
**EFFECTIVENESS OF ELECTRONIC CUSTOMER RELATIONSHIP
MANAGEMENT, ELECTRONIC SERVICE QUALITY, AND TRUST ON
CUSTOMER LOYALTY AT PT BILAH BAJA MAKMUR ABADI**

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Abstract

This study aims to examine the effects of electronic customer relationship management (e-CRM), electronic service quality, and trust on customer loyalty at PT Bilah Baja Makmur Abadi. The research employs a quantitative approach using a survey method with 167 customers as respondents. Data was collected through questionnaires and analyzed using multiple regression analysis to test the hypotheses. The findings reveal that e-CRM, electronic service quality, and trust each significantly influence customer loyalty both individually and when considered together. Specifically, e-CRM had the highest contribution to customer loyalty, followed by trust and electronic service quality. The research also found that these three factors, when combined, explain over 50% of the variance in customer loyalty. The study contributes to existing theories by linking traditional customer relationship management to modern digital practices and highlights the critical role of trust and service quality in driving customer loyalty in the digital era. The research provides valuable insights for businesses aiming to enhance customer loyalty through digital platforms and offers recommendations for future studies to explore additional factors such as customer satisfaction and brand image.

Keywords: Electronic Customer Relationship Management (E-CRM), Electronic Service Quality, Trust, Customer Loyalty, Digital Platforms, Steel Distribution

INTRODUCTION

With the rapid advancement of technology, the business world now has numerous opportunities to increase the economy by selling goods or services through electronic platforms. However, every opportunity also comes with challenges that may pose threats to business actors. To face these challenges, business owners need to develop well-thought-out plans focused on enhancing customer satisfaction (Ruiz-Alba et al., 2021). As customer satisfaction increases, customer loyalty can be established, leading to long-term relationships with the company. This is crucial because customer loyalty is the key to a company's success. A company that can maintain customer loyalty will remain resilient and continue to grow, even in the face of intense competition. Customer loyalty is reflected in customer behavior, which tends to make repeat purchases because they trust, believe, and are loyal to the company and its products (Saad et al., 2022).

One approach that can be implemented to enhance customer loyalty is electronic customer relationship management (e-CRM). In the digital era, customer relationship management is carried out using information and communication technology, such as websites, emails, and social media, to establish more effective communication with customers. (Adnan et al., 2021) state that e-CRM facilitates companies in providing faster and easier services to customers, increasing the company's credibility, and offering more transparent and accessible information. In addition, the quality of electronic services, which encompasses the entire experience customers have when interacting with a company's website or platform, plays an essential role. Good service quality can enhance customer satisfaction and create perceived value for the customer (Uzir et al., 2020).

Moreover, trust is another key factor in building relationships between companies and customers. Trust involves the confidence customers have in the security of transactions, product quality, and the transparency of the information provided by the company. (Chowdhury et al., 2024) explain that trust is fundamental in fostering customer loyalty, but achieving trust is not easy. Companies must assure customers that their products and services are of high quality and reliable.

PT Bilah Baja Makmur Abadi, a steel distributor company located in Medan, recognizes the importance of utilizing electronic technology to enhance customer loyalty. However, despite its efforts to optimize the company website as a means to build relationships with customers, data shows a decline in the number of customers making purchases through the company's website from 2019 to 2024. Based on surveys conducted within the company, several issues have been identified, including a lack of accuracy and relevance in the information presented on the website, limited ease of navigation, and inadequate response times to customer complaints. Furthermore, the absence of interactive features such as live chat and the lack of social media presence have hindered the improvement of service quality and customer trust.

This research aims to evaluate the effectiveness of electronic customer relationship management, electronic service quality, and trust in enhancing customer loyalty at PT Bilah Baja Makmur Abadi. This study is expected to provide solutions to address the existing issues and offer recommendations for the company to improve performance and customer satisfaction through appropriate strategies.

