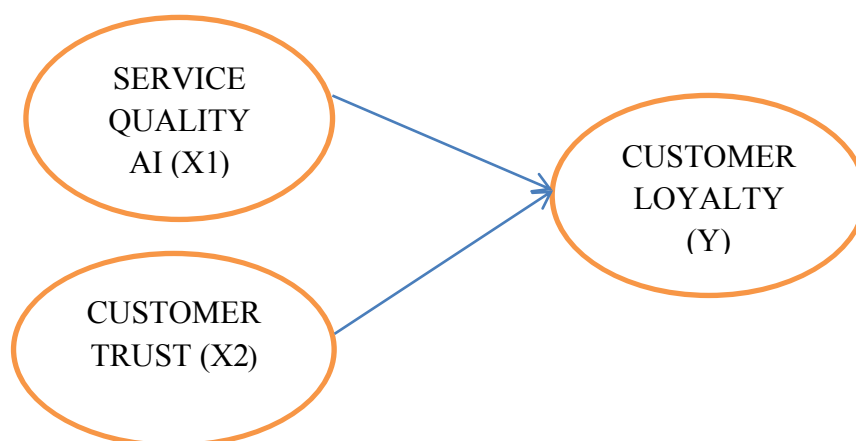


Figure 2.1 Conceptual Framework

## RESEARCH METHOD

### 3.1 Type of Research

One type of data used in this study is quantitative data. This method was chosen to collect data that can be measured and analyzed statistically. This method is used to evaluate the relationship between the variables studied, including the quality of artificial intelligence based services and customer loyalty. In this study, the researcher used the number of active customers who use AI-based services, such as mobile banking. In addition, the researcher utilized primary data sources in the study. Primary data sources include information collected directly from the research objects and processed by the researcher.

### 3.2 Research location and time

This research was conducted at the Larompong unit of BRI bank, Larompong District, located at Jl. Poros Komba, Luwu Regency, South Sulawesi Province. The research was conducted over a period of three months, which included planning, implementation, processing, and report writing.

### 3.3 Population and Sample

#### 3.3.1 Population

The population in this study consisted of customers who actively used AI-based services, such as mobile banking with other AI features, totaling 1,200 customers. 3.3.2 Sample. The sampling technique used the Slovin formula, involving 300 customers who actively use AI-based services such as mobile banking. The sample size was calculated using the Slovin formula as follows:

### 3.4 Data Collection Techniques

Information for this study will be obtained through a survey approach, utilizing a questionnaire distributed to customers who actively use Artificial Intelligence (AI)-based services, such as mobile banking. This approach is designed to collect primary data related to customer views on the quality of AI-based services, the level of bank credibility in the eyes of customers, and customer loyalty. The data collected will be tested quantitatively using statistical methods to identify correlations between variables (AI service quality, customer credibility, and customer loyalty). This study relies on primary data sourced directly from Bank BRI Larompong Unit customers who are the subjects of the study.

### 3.5 Research Instruments

### 3.5.1 Validity Test

The validity of the questionnaire will be assessed through a validity test. The questionnaire is considered valid if the questions presented are able to provide a clear understanding of the topic being measured. Furthermore, the correlation value is calculated statistically by observing the presence of an asterisk on the total score or by comparing it to the random correlation  $r$  value to confirm the viability of the correlation. For analysis purposes, SPSS (Statistics Package for Social Sciences) software will be used in conducting the validity test. To identify items that meet the validity criteria and those that do not, it is necessary to examine the product moment table. a. If the calculated  $r$  is greater than the table  $r$ , then the questionnaire item is valid. b. If the calculated  $r$  is less than the table  $r$ , then the questionnaire item can be declared invalid.

### 3.5.2 Reliability Test

Reliability is a survey evaluation method that functions as a variable indicator. If a person's responses to a questionnaire remain constant or stable over time, then they can be said to be reliable. The Cronbach Alpha coefficient formula of 0.60 is the approach used in this study to assess the validity of the questionnaire. Using the SPSS computer application, a questionnaire reliability test will be conducted to determine its dependence.

## 3.6 Data Analysis Techniques

Multiple Linear Regression is used to test the simultaneous influence of several independent variables (AI service quality and customer trust) on the dependent variable (customer loyalty) (Nanta et al., 2025). This test will show whether the two variables have a significant effect on customer loyalty. It is possible to find an expression for the multiple linear regression model using the following formula:

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + e$$

Note:

Y : Customer Loyalty

A : Constant

$\beta_1/\beta_2$  : Regression Coefficient

X1 : Artificial Intelligence Service Quality

X2 : Customer Trust

e : Standard Error

### 3.6.1 T-Statistic Test (Partial)

The T-statistic test is used to test the effect of each independent variable (in this case, AI Service Quality and Customer Trust) on the dependent variable (Customer Loyalty) partially, that is, to see how much each independent variable contributes to changes in the dependent variable. (Badrawani, 2025).

### 3.6.2 F-Statistic Test (simultaneous)

The F-statistic test determines whether each independent variable in the model has an overall impact on the dependent variable ( ). When testing at a significance level of 0.05, the statistical test is used to estimate the combined impact of all independent variables in the regression model on the dependent variable. (Da, 2025; Kushariyadi et al., 2025).

## RESULTS AND DISCUSSION

- 1. Validity Test** The validity test determines the strength of the relationship between each statement item and the total statement items for each variable, namely AI service quality (X1), customer trust (X2), and customer loyalty (y), as follows:

**Table 1. Validity Test Results**

| Variable                | Instrumen      | Calculated r | Table r | Description |
|-------------------------|----------------|--------------|---------|-------------|
| AI Service Quality (X1) | Statement X1.1 | 0.753        | 0.113   | Valid       |
|                         | Statement X1.2 | 0.813        | 0.113   | Valid       |
|                         | Statement X1.3 | 0.779        | 0.113   | Valid       |
|                         | Statement X1.4 | 0.783        | 0.113   | Valid       |
|                         | Statement X1.5 | 0.716        | 0.113   | Valid       |
| Customer Trust (X2)     | Statement X2.1 | 0.754        | 0.113   | Valid       |
|                         | Statement X2.2 | 0.797        | 0.113   | Valid       |
|                         | Statement X2.3 | 0.768        | 0.113   | Valid       |
|                         | Statement X2.4 | 0.749        | 0.113   | Valid       |
|                         | Statement X2.5 | 0.794        | 0.113   | Valid       |
| Customer Loyalty (Y)    | Statement Y1   | 0.720        | 0.113   | Valid       |
|                         | Statement Y2   | 0.731        | 0.113   | Valid       |
|                         | Statement Y3   | 0.778        | 0.113   | Valid       |
|                         | Statement Y4   | 0.774        | 0.113   | Valid       |
|                         | Statement Y5   | 0.768        | 0.113   | Valid       |

Source: Processed data 2025

Based on the analysis of the validity test results listed in the table above, it can be seen that the r table value is set at 0.113. It is considered valid if the calculated r value is greater than the r table, whereas if the calculated r is less than the r table, it is considered invalid. This validity test was conducted using SPSS and 300 respondents. Thus, the table r value for n=300 with a significance of 5% (0.05) was 0.113. Therefore, it can be concluded that the

items from the variables of Artificial Intelligence service quality, customer trust, and customer loyalty are considered valid.

## 2. Reliability Test

The reliability test is used to test data consistency over a certain period of time, including determining how reliable or trustworthy the measures used are. A variable is said to be reliable if it provides a coefficient value. According to Table 2 above, the reliability test results for each variable item show a value of more than 0.60, so all instrument items from each variable are declared reliable with a Cronbach Alpha greater than 0.60.

Table 2. Reliability Test Results

| Cronbach's Alpha | Reliability threshold | Description |
|------------------|-----------------------|-------------|
| 0.826            | 0.60                  | Reliable    |
| 0.831            | 0.60                  | Reliable    |
| 0.810            | 0.60                  | Reliable    |

Source: Processed data 2025

## 3. Multiple linear regression test

Table 3 Multiple Linear Regression Test Results

| Coefficients <sup>a</sup>               |                    |                             |            |                           |        |       |
|-----------------------------------------|--------------------|-----------------------------|------------|---------------------------|--------|-------|
| Model                                   |                    | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig.  |
|                                         |                    | B                           | Std. Error | Beta                      |        |       |
| 1.                                      | (Constant)         | 1.071                       | 0.282      |                           | 3.801  | 0.000 |
|                                         | AI Service Quality | 0.252                       | 0.051      | 0.253                     | 4.939  | 0.000 |
|                                         | Trust Customer     | 0.614                       | 0.051      | 0.621                     | 12.110 | 0.000 |
| a. Dependent Variable: Customer Loyalty |                    |                             |            |                           |        |       |

Source: Processed data 2025

The model estimation results can be presented in the table above as follows:

$$Y = 1.071 + 0.252X_1 + 0.614X_2$$

The interpretation of the model is as follows:

- a. The constant value (a), 1.071, means that when the Artificial Intelligence Service Quality and Customer Trust variables are zero, customer loyalty is at a level of 1.071.
- b. The variable coefficient (b1), 0.252, means that every one-unit increase in artificial intelligence service quality will increase customer loyalty by 0.252, assuming that the customer trust variable remains constant.
- c. The Customer Trust variable coefficient (b2) is 0.614, meaning that every one-unit increase in the Customer Trust variable, assuming other variables remain constant, will increase customer loyalty by 0.614 units.