REVIEW OF LITERATURE

Customer Loyalty

Customer loyalty is the consistent preference and repeat purchase behavior of customers towards a particular brand or company. (Dimitrieska, 2024) define customer loyalty as a positive attitude towards a product or service, measured by repeat purchases over time. (Vilkaitė-Vaitonė & Skačkauskienė, 2020) describe it as the commitment to continually use a product, recommend it to others, and make repeated purchases because of its value. Loyal customers are fundamental to a business's growth and sustainability.

Types of Customer Loyalty

(So et al., 2024) identify four types of loyalty: true loyalty, latent loyalty, false loyalty, and no loyalty. True loyalty is when customers exhibit consistent repeat purchases and a positive attitude, while latent loyalty shows a positive attitude without frequent repeat purchases. False loyalty occurs when high repeat purchases are not accompanied by customer satisfaction, and no loyalty is marked by low repeat purchases and weak customer attitudes.

Electronic Customer Relationship Management (e-CRM)

e-CRM refers to the use of digital platforms to manage and enhance customer relationships. According to (Dehghanpouri et al., 2020), e-CRM involves web-based tools that help businesses improve service quality, customer trust, and interaction, ultimately fostering long-term customer relationships. (Herman et al., 2020) define e-CRM as an adaptation of traditional CRM strategies in the digital space, using integrated applications for sales, promotions, and customer service.

Quality of Electronic Services

Electronic service quality encompasses the efficiency and effectiveness of online interactions, from browsing products to post-purchase support. (Raza et al., 2020) define it as the overall quality of service provided to customers through electronic channels, ensuring a seamless and satisfying experience. This includes accurate product information, easy navigation, and responsive customer support.

RESEARCH METHOD

Research Location and Time

The research was conducted at PT Bilah Baja Makmur Abadi, located at Jalan Cakrawati No.5 (Simpang Jl. Kol. Sugiono or Wazir, A U R, Kec. Medan Maimun, Kota Medan, Sumatera Utara). The research period spanned from February 2025 to April 2025.

Types and Sources of Data

The data used in this study is quantitative, as described by (Asryan, 2024), which involves data presented in numerical form that requires mathematical and statistical analysis for further interpretation. The sources of data for this study are primary and secondary data. Primary data is collected directly from the subjects of the research, such as the customers of PT Bilah Baja Makmur Abadi, while secondary data is obtained from existing records or prior studies.

Population and Sample

The population of this study is 285 customers who made purchases at PT Bilah Baja Makmur Abadi in 2024. A sample of 167 customers was selected using the Slovin formula,

with a 5% margin of error, using random sampling to ensure that each customer had an equal chance of being selected, as described by (Majdina et al., 2024).

Operational Definition of Variables

In this research, the operational definitions of variables are divided into dependent and independent variables. The independent variables include Electronic Customer Relationship Management (e-CRM), Electronic Service Quality, and Trust, while the dependent variable is Customer Loyalty. Each variable is measured using specific indicators, such as Information Quality, Navigation Ease, and Customer Service Efficiency for e-CRM, Efficiency, Reliability, Fulfillment, Privacy, and Responsiveness for Electronic Service Quality, and Integrity, Competence, Consistency, and Openness for Trust. Customer Loyalty is measured through Repeat Purchases, Retention, and Referrals. These indicators are measured using a Likert scale, as referenced in the literature by (Adnan et al., 2021), (Magatef et al., 2023), and (Younis et al., 2024). The following table summarizes the operational definitions of the variables:

Table 1.
Operational Definition of Variables

Variable	Definition	Indicators	Scale
Electronic Customer Relationship Management (X1)	e-CRM refers to web-based services designed to enhance customer satisfaction and trust through improved interactions.	1. Information Quality 2. Navigation Ease 3. Customer Service Efficiency	Likert
Electronic Service Quality (X2)	Measures the company's ability to provide effective and efficient electronic services using ICT.	1. Efficiency 2. Reliability 3. Fulfillment 4. Privacy 5. Responsiveness	Likert
Trust (X3)	Customer trust includes belief that the organization will meet its promises and provide the expected product or service.	1. Integrity 2. Competence 3. Consistency 4. Openness	Likert
Customer Loyalty (Y)	Customer loyalty is a positive attitude towards a product or service, measured by repeat purchase behavior.	1. Repeat Purchases 2. Retention 3. Referral	Likert

Data Collection Techniques

Data collection in this study utilized several techniques. A questionnaire was distributed to gather responses directly from the customers regarding the variables being studied. Additionally, documentary studies were used to collect written records or images, and a literature study was conducted to review relevant books and articles. These methods were aimed at ensuring the validity and reliability of the data, as described by (Ahmed & Ishtiaq, 2021).

Data Analysis Techniques

For data analysis, several techniques were used. First, a validity test was conducted to ensure that the measurement instruments accurately measure what they are intended to. This was done by comparing the calculated Pearson correlation coefficient (r) with the critical value (r -table). If the calculated r is greater than the r -table value, the item is considered valid. Then, a reliability test was conducted using Cronbach's Alpha, with a value greater than 0.70 indicating reliable items. Descriptive statistics were employed to describe the characteristics of the sample. Classical assumption tests, such as normality, multicollinearity, and heteroskedasticity tests, were conducted before performing regression analysis. Finally, a multiple regression model was used to examine the relationship between the independent variables (e-CRM, Electronic Service Quality, and Trust) and the dependent variable (Customer Loyalty), using adjusted R^2 to assess the explanatory power of the model. Hypothesis testing was conducted using both t -tests (for individual coefficients) and F -tests (for overall model significance), as outlined by (Karim et al., 2023).

RESULTS AND DISCUSSION

Respondent Characteristics

The characteristics of the respondents are crucial for understanding the context of the research. The study was conducted on 167 customers of PT Bilah Baja Makmur Abadi. The respondents were categorized by occupation, monthly income, and length of time as customers.

Table 2.
Respondent Characteristics Based on Occupation

No.	Occupation	Respondent Responses	Percentage
1	Entrepreneur	90	53.89%
2	Private Sector Employee	23	13.77%
3	Others (Freelancer, Homemaker, etc.)	54	32.34%
Total		167	100%

As shown in Table 2, the majority of respondents were entrepreneurs (53.89%), followed by employees in the private sector (13.77%), and others (32.34%) who included various occupations such as freelancers and homemakers.

Table 3.
Respondent Characteristics Based on Monthly Income

No.	Monthly Income	Respondent Responses	Percentage
1	< IDR 10 million	40	23.95%
2	IDR 10-15 million	51	30.54%
3	> IDR 15 million	76	45.51%
Total		167	100%

In terms of monthly income, as presented in Table 3, 45.51% of respondents had a monthly income of over IDR 15 million, 30.54% earned between IDR 10 to 15 million, and 23.95% earned below IDR 10 million. The majority had a higher monthly income.

Table 4.
Respondent Characteristics Based on Length of Time as a Customer

No.	Length of Time as a Customer	Respondent Responses	Percentage
1	< 1 year	37	22.16%
2	1-3 years	74	44.31%
3	> 3 years	56	33.53%
Total		167	100%

As shown in Table 4, the majority of respondents (44.31%) had been customers for 1 to 3 years, followed by those who had been customers for more than 3 years (33.53%), and 22.16% had been customers for less than a year.

Validity and Reliability Tests

Validity tests were conducted to ensure that the questionnaire items were appropriate for the research. All items were validated as their correlation values (r) were higher than the critical value (r-table), indicating that the instruments were valid for measuring the intended variables. Reliability tests, measured using Cronbach's Alpha, were also conducted. The results showed that all variables (e-CRM, electronic service quality, trust, and customer loyalty) had Cronbach's Alpha values greater than 0.70, confirming that the instruments were reliable.

Normality Test

Normality testing showed that the data followed a normal distribution based on both graphical analysis (histogram and normality probability plot) and the Kolmogorov-Smirnov test, where the significance value was greater than 0.05.