#### 4. T-Statistic Test (Partial)

The following is an interpretation of the partial statistical test from multiple linear regression analysis showing the relationship between Customer Loyalty and two independent variables, namely AI Service Quality, and Customer Trust. The following is an explanation for each section of the table :

Table 4 T-Test Results

##### Coefficients<sup>(a)</sup>

| Model                                   |                    | Unstandardized Coefficients |            | Standardized Coefficients | t      | Sig.  |
|-----------------------------------------|--------------------|-----------------------------|------------|---------------------------|--------|-------|
|                                         |                    | B                           | Std. Error | Beta                      |        |       |
| 1.                                      | (Constant)         | 1.071                       | 0.282      |                           | 3.801  | 0.000 |
|                                         | AI Service Quality | 0.252                       | 0.051      | 0.253                     | 4.939  | 0.000 |
|                                         | Trust Customer     | 0.614                       | 0.051      | 0.621                     | 12.110 | 0.000 |
| a. Dependent Variable: Customer Loyalty |                    |                             |            |                           |        |       |

Data processed in 2025

Constant (1.071): Customer Loyalty value when all independent variables are zero. AI Service Quality (0.252): Each one-unit increase in AI Service Quality increases Customer Loyalty by 0.252 units. Customer Trust (0.614): Each one-unit increase in Customer Trust

increases Customer Loyalty by 0.614 units. Significance (Sig. 0.000): All variables tested have a significant effect on Customer Loyalty.

### 5. F-Statistic Test (simultaneous)

Based on the findings of the estimation model equation, the impact of independent variables on Customer Loyalty at BRI Larompong Unit can be seen. When trying to determine the actual impact of several factors at the same time, the F test is used.

Table 5 F-Statistic Test (simultaneous)

| ANOVA <sup>a</sup>                                            |                |     |             |         |                   |
|---------------------------------------------------------------|----------------|-----|-------------|---------|-------------------|
| Model                                                         | Sum of Squares | df  | Mean Square | F       | Sig.              |
| 1 Regression                                                  | 1398.234       | 2   | 699.117     | 337,232 | ,000 <sup>b</sup> |
| Residual                                                      | 615,712        | 296 | 2,073       |         |                   |
| Total                                                         | 2,013,947      | 298 |             |         |                   |
| a. Dependent Variable: Customer Loyalty                       |                |     |             |         |                   |
| b. Predictors: (Constant), Customer Trust, AI Service Quality |                |     |             |         |                   |

Data processed 2025

In Table 5, it can be seen that the F value obtained is 337.232. To determine the F table value in this study, it can be seen from the existing F table. The calculated F value is recorded at 337.232, while the F table value used in this study is around 3.03 and the calculated F is greater than the F table. This indicates that the loyalty characteristics of customers at Bank BRI are significantly influenced by the variables of Customer Trust and AI Service Quality.

## Discussion

### a. The Effect of Artificial Intelligence Service Quality on Customer Loyalty

These results indicate that the better the quality of AI services provided by Bank BRI Larompong Unit, the higher the customer loyalty. The quality of AI services includes system response speed, information accuracy, ease of use, and convenience in digital transactions (Tresnawati et al., 2022).

This finding is in line with the opinion that service quality is an important factor in building long-term relationships with customers (Ramadilla et al., 2025).



This study is also consistent with the results of studies that conclude that the quality of technology-based services, including AI, has a positive and significant effect on customer loyalty. Based on these results, H1 is accepted. (Choi et al., 2024)

b. The Effect of Customer Trust (X2) on Customer Loyalty (Y)

This statement is reinforced by (Kim et al., 2024), who states that trust is a key variable in establishing long-term relationships between companies and customers. High trust will make customers more loyal, less likely to switch to other banks, and more likely to recommend services to others. Therefore, H2 is accepted.

### Conclusion and Recommendations

Based on the results of the research conducted, it can be concluded that: The quality of artificial intelligence services contributes positively and substantially to customer loyalty. Customers who feel confident about security, trust the system, and consider the bank to have a high level of integrity are more likely to continue using the products and services offered. The combination of AI service quality and customer trust has a stronger impact on loyalty than if these factors were considered individually. This underlines the crucial importance of integrating technological advances with the formation of relationships based on trust.

Based on the conclusions presented above, here are some suggestions: 1) Bank BRI Larompong Unit is advised to continue improving the quality of its Artificial Intelligence (AI)-based services by ensuring the ease, speed, and security of the system in order to optimally meet customer expectations. 2) Increasing customer trust also needs to be a primary focus, for example through information transparency, improved data security, and responsive service, so that customer loyalty can be maintained and enhanced. 3) For researchers, it is recommended to add other relevant variables such as customer satisfaction, digital experience, or risk perception, as well as expand the research location to obtain more general and comprehensive results.

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