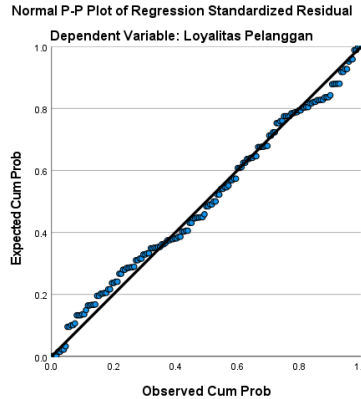


Figure 1.
Normality Test Results (Normality Probability Plot Graph)

Multicollinearity Test

Multicollinearity testing showed no issues, as the tolerance values for e-CRM, electronic service quality, and trust were above 0.10, and the VIF values were below 10, indicating no multicollinearity. The results are presented in Table 5.

Table 5.
Results of Multicollinearity Test

Variable	Tolerance	VIF
Electronic Customer Relationship Management (e-CRM)	0.707	1.414
Electronic Service Quality	0.360	2.780
Trust	0.398	2.514

T-Test (Partial Test)

The t-test results showed that all three independent variables (e-CRM, electronic service quality, and trust) had a significant positive effect on customer loyalty, with their respective p-values being less than 0.05. Hence, all hypotheses (H1, H2, H3) were accepted, indicating that e-CRM, electronic service quality, and trust significantly influence customer loyalty at PT Bilah Baja Makmur Abadi. The t-test results are shown in Table 6.

Table 6.
Results of t-Test (Partial Test)

Relationship X to Y	t	Sig.
e-CRM - Customer Loyalty	4.343	0.000
Electronic Service Quality - Customer Loyalty	3.367	0.001
Trust - Customer Loyalty	3.414	0.001

F-Test (Simultaneous Test)

The F-test showed that the combination of e-CRM, electronic service quality, and trust significantly affected customer loyalty. The F-value was 63.812, which is greater than the critical value of 2.66, with a p-value of 0.000, which is less than 0.05, indicating that H4 was accepted. This means that all three independent variables together have a significant influence on customer loyalty, as shown in Table 7.

Table 7.
Results of F-Test (Simultaneous Test)

Relationship X1 and X2 to Y	F	Sig.
e-CRM, Electronic Service Quality, and Trust - Customer Loyalty	63.812	0.000

Coefficient of Determination Test

The adjusted R² value of 0.532 indicates that 53.2% of the variation in customer loyalty can be explained by the independent variables (e-CRM, electronic service quality, and trust). The remaining 46.8% is explained by other factors not included in the study.

Contribution of Variables to Customer Loyalty

The contribution of e-CRM, electronic service quality, and trust to customer loyalty was calculated. Electronic service quality contributed the most (19.9%), followed by trust (18.5%) and e-CRM (15.5%). The detailed calculations for the contribution of each variable are shown in Table 7.

Table 7.
Beta Coefficients and Correlation Coefficients

Variable	Standardized Coefficients Beta	Correlation Coefficients
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e-CRM	0.274319	0.566837
Electronic Service Quality	0.298207	0.667971
Trust	0.287548	0.644858

CONCLUSION

The findings of this study reveal that all three independent variables—electronic customer relationship management (e-CRM), electronic service quality, and trust—significantly influence customer loyalty at PT Bilah Baja Makmur Abadi. Each variable, when analyzed separately, has a positive impact on customer loyalty. Among them, e-CRM had the highest contribution, followed by trust and electronic service quality. Moreover, when considered together, these three factors also significantly affect customer loyalty, demonstrating the importance of integrating these elements to foster long-term customer commitment.

This study contributes to existing theoretical frameworks by incorporating modern digital platforms into traditional customer relationship management theories, emphasizing the role of trust and service quality in enhancing loyalty in the digital era. The results suggest that businesses focusing on e-CRM, trust-building, and service quality will be better positioned to strengthen customer loyalty and maintain a competitive edge in the market. The research also opens up new avenues for future studies. Additional variables, such as customer satisfaction and brand image, could be explored to further enrich the understanding of factors affecting customer loyalty. Furthermore, extending the geographical scope of the research to include other similar businesses in the steel distribution sector could provide broader insights into the industry's dynamics and help generalize the findings to a wider audience.

